
























# ROSETTA INDEX — PLATE 1 OF [N]

THIS CAPSULE WAS MADE FOR YOU · EVERYTHING INSIDE IS YOURS · NO PERMISSION NEEDED


## SECTION 1 — NUMBERS AND COUNTING


 = 0	SHELL	 = 1	DOT	 = 5	BAR
--	-------	--	-----	---	-----


combine symbols to make any number · dots above bars · ones at bottom · twenties above

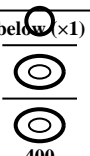
0 	1 	2 	3 	4 	5 	6 	7 	8 	9 
10 	11 	12 	13 	14 	15 	16 	17 	18 	19 



20 = NEW LEVEL · 20 on top (x20) + shell below (x1)

  
20  
1x20 + 0

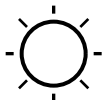





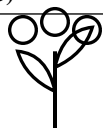





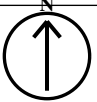

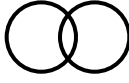

  
100  
5x20 + 0

  
365  
solar year

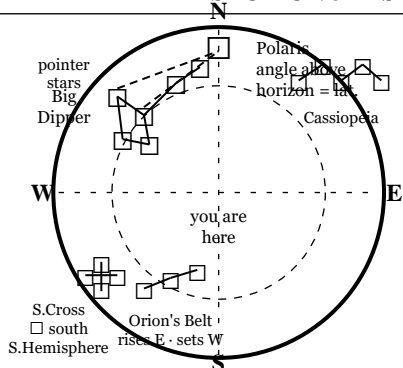
  
400  
1x400

  
1/2  
fractions  
 $a^2 + b^2 = c^2$   
  
circle ratio  
 $\pi \approx 3.14159$ 

## SECTION 2 — CORE VOCABULARY (PICTOGRAPHIC)

 SUN / DAY light · energy	 EARTH / LAND ground · soil	 PERSON human · life	 SHELTER safety · structure	 FIRE / HEAT energy · warmth	 WATER drink · river · rain	 PLANT / FOOD grow · seed · eat	 MOUNTAIN high ground · safe
 COMMUNITY together · us	 GIFT / SHARE freely given · yours	 KNOWLEDGE read · learn · teach	 DANGER / STOP caution · wait	 DIRECTION navigate · go · find	 TIME / CYCLE season · pass · year	 CONNECT / LINK bridge · join · share	 HEAL / MEDICINE help · care · cure

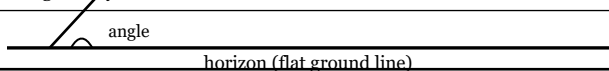
## SECTION 3 — STAR MAP AND NAVIGATION



### HOW TO FIND NORTH (no tools)

- Night: find Big Dipper (7 stars, ladle shape). The two cup-edge stars point to Polaris = North.
- Day: a shadow stick points W at sunrise, E at sunset, and shortest shadow = South.
- Polaris height above horizon in degrees = your N latitude.

Polaris □



## SECTION 4 — WHAT IS IN THIS CAPSULE

### PLATES (METAL SHEETS)

Plate 1: This index — you are here

### OTHER ITEMS IN CAPSULE

Film roll: magnify with the glass lens

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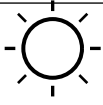
A PATIENT MESSAGE. IT WAS MADE FOR YOU, FREELY, BY PEOPLE WHO REMEMBERED FOR

BUY IT · BUILD IT · BURY IT · FOR SOMEONE YOU WILL NEVER MEET

# PLATE 2 OF [N] — WATER · FIRE · SHELTER

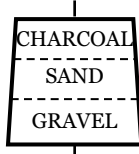
TIER 1 — IMMEDIATE SURVIVAL · USE THIS FIRST · SEE PLATE 1 FOR ROSETTA INDEX

## SECTION 1 — WATER



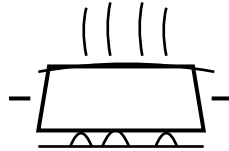
**SOLAR STILL**

dig pit · plastic · collect drip



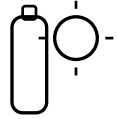
**SAND FILTER**

pour through · then boil



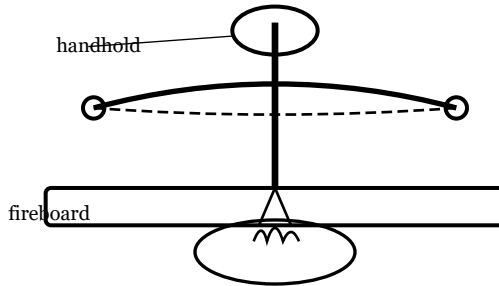
**BOIL / SODIS**

1 min sea level · 3 min >2000m · 6 hrs sun



SEAWATER  URINE — both worsen dehydration faster than not drinking

## SECTION 2 — FIRE



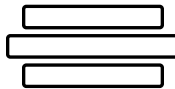
coal forms in notch · transfer to tinder bundle · blow gently from below

**TEEPEE**



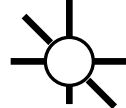
ignition

**LOG CABIN**



cooking · sustained heat

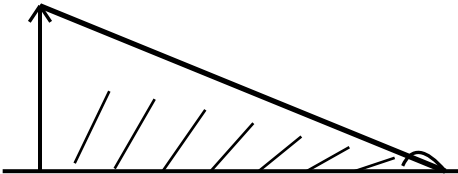
**STAR FIRE**



fuel economy

BEST WOODS: willow · cedar · cottonwood · basswood · dry mullein stalk

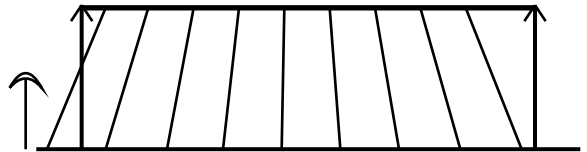
## SECTION 3 — SHELTER



**DEBRIS HUT**

50–90cm debris · interior barely body-size · COLD CLIMATES — open side faces fire · MILD CLIMATES · tropical: raise off ground

ALWAYS INSULATE FROM GROUND · 15cm dry leaves or bark between you and earth  
cold ground draws heat from body faster than cold air · hypothermia kills before hunger



**A-FRAME**

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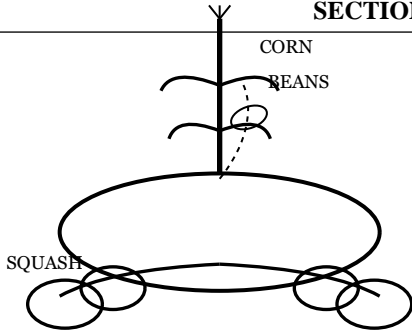
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# PLATE 3 OF [N] — AGRICULTURE & SEEDS

TIER 2 — GROWING FOOD · SEED SAVING · SOIL · START HERE ONCE STABLE

## SECTION 1 — SOIL & PLANTING



**THREE SISTERS**

corn=structure · beans=nitrogen · squash=mulch · mounds 90cm apart

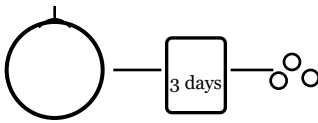


**COMPOST**

3 parts brown : 1 green · turn weekly · ready 6–8 weeks

- NIXTAMALIZE CORN: 1 cup corn + 1 tsp wood ash + water · boil 20 min · soak overnight · rinse  
 SKIP THIS  PELLAGRA (fatal niacin deficiency) in corn-dependent diets

## SECTION 2 — SEED SAVING



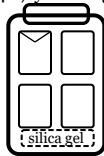
**TOMATO**

ferment pulp 3 days · rinse · dry · 5–10m isolation · 4–7 yr storage



**BEANS / PEAS**

let pods dry on plant · shell · dry 2 more weeks · 3–5 yr storage



**SEED STORAGE**

paper envelopes · cooled glass jars · silica gel packets · underground cellar ideal

## SECTION 3 — ISOLATION DISTANCES

CROP	MIN. ISOLATION
Tomatoes	5–10 m
Beans / Peas	1–3 m
Squash / Pumpkin	400 m+
Corn (wind)	400 m+
Kale / Brassicas	1,500 m+
Lettuce	1–2 m
Peppers	100–500 m
Garlic (cloves)	self · no cross

ALSO GROW: garlic · amaranth · sweet potato · sunflower · kale · medicinal herbs

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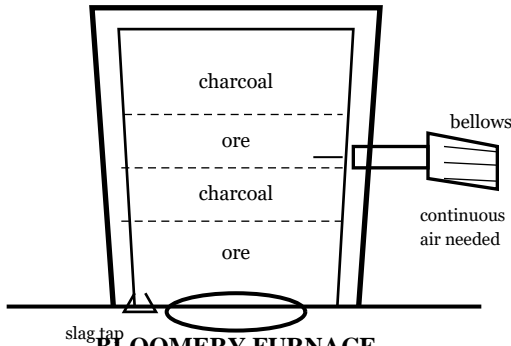
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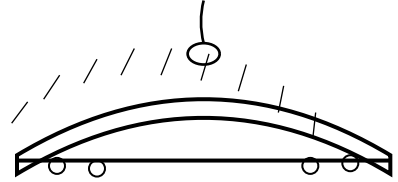
# PLATE 4 OF [N] — TECHNOLOGY RE-FOUNDATION

TIER 3 — IRON · CHARCOAL · GLASS · MATHEMATICS · PRINTING

## SECTION 1 — IRON SMELTING



**BLOOMERY FURNACE**



**CHARCOAL KILN**

1100–1200°C · 4–8 hrs · alternate ore & charcoal · tap slag regularly · dome with soil · fire top · seal when smoke turns blue-gray · cool

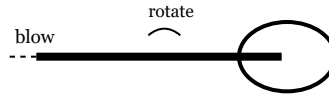
HARDWOOD ONLY for charcoal: oak · hickory · beech · maple · ash · NO PINE

Steel from wrought iron: pack in clay with charcoal · seal · fire 8–12 hrs  cementation

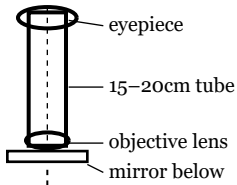
## SECTION 2 — GLASS & OPTICS

INGREDIENT	AMOUNT
Silica (quartz sand)	60%
Wood ash (potash)	35%
Limestone (crushed)	5%

frit 900°C  working glass 1000–1100°C

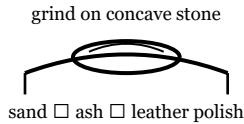


**BLOWPIPE**  
anneal: cool  
–50°C/hr  
no fast cooling

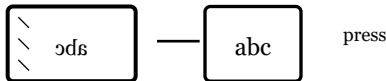


**MICROSCOPE 100–200×**

sees bacteria & cells · transforms understanding of disease



## SECTION 3 — MATHEMATICS & PRINTING

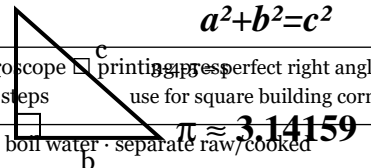


**WOODBLOCK PRINT**

carve wood in mirror image · ink · press paper · one block = one page

SEQUENCE: charcoal  iron  ceramics  glass  lens  microscope  printing press · perfect right angle  
each technology enables the next · do not skip steps · use for square building corners

GERM THEORY: specific organisms cause specific diseases · wash hands · boil water · separate raw/cooked



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# PLATE 5 OF [N] — GOVERNANCE & ETHICS

TIER 4 — HOW POWER CORRUPTS · THE GOLDEN RULE · RIGHTS THAT CANNOT BE TAKEN

## SECTION 1 — THE CORRUPTION SEQUENCE

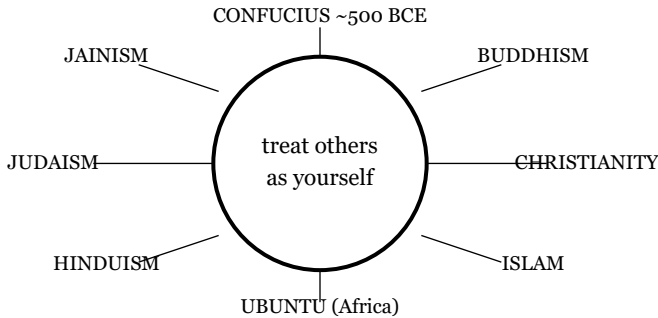
Every governance system that has failed followed this sequence. Recognize it. Interrupt it before Stage 3.



BUILD THESE: term limits · independent courts · free press · wealth limits · citizens' referendum

## SECTION 2 — THE GOLDEN RULE

Found independently in every major tradition. Convergence is the signal.



## SECTION 3 — NON-NEGOTIABLE RIGHTS

No emergency, majority, or leader may override these. Write them down. Defend them always.

- Freedom of speech & press — bad governance requires silence to survive
- Freedom of assembly — you cannot resist tyranny if you cannot meet
- Equal treatment under law — unequal law is formalized power, not justice
- Presumption of innocence — guilt must be proved, not assumed
- Prohibition of torture — every institution that adopted it was corrupted by it

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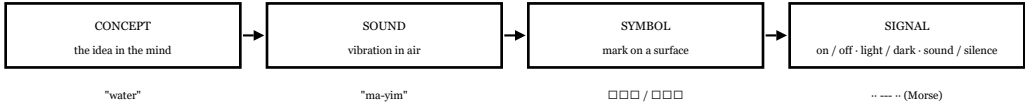


# PLATE 07 · ENCODING & COMMUNICATION

any information can be encoded in two symbols · present and absent · one and zero

## — · — THE ENCODING STACK — · —

every message travels through layers · each layer converts the one above it



KEY INSIGHT: the same concept can exist at any layer independently · each layer is a different encoding of the same meaning  
a finder who understands this stack can move between layers · and decode any encoding system they encounter

## — · — THE TWO-SYMBOL PRINCIPLE · ONE FORCE IN THREE FORMS — · —

### MAYAN DOT-BAR

• dot = 1  
□ bar = 5



### MORSE CODE

· dot = short  
— dash = long



### BINARY

1 = on / present  
0 = off / absent

3 = 0 1 1  
S = 0 1 1 (3 pulses)

all three are the same idea: count using two symbols · position and repetition carry the meaning

## — · — MORSE CODE · SURVIVAL SIGNALING PROTOCOL — · —

produce with: flashlight · mirror · fire · horn · two rocks · smoke · anything on/off

S O S = · · · · · (universal distress signal)

3 short · 3 long · 3 short · pause · repeat



short = dot · long (3x short) = dash · gap between letters = 3 dots · gap between words = 7 dots

### SURVIVAL VOCABULARY

HELP

· · · · ·

YES

· · · · ·

WATER

· · · · ·

NO

· · · · ·

FIRE

· · · · ·

COME

· · · · ·

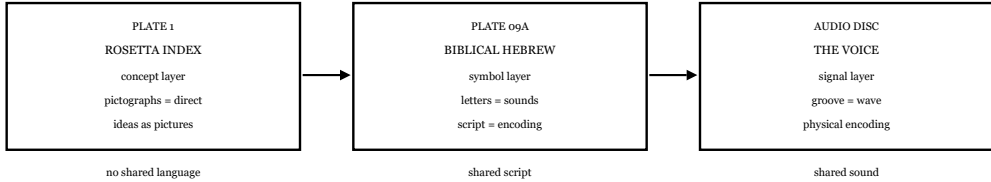
DANGER

· · · · ·

STOP

· · · · ·

## — · — HOW THESE PLATES USE THE ENCODING STACK — · —



a finder who understands the encoding stack can read at whichever layer survives  
even if the language is lost · the pictures remain · even if the script is lost · the sounds remain

## — · — THE UNIVERSAL BRIDGE · NUMBERS CONNECT ALL SYSTEMS — · —

#	MAYAN	ARABIC	GEMATRIA	MORSE	BINARY
1	●	1	□ = 1	· · · · ·	0001
2	● ●	2	□ = 2	· · · · ·	0010
3	● ● ●	3	□ = 3	· · · · ·	0011
4	ENC ● ● ● ● left □ right	HEBREW / ARABIC right □ left	□ = 4 CHINESE / JAPANESE top □ bottom	· · · · · MAYAN NUMBERS top □ bottom (bars first)	MORSE CODE 0100 left □ right in time
5	■ □	5 □ the number is the same concept in every encoding · numbers are the universal bridge	□ = 5	· · · · · □	□ 101

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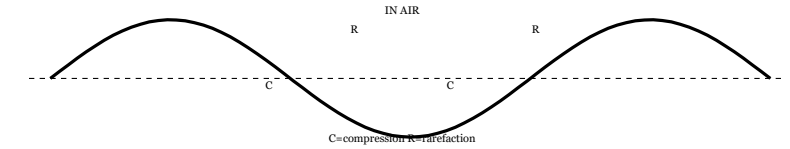
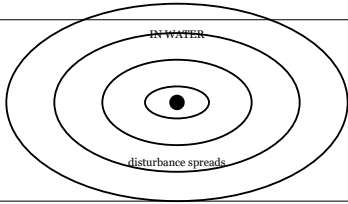
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# PLATE 8 • PHYSICS OF SOUND

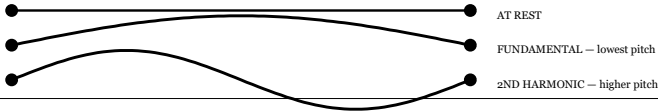
sound is a wave • the wave has shape • shape can be stored • resonance can destroy

## — • — THE WAVE — • —

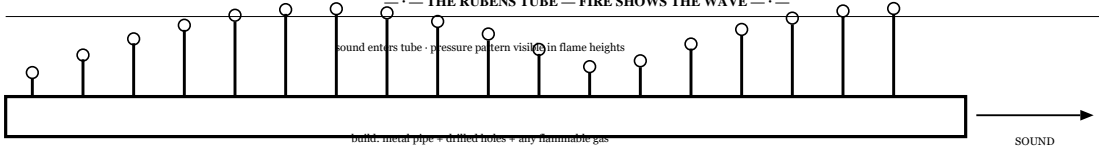


frequency=pitch • amplitude=loudness • wavelength=spacing between peaks

## — • — VIBRATING STRING — • —



## — • — THE RUBENS TUBE — FIRE SHOWS THE WAVE — • —



## — • — RESONANT FREQUENCY • FATIGUE • DIRECTED SOUND — • —

MATCHING FREQUENCY

SHATTERS

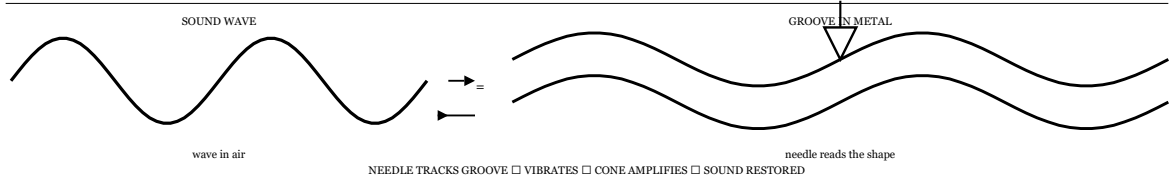
STONE WALL

seven detuned horns (2 beat frequencies in infrasound range (1-15 Hz))  
infrasound matches resonant frequency of stone walls □ fatigue fracture over days  
MICRO-CRACKS  
HORN GEOMETRY  
directs acoustic energy in a focused beam

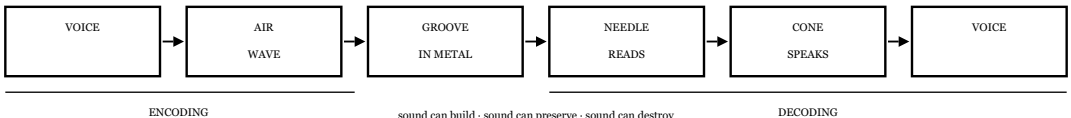
TWO CLOSE TONES

= BEAT FREQUENCY (infrasound: 1-15 Hz)

## — • — THE GROOVE IS THE FROZEN WAVE — • —



## — • — THE COMPLETE CHAIN — • —



ENCODING

sound can build • sound can preserve • sound can destroy

DECODING

match frequency to structure □ resonance • sustain resonance □ fatigue • fatigue + impulse □ failure  
applications: test vessel integrity • locate cracks • break ore • find water below ground

see Plate 9 for audio playback construction • see Plate 10 for electrical generation

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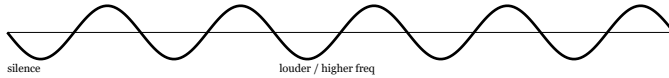
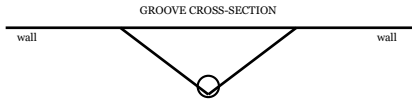
UNDERSTAND IT • BUILD WITH IT • LEAVE MORE CAPSULES FOR OTHERS

# PLATE 9 • AUDIO PLAYBACK

how a groove stores sound · how a needle reads it · how to build a player with found materials

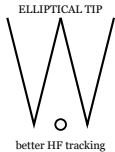
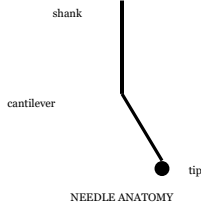
## — • — THE GROOVE — • —

GROOVE FROM ABOVE



78 RPM      stylus tip      shellac · pre-1950 · 3-5 min/side · wide groove  
 33 □ RPM      (radius ~0.5-2.5 mil)  
 45 RPM      vinyl LP · from 1948 · 20-30 min/side  
                  vinyl single · from 1949 · 4-6 min/side

## — • — THE STYLUS (NEEDLE) — • —



MATERIALS

steel pin  
 works · wears fast  
 cactus spine  
 traditional 78 RPM use  
 thorn (hardwood)  
 file to point, ~2 per side  
 bone splinter  
 file and polish tip  
 sapphire/diamond  
 commercial · 500+ hrs

tip must be smooth · sharp point · radius matched to groove width · clean before each side

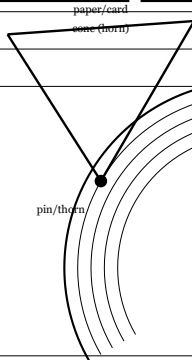
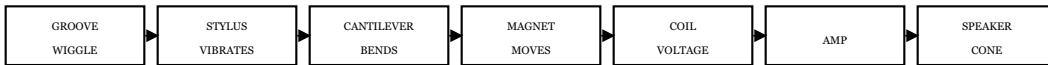
## — • — THE TONE ARM — • —



pivot must swing freely in horizontal AND vertical plane

tracking force: 1-3 g for vinyl · 3-7 g for shellac 78s  
 too heavy □ groove damage · too light □ skipping  
 anti-skate force balances inward groove drag (can skip for basic use)  
 arm length: longer = less tracking error across record radius

## — • — SIGNAL PATH — • —



moving magnet (MM): magnet on cantilever · coil fixed · output ~5mV  
 moving coil (MC): coil on cantilever · magnet fixed · output ~0.2mV · needs more amplification

## — • — MINIMAL BUILD — NO ELECTRICITY REQUIRED — • —

1. Cut stiff paper into a cone, ~15 cm wide opening.
2. Push a steel pin or thorn through the tip.
3. Build a spindle: rotate record at correct RPM.  
 78 RPM = 1.3 rev/sec · 33 □ RPM = 0.56 rev/sec
4. Lower pin gently into outer groove, ~1-2 g pressure.
5. Cone amplifies stylus vibration acoustically.
6. Move arm inward at same rate groove spirals (~0.5mm/rev).

Expected volume: low (like a whisper) but intelligible.  
 One play wears a thorn tip — resharpen or replace.  
 Steel pins last longer but may damage soft vinyl.  
 Shellac 78s are more tolerant of improvised needles.

STEREO: left channel = 45° inner wall modulation · right channel = 45° outer wall · mono = equal lateral  
 a mono cartridge plays stereo records safely · a stereo cartridge plays mono records safely

RECORD  
 (spinning)

RECORD CARE: keep dry · brush before play · store vertically · never stack flat · inner sleeve protects  
 PLAYBACK LIMIT: vinyl ~300-1000 plays at correct force · shellac ~100-300 plays · thorn: 1 play  
 see Plate 8 for wave physics · see Plate 10 for electrical generation · amplifier from Plate 4

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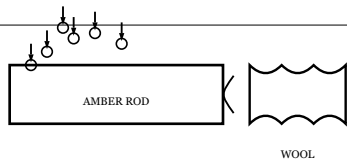
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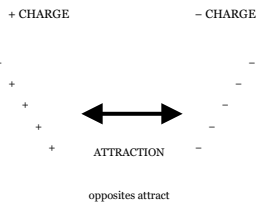
# PLATE 10 · ELECTRICAL PHENOMENA

charge is a force of nature · it can be stored, released, and controlled

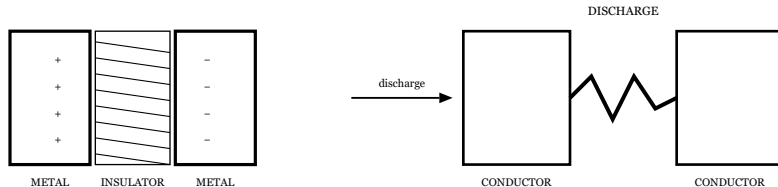
## — · — STATIC CHARGE — · —



friction separates charge  
unlike charges attract



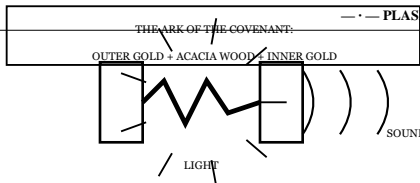
## — · — THE CAPACITOR — STORING CHARGE — · —



DISCHARGE

METAL INSULATOR METAL

CONDUCTOR CONDUCTOR

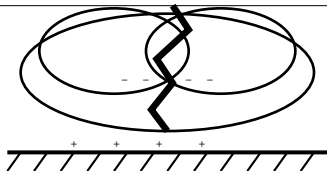


## — · — PLASMA ARC — LIGHT AND SOUND FROM ELECTRICITY — · —

small cap + high charge = ARC  
arc produces LIGHT + SOUND

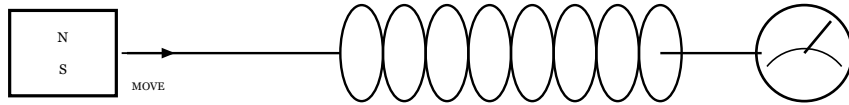
The plasma arc is the highest-fidelity speaker possible — plasma has no mass to resist movement. Any audio signal passed through the arc is reproduced with perfect accuracy.

## — · — LIGHTNING — NATURE'S CAPACITOR — · —



CLOUD = negative conductor  
EARTH = positive conductor  
AIR = insulator between them  
LIGHTNING = capacitor discharge  
same force as amber + wool at scale

## — · — ELECTROMAGNETIC INDUCTION — · —

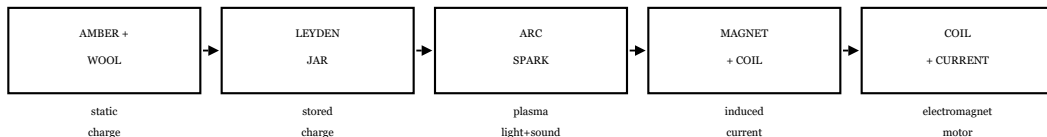


moving a magnet through a coil produces electrical current

CURRENT

magnet + coil + rotation = ALL generators · ALL motors · ALL modern power

## — · — ONE FORCE · MANY FORMS · THE COMPLETE LADDER — · —



all electricity is the same force at different scales and configurations

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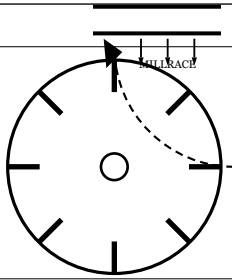
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# PLATE 11 · ENERGY GENERATION

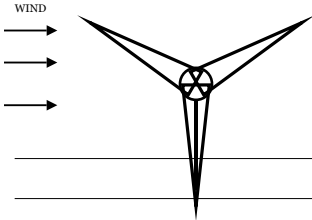
mechanical · electrical · chemical · osmotic · from materials in any environment

## — · — THE WATER WHEEL — PRIMARY MECHANICAL POWER — · —



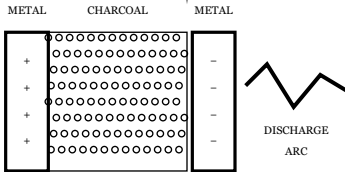
OVERSHOT: 60–85% efficient  
 water falls onto TOP of wheel  
 axle drives millstone, pump, or bellows  
 connect axle to coil (Plate 10) = electricity  
 undershot: place in flowing river  
 1m head x 1m<sup>3</sup>/sec ≈ 7 watts  
 build from: wood + river + axle + millstones

## — · — WIND TURBINE — SECONDARY POWER — · —



blade angle: 15–25° from wind direction  
 3 blades: best balance of torque and speed  
 tower height: above turbulence – taller = steadier wind  
 axle  generator coil (Plate 10)  electricity  
 or: axle  pump  water storage = gravity battery

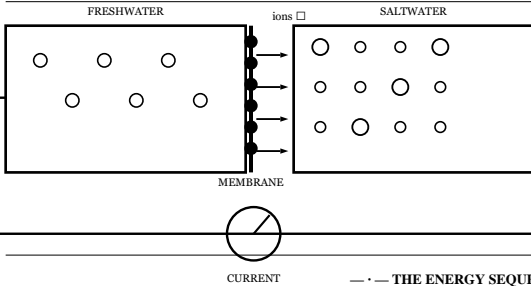
## — · — CHARCOAL CAPACITOR — STORING ELECTRICAL CHARGE — · —



500–3,000 m<sup>2</sup> surface area per gram of charcoal  
 enormous surface area = large charge storage  
 no chemical reaction – charge/discharge unlimited  
 electrolyte: saltwater, soil moisture, urine  
 recharge by: triboelectric (motion), solar arc,  
 or generator (Plate 10)

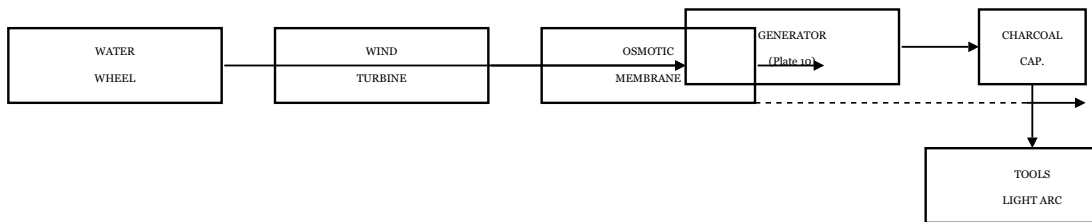
ARK OF COVENANT: outer gold + acacia + inner gold + charcoal = supercapacitor

## — · — OSMOTIC POWER — ELECTRICITY FROM SALINITY GRADIENT — · —



ions move from high to low  
 concentration through membrane  
 charge separation  current  
 membrane materials:  
 animal gut, clay, plant cellulose  
 best locations: river mouth,  
 coastal estuary, salt lake shore

## — · — THE ENERGY SEQUENCE — GENERATE → STORE → USE — · —



### PRIORITY SEQUENCE:

1. Build water wheel first – most reliable, continuous, highest power
2. Add wind turbine – operates when water is unavailable or insufficient
3. Add osmotic membrane at coastal/estuarine site – supplementary continuous source  
 see Plate 10 for generator construction · see Plate 9 for audio playback using stored energy

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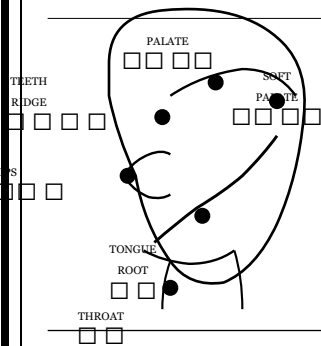




# PLATE 09B · BIBLICAL HEBREW · PHONOLOGY

how the sounds were made · where in the mouth · vowel system · dagesh and begadkefat

## — · — PLACES OF ARTICULATION · WHERE EACH SOUND IS MADE — · —



### CONSONANT GROUPS

LABIAL	lips / teeth	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
DENTAL / ALVEOLAR	tongue tip	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
SIBILANT	hissing / hushing	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
PALATAL / VELAR	back of tongue	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
UVULAR	deep throat	<input type="checkbox"/> <input type="checkbox"/>
PHARYNGEAL	throat constrict	<input type="checkbox"/> <input type="checkbox"/>
GLOTTAL	voice box start	<input type="checkbox"/> <input type="checkbox"/>

## — · — THE GUTTURALS · THE THROAT SOUNDS — · —

four letters produced deep in the throat · cannot take dagesh · attract open a-vowels

<input type="checkbox"/>	<b>Aleph</b> /ʔ/ glottal stop silent / catch in throat like the pause in uh-oh	<input type="checkbox"/>	<b>He</b> /h/ glottal /h/ breathy h at glottis like English h but deeper	<input type="checkbox"/>	<b>Chet</b> /ħ/ pharyngeal scraping from throat like Arabic ʕ — no English equiv	<input type="checkbox"/>	<b>Ayin</b> /ʕ/ pharyngeal voiced throat constrict like Arabic ʕ — no English equiv
--------------------------	---	--------------------------	---	--------------------------	---	--------------------------	--

resh (ר) behaves like a guttural in many contexts · uvular trill /r/ produced near pharyngeals

## — · — BEGADKEFAT · SIX LETTERS WITH TWO SOUNDS EACH — · —

dagesh lene (dot inside letter) = hard stop · no dagesh = soft fricative · occurs after vowel

<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/>
/B/	/N/	/G/	/GH/	/D/	/DH/	/K/	/KH/	/P/	/F/	/T/	/TH/
boy	vine	go	French r / gargle	door	this (th voiced)	king	Bach (German)	pick	five	top	think (th unvoiced)

Modern Hebrew retained only ב/בּ/בֿ/נ/נּ/נֿ/ג/גּ/גֿ/ד/דּ/דֿ/כ/כּ/כֿ/פ/פּ/פֿ/ת/תּ/תֿ. Biblical Hebrew had all six

## — · — THE VOWEL SYSTEM · TIBERIAN NIKKUD — · —

Masoretes (7th–10th c. CE) added vowel points to preserve pronunciation · written below/above consonant

Biblical Hebrew: 5 vowel qualities · each long or short · plus ultra-short (hataf) forms

<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>
Patah	Qamats	Segol	Tsere	Hiriq	Holem	Qibbuts	Shuruq	Sheva
/a/	/aː/	/e/	/eː/	/i/	/oː/	/u/	/uː/	/ʔ/

SHORT:  
patah · segol · hiriq · qibbuts

LONG:  
qamats · tsere · holem · shuruq

### ULTRA-SHORT (HATAF) · under guttural letters only

<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>
Hataf Patah /a/ — very short a	Hataf Segol /e/ — very short e	Hataf Qamats /o/ — very short o

## — · — SYLLABLE STRUCTURE · STRESS · KEY RULES — · —

OPEN SYLLABLE (CV):

consonant + vowel · □□□□ da-BAR (word) · stress usually final syllable

CLOSED SYLLABLE (CVC):

consonant + vowel + consonant · □□□□ ME-lekh (king) · stress often penultimate

<b>GUTTURALS</b> prefer A-vowels □□□□ sha-MA (he heard) Ayin attracts patah	<b>DAGESH FORTE</b> doubles consonant □□□□ sap-PER (he told) dot = gemination	<b>SHEVA NA</b> vocal between C's □□□□□□ d'-va-RIM (words) sheva = quick schwa
--	--	---

## — · — CONNECT TO AUDIO DISC · HEAR THESE SOUNDS — · —

the audio disc for Biblical Hebrew demonstrates all consonants in sequence · gutturals with Arabic comparison

then demonstrates all vowel points on a single root · then the Shema (Deut 6:4) read aloud in full

Sh □ ma □ Yisra □ el YHWH □ e lo he v □ YHWH □ re □ □ · Hear O Israel, YHWH our God, YHWH is One
--

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# PLATE 09C · BIBLICAL HEBREW · GRAMMAR

the root system · verb conjugation · nouns · core vocabulary · numbers

## — · — THE THREE-LETTER ROOT · SHORESH ■■■■ — · —

every Hebrew word grows from a 3-letter root · the root carries the core meaning · patterns change the function

ROOT: K-T-B	
meaning field: writing	
□□□□□□	katav he wrote
□□□□□□	kotev is writing
□□□□□□	k'tav script/writing
□□□□□□□	michtav letter/document

ROOT: SH-M-A	
meaning field: hearing	
□□□□□□	shama he heard
□□□□□□	shomea is hearing
□□□□□□	shema hear! (command)
□□□□□□□□	mishma obedience/hearing

same 3-letter skeleton · different vowels and prefixes/suffixes · different function

## — · — VERB CONJUGATION · QAL STEM · PATTERN: ■■■■ — · —

Qal = basic/simple action · most common verb stem · model: QaTaL = he killed/acted

PERFECT (past/completed)	
□□□□□	qatal he acted
□□□□□□□	qat'lah she acted
□□□□□□□□	qatalta you (m) acted
□□□□□□□□	qatalt you (f) acted
□□□□□□□□□	qatalti I acted

IMPERFECT (future/ongoing)	
□□□□□□□	yiqtol he will act
□□□□□□□□	tiqtol she will act
□□□□□□□□	tiqtol you (m) will
□□□□□□□	eqtol I will act
□□□□□□□	niqtol we will act

verb always comes first in the sentence · vav-consecutive □□ flips perfect □ imperfect in narrative

## — · — NOUNS · GENDER · PLURAL · CONSTRUCT STATE — · —

GENDER & PLURAL	
MASC singular: □□□□	melekh (king)
MASC plural □□□-:	□□□□□□□□ m'lakhim (kings)
FEM singular □□-:	□□□□□□□□ malka (queen)

CONSTRUCT STATE (smichut)	
two nouns joined: second owns first	
□□□□□□ + □□□□□□	= □□□□□□ □□□□□□
bet + melekh = house of the king	

definite article: □□- ha- (the) · no indefinite article: □□□□□ = a king / king

## — · — CORE VOCABULARY · 40 ESSENTIAL WORDS — · —

NATURE		□□□□□□	shemesh	sun	□□□□□□	yareach	moon	
□□□□□□	kokhav	star	□□□□□□	mayim	water	□□□□	esh	fire
□□□□□□	erets	earth/land	□□□□□□□□	shamayim	sky/heavens	□□□	har	mountain
PEOPLE		□□□□□□	ishah	woman	□□□□□□	ben	son	
□□□□□□	ish	man	□□□□	av	father	□□□	em	mother
□□□□	bat	daughter	□□□□□□□□	shama	heard/obeyed	□□□□□□	halakh	went/walked
□□□□	am	people/nation	□□□□□□	natan	gave	□□□□□□□□	dibber	spoke
□□□□□□	ra'ah	saw	□□□□□□	yada	knew	□□□□□□□□	shamar	kept/guarded
□□□□□□	asah	made/did	□□□□□□□□	shanah	year	□□□□	yom	day
TIME		□□□□□□□□	laylah	night	□□□□	et	time/season	
SACRED		□□□□□□□□	Elohim	God (plural majesty)	□□□□	shalom	peace/wholeness	
□□□□□□	chesed	loving-kindness	□□□□□□	emet	truth/faithfulness	□□□□□□□□	Torah	teaching/law

## — · — NUMBERS · ONE THROUGH TEN — · —

1	2	3	4	5	6	7	8	9	10
□□□□□□	□□□□□□□□	□□□□□□□□	□□□□□□□□	□□□□□□□□	□□□□□□	□□□□□□□□	□□□□□□□□	□□□□□□□□	□□□□□□
echad	shnayim	shalosh	arba	chamesh	shesh	sheva	shmoneh	tesha	eser

see Plate 09D for continuous text · Plate 09B for pronunciation · audio disc for spoken reading

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# PLATE 09D · BIBLICAL HEBREW · RUNNING TEXT

five passages · fully vowelized · interlinear transliteration and translation

read right to left · Hebrew text above · transliteration middle · translation below

## — · — PASSAGE 1 · GENESIS 1:1 · IN THE BEGINNING — · —

B'reshit bara Elohim et ha-shamayim v'et ha-arets

In-the-beginning created God [acc] the-heavens and-[acc] the-earth

Note: et (□□□) marks the direct object · Elohim is grammatically plural but verb is singular

## — · — PASSAGE 2 · DEUTERONOMY 6:4 · THE SHEMA — · —

Sh'ma Yisra'el YHWH Eloheinu YHWH Echad

Hear O-Israel YHWH our-God YHWH is-One

The foundational declaration of Hebrew faith · recited morning and evening · written on mezuzah

## — · — PASSAGE 3 · PSALM 23:1 · THE LORD IS MY SHEPHERD — · —

YHWH ro'i lo echsar

YHWH my-shepherd not I-will-lack

ro'i = active participle · lo echsar = negative imperfect · verb-last order for emphasis

## — · — PASSAGE 4 · PROVERBS 3:5 · TRUST IN THE LORD — · —

B'tach el-YHWH b'khol-libekha v'el-binat'kha al-tisha'en

Trust in-YHWH with-all-your-heart and-on-your-understanding do-not-lean

b' = in/with prefix · v' = and prefix · kha = your (masc) suffix · al + imperfect = prohibition

## — · — PASSAGE 5 · GENESIS 1:3 · LET THERE BE LIGHT — · —

Vayomer Elohim y'hi or vay'hi-or

And-said God let-there-be light and-there-was-light

vav-consecutive + imperfect = narrative past · y'hi = jussive (let it be) · most common verb form in Torah

## — · — THE HEBREW SERIES · PLATES 09A THROUGH 12D — · —

09A K'tav Ivri Paleo-Hebrew script c.1000 BCE	09B Phonology guttural sounds vowel system	09C Grammar root system verb patterns	09D Running Text five passages interlinear	10A-10D Mishnaic Hebrew c.200 CE	11A-11D Yemenite Hebrew tradition	12A-12D Modern Hebrew revived 1880s
--	---	--	---	---	--	--

each language follows the same 4-plate A/B/C/D structure · 50 languages planned in complete series

## — · — THE BRIDGE PHRASE · IN BIBLICAL HEBREW — · —

ze ne'esah l'ma'an'kha chinnam me'et anashim asher zakhru l'fanim

this was made for you freely by people who remembered forward

zakhru l'fanim = literally "they remembered toward what is ahead"

l'fanim (□□□□□□) = toward the face / toward the future · zakhar (□□□□) = to remember · chinnam (□□□□□□) = freely/without cost

the phrase "remember forward" is expressed idiomatically in Hebrew as "they remembered toward what is ahead"

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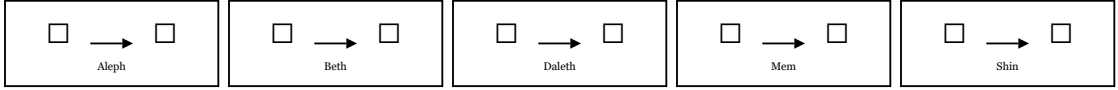
# PLATE 10A · MISHNAIC HEBREW · SCRIPT

square script · Ktav Ashuri · c.200 CE · the alphabet used today

## — · — HISTORICAL CONTEXT — · —

70 CE: Temple destroyed by Rome · 132-135 CE: Bar Kokhba revolt · 200 CE: Mishnah compiled  
 Hebrew preserved as literary and legal language · square script fully standardized · nikud added 600-950 CE

## PALEO □ SQUARE: THE SAME 22 LETTERS, TWO SCRIPTS

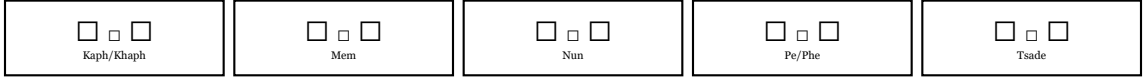


same letter · same name · same gematria value · different visual form

## — · — THE 22 LETTERS · SQUARE SCRIPT · WITH GEMATRIA — · —

□	□	□	□	□	□	□	□	□	□	□
Aleph	Beth	Gimel	Daleth	He	Vav	Zayin	Chet	Tet	Yod	Kaph
1	2	3	4	5	6	7	8	9	10	20
										final:□
□	□	□	□	□	□	□	□	□	□	□
Lamed	Mem	Nun	Samekh	Ayin	Pe	Tsade	Qoph	Resh	Shin	Tav
30	40	50	60	70	80	90	100	200	300	400
	final:□	final:□			final:□	final:□				

square script adds 5 FINAL FORMS (sofit) for letters at end of word · not in Paleo-Hebrew



## — · — NIKKUD · VOWEL POINTING STANDARDIZED BY MASORETES — · —

same consonants · different vowel points · different words



all four from the root SH-L-M (□-□-□) · same consonants · vowels change the meaning

## — · — HEBREW SCRIPT TIMELINE — · —



all stages use the same 22-letter alphabet and gematria values  
 a reader of Modern Hebrew can read Mishnaic Hebrew with modest study  
 a reader of Mishnaic Hebrew can read Biblical Hebrew with more study  
 all four Hebrew plates (09A-12A) are dialects of a single continuous language



# PLATE 10C · MISHNAIC HEBREW · GRAMMAR AND VOCABULARY

□□□□ replaces construct · loss of waw-consecutive · legal vocabulary · semantic shifts

## — · — KEY GRAMMAR CHANGES FROM BIBLICAL HEBREW — · —

<b>WAW-CONSECUTIVE DISAPPEARS</b>	<b>CONSTRUCT REPLACED BY □□□□ (SHEL)</b>
Biblical: □□□□□□□□□□ vayomer = and-he-said (narrative past) Mishnaic: □□□□□ amar = he said (simple perfect) No more flipping perfect/imperfect for narrative Simpler tense system closer to Modern Hebrew	Biblical: □□□□□ □□□□□□□□□□ bet ha-melekh = house-of the-king Mishnaic: □□□□□□□□ □□□□ □□□□□□□□□□ ha-bayit shel ha-melekh Shel = of/belonging to (from Aramaic) Construct state still exists but less common
<b>WORD ORDER SHIFTS</b>	<b>IMPERFECT = FUTURE/MODAL ONLY</b>
Biblical: Verb-Subject-Object (VSO) Mishnaic: Subject-Verb-Object (SVO) growing Example: Pirke Avot: □□□□□□□□□□□□□□ 'Moses received' not 'received Moses' Closer to natural spoken order	Biblical: imperfect = narrative, continuous, future Mishnaic: imperfect = future + imperatives/modals Example: □□□□□□□□□□□□□□ al thyu = do not be Present tense expressed by participle

## — · — LEGAL AND RABBINIC VOCABULARY · THE LANGUAGE OF THE MISHNAH — · —

the Mishnah required precise vocabulary for law, ethics, commerce, and daily observance

□□□□□□□□ halacha the way/Jewish law	□□□□□□□□ mitzvah commandment	□□□□□□□□ eruv boundary/mixing	□□□□□□□□ Shabbat the Sabbath day
□□□□□□□□ kosher fit/permitted	□□□□□□□□ tshuvah repentance/return	□□□□□□□□ tzedakah justice/charity	□□□□□□□□ rabbi my teacher/master
□□□□□□□□ talmid student/disciple	□□□□□□□□ Mishnah repetition/teaching	□□□□□□□□ Gemara completion/Talmud	□□□□□□□□ aggadah story/narrative

## — · — SEMANTIC SHIFTS · SAME WORD, CHANGED MEANING — · —

words kept the same spelling but shifted meaning between Biblical and Mishnaic use

□□□□□□□□ olam: BH: eternity / forever □ MH: world / universe	□□□□□□□□ nahag: BH: he behaved □ MH: he led / drove	□□□□□□□□ mezuzah: BH: doorpost / frame □ MH: scroll on doorpost
□□□□□□□□ pesach: BH: he passed over □ MH: Passover festival	□□□□□□□□ machanah: BH: encampment □ MH: station / bus stop (modern)	□□□□□□□□ sefer: BH: scroll / writing □ MH: book

NUMBERS: identical to Biblical Hebrew · same words · same gematria values · see Plate 09C

VERB STEMS (binyanim): Qal, Nifal, Piel, Pual, Hifil, Hofal, Hitpael · same 7 stems as Biblical Hebrew

## — · — THE PRESENT TENSE · EXPRESSED BY PARTICIPLE — · —

Mishnaic Hebrew has a true present tense built from the active participle

□□□□□□□□ kotev I/he is writing	□□□□□□□□□□ kotevet she is writing	□□□□□□□□□□□□ kotvim they(m) are writing	□□□□□□□□□□□□ kotvot they(f) are writing
--------------------------------------	---	---	---

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PLATE 10D · MISHNAIC HEBREW · RUNNING TEXT

Pirke Avot · five passages from the Ethics of the Fathers · interlinear

read right to left · Mishnaic Hebrew above · transliteration middle · translation below

— · — AVOT 1:1 · MOSES RECEIVED TORAH — · —

Moshe kibel Torah miSinai um'sarah liYhoshua  
Moses received Torah from-Sinai and-transmitted-it-to-Joshua

Note: kibel (received) = simple perfect · no waw-consecutive · shel replaced construct in later texts

— · — AVOT 1:2 · THREE PILLARS — · —

al sh'loshah d'varim ha-olam omed  
on three things the-world stands

Note: ha-olam = the world (Mishnaic sense) · not 'the eternity' as in Biblical Hebrew

— · — AVOT 1:14 · HILLEL'S THREE QUESTIONS — · —

im ein ani li mi li  
if there-is-not I for-me who for-me

Full: If I am not for myself, who will be? · ein = there is not (Mishnaic negation)

— · — AVOT 2:1 · WHICH IS THE RIGHT PATH — · —

eizo hi derekh y'sharah sheyidbak bah ha-adam  
which is-it path straight that-should-cleave-to-it the-person

Note: eizo (which) = Aramaic influence · sheyidbak = relative clause with she- connector

— · — AVOT 3:14 · BELOVED IS THE HUMAN — · —

chaviv adam shenivra b'tzelem  
beloved person that-was-created in-image

Full: Beloved is the human, for they were created in the image [of God] · chaviv = beloved (adj)

— · — THE BRIDGE PHRASE · MISHNAIC HEBREW — · —

ze ne'esah l'ma'an kha b'chinam al y'dei anashim shezakru l'fanim  
this was made for you freely by people who remembered forward

# PLATE 11A · YEMENITE HEBREW · SCRIPT

Temani Hebrew · square script · Babylonian vocalization · geographically isolated tradition

## — · — THE YEMENITE TRADITION · THE SOUND TIME FORGOT — · —

Yemenite Jews lived in isolation for ~2,000 years · preserved ancient pronunciation intact  
when they arrived in Israel 1949-50, linguists recorded them immediately  
their speech answered pronunciation debates stretching back 800 years

## — · — TWO VOCALIZATION SYSTEMS · TIBERIAN vs BABYLONIAN — · —

both encode the same vowels · different graphic placement

TIBERIAN (sublinear)

---

dots and lines BELOW consonants  
developed by Masoretes of Tiberias  
c.600-950 CE · standard today

□ □ □ □ □ □ □ □

sha-LOM (shalom)  
vowels sit below letters

(standard nikud system)

BABYLONIAN (supralinear)

---

dots and lines ABOVE consonants  
oldest Yemenite manuscripts use this  
reflects Babylonian Jewish tradition

□ □ □ □ □

same word · unpointed base  
Babylonian vowels written above  
( supralinear marks not in Unicode )  
tradition preserved orally

## — · — THE 22 LETTERS · SAME SQUARE SCRIPT AS MISHNAIC/MODERN — · —

Yemenite script is identical to standard square Hebrew · the difference is pronunciation, not writing

□	□	□	□	□	□	□	□	□	□	□
Aleph	Beth	Gimel	Daleth	He	Vav	Zayin	Chet	Tet	Yod	Kaph
1	2	3	4	5	6	7	8	9	10	20
□	□	□	□	□	□	□	□	□	□	□
Lamed	Mem	Nun	Samekh	Ayin	Pe	Tsade	Qoph	Resh	Shin	Tav
30	40	50	60	70	80	90	100	200	300	400

## — · — WHAT IS UNIQUE · HOW TO RECOGNIZE YEMENITE TEXTS — · —

Script	Same square Hebrew as standard	
Vowels	Standard Tiberian nikud in printed texts	
Cantillation	Full Tiberian trope marks preserved	
Key marker	Tav without dagesh written □ (looks same)	
Key marker	Gimel without dagesh □	
Key marker	Vav □ written same way	

Yemenite Hebrew is the bridge between Biblical phonology and all later traditions  
it is the living proof that the sounds documented in the grammar books were real

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# PLATE 11B · YEMENITE HEBREW · PHONOLOGY

preserved archaic sounds · full begadkefat · all gutturals · vav as /w/

## — · — THE PRESERVED SOUNDS · WHAT YEMENITE KEPT THAT OTHERS LOST — · —

comparison of key consonants across four Hebrew traditions

LETTER	BIBLICAL	YEMENITE	SEPHARDI	ASHKENAZI	ISRAELI
<input type="checkbox"/> Aleph	glottal /□/	glottal /□/	glottal/silent	silent	silent
<input type="checkbox"/> He	breathy /h/	breathy /h/	often silent	often silent	often silent
<input type="checkbox"/> Chet	/□/ pharyngeal	/□/ pharyngeal	/x/ or /□/	/s/ guttural	/s/ velar
<input type="checkbox"/> Ayin	/□/ pharyngeal	/□/ pharyngeal	varies	/□/ weakened	silent
<input type="checkbox"/> Vav (soft)	/w/	/w/ ancient	/v/	/v/	/v/
<input type="checkbox"/> Gimel (soft)	gh /□/	gh /□/ kept	/g/ lost	usually /g/	/g/
<input type="checkbox"/> Dalet (soft)	th /ð/	th /ð/ kept	/d/ lost	/d/ lost	/d/
<input type="checkbox"/> Tav (soft)	th /θ/	th /θ/ kept	th kept (Ir.)	/s/	/t/
<input type="checkbox"/> Resh	trilled /r/	trilled /r/ or /□/	uvular /□/	uvular /□/	uvular /□/
<input type="checkbox"/> Qoph	uvular /q/	emphatic /q□/	/k/	/k/	/k/

**bold** = Yemenite preserves archaic form lost elsewhere

## — · — BEGADKEFAT · ALL SIX PAIRS FULLY PRESERVED IN YEMENITE — · —

Yemenite is the only modern Hebrew tradition preserving all 6 soft/hard alternations

<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/>
/b/	/v/	/g/	/gh/	/d/	/ð/	/k/	/kh/	/p/	/t/	/ʔ/	/θ/
boy	vine Yem.+Biblical	go	Arabic ghayn Yem.+Biblical	door	this (voiced th) Yem.+Biblical	king	Bach Yem.+Biblical	pick	five Yem.+Biblical	top	hink (unvoiced th) Yem.+Biblical

Israeli Hebrew lost gimel-gh, dalet-dh, tav-th · Yemenite preserves all three with Biblical Hebrew

## — · — SHEVA MOBILE · THE PERFECTLY PRESERVED TIBERIAN RULE — · —

Yemenite is the only tradition that still follows the full Tiberian sheva mobile rules

Israeli grammarian Shelomo Morag: Yemenite sheva is 'the way the sheva was known to have been in Tiberian'

Before REGULAR consonant	sheva = ultra-short /a/	□□□□□□□ b'-ME-lekh not b'meelekh
Before GUTTURAL	sheva copies guttural vowel	□□□□□□ wu-KHUT not v'khut
Before YOD	sheva = ultra-short /i/	□□□□□□ bi-YOM not bi'om

## — · — EMPHATIC CONSONANTS · PHARYNGEALIZED SOUNDS — · —

<input type="checkbox"/>	Tet /t□/ emphatic T like Arabic □ · tongue pressed back	<input type="checkbox"/>	Tsade /s□/ emphatic S/Ts like Arabic □ · pharyngealized	<input type="checkbox"/>	Qoph /q/ uvular stop deep in throat like Arabic □
--------------------------	---	--------------------------	---	--------------------------	---

emphatics lost in Ashkenazi and Israeli · preserved in Yemenite and Mizrahi traditions

Arabic preserved the same emphatics from Proto-Semitic · mutual intelligibility of these sounds historically

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# PLATE 11C · YEMENITE HEBREW · GRAMMAR AND VOCABULARY

follows Mishnaic patterns · Diwan poetry tradition · Yemeni Arabic loanwords · liturgical vocabulary

## — · — GRAMMAR · FOLLOWS MISHNAIC HEBREW WITH YEMENITE FEATURES — · —

Yemenite Hebrew grammar = Mishnaic Hebrew grammar · see Plate 10C for full paradigms  
the differences are phonological (how it sounds) not grammatical (how it works)

## — · — YEMENITE-SPECIFIC FEATURES — · —

<p><b>VAV CONJUNCTION</b></p> <p>Written: □□ (standard) Yemenite sound: /vu-/ before labials Israeli sound: /v-/ always Example: □□□□□□□□ wu-Moshe (and Moses)</p>	<p><b>CONSTRUCT STATE</b></p> <p>Yemenite preserves both: old construct + modern □□□□ Example: □□□□ □□□□□□□□ = hayit ha-melekh or: □□□□ □□□□ □□□□□ = ha-bayit shel ha-melech both forms used contextually</p>
<p><b>TENSE SYSTEM</b></p> <p>Same as Mishnaic Hebrew: Perfect: past/completed Participle: present/ongoing Imperfect: future/modal <u>No vav consecutive (lost in Mishnaic)</u></p>	<p><b>CANTILLATION (TROPE) SYSTEM</b></p> <p>Full Tiberian trope preserved Every biblical word carries its traditional accent marking Most accurate oral Torah tradition <u>recorded by modern linguists</u></p>

## — · — THE DIWAN · YEMENITE HEBREW POETRY — · —

the Diwan is the complete body of Yemenite Hebrew sacred poetry · compiled 16th-17th century CE  
sung at Shabbat and holiday celebrations · distinctive melodies and Arabic poetic meters

Rabbi Shalom Shabazi (1619-c.1720) is the most celebrated Yemenite Hebrew poet

<p>□□□□ shofar ram's horn trumpet</p>	<p>□□□□ diwan sacred song collection</p>	<p>□□□□□□ z'mirot Sabbath songs</p>	<p>□□□□ piyyut liturgical poem</p>
<p>□□□□ siyaq numerical code</p>	<p>□□□□ morasha heritage/inheritance</p>	<p>□□□□ yachid unique/alone (God)</p>	<p>□□□□ golah exile/diaspora</p>
<p>□□□ seder order/ceremony</p>	<p>□□□□ Haggadah the telling (Passover)</p>	<p>□□□ Shabbat the Sabbath</p>	<p>□□□□□□ Yerushalayim Jerusalem</p>

## — · — YEMENI ARABIC INFLUENCE · DAILY VOCABULARY — · —

Yemenite Jews used Hebrew liturgically and Judeo-Yemeni Arabic daily · some crossover into Hebrew

<p>□□□□ chanut shop (Arabic dukkan area)</p>	<p>□□□ shuk market (Arabic souq)</p>	<p>□□□□ hina henna (Arabic hinna)</p>
<p>□□□□□□ marhabi welcome (Arabic marhaba)</p>	<p>□□□□ tawla table (Arabic tawila)</p>	<p>□□□ mashq writing practice (Arabic)</p>

## — · — NUMBERS · SAME AS BIBLICAL AND MISHNAIC · DIFFERENT PRONUNCIATION — · —

<p>□□□□□</p>	<p>Yemenite: /e□ad/</p>	<p>Israeli: /e□ad/      Tav as /θ/</p>
<p>□□□□□□□</p>	<p>Yemenite: /□□θa□im/</p>	<p>Israeli: /□naim/      Tav as /θ/; Daleth as /ð/</p>
<p>□□□□□□□</p>	<p>Yemenite: /□□loθa/</p>	<p>Israeli: /□alo□/      Tav as /θ/</p>

the numbers are identical in writing · the pronunciation reveals 2,500 years of divergence

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# PLATE 12B · MODERN HEBREW · PHONOLOGY

5-vowel system · gutturals lost · 3 begadkefat pairs · revived 1880s · Israeli standard

## — · — THE SIMPLIFIED SOUND SYSTEM · WHAT WAS GAINED AND LOST — · —

Modern Hebrew was revived as a spoken language in 1880s Palestine by Eliezer Ben-Yehuda  
 speakers came from Europe (Yiddish/Russian) and could not produce pharyngeal sounds  
 result: simplified phonology · gained new loanword sounds · lost ancient distinctions

## — · — THE VOWEL SYSTEM · 7 + LENGTH → 5 FLAT — · —

BIBLICAL HEBREW · 7 qualities			MODERN HEBREW · 5 qualities	
/a/ patah	/a:/ qamats	simplified	/a/ (all a-vowels merged)	/a/
/e/ segol	/e:/ tsere		/i/ (hiriq)	/e/
/i/ hiriq	/o:/ holem		/u/ (qibbuts+shuruq)	/i/
/u/ qibbuts	+ 3 hataf forms			/o/
				/u/
7 qualities x short/long = 14+ forms			5 qualities - no length	

## — · — CONSONANT CHANGES · THE MERGERS — · —

MERGED	Aleph □ + Ayin □	□ both silent or /□/	lost pharyngeal distinction
MERGED	Tet □ + Tav □	□ both /t/	lost emphatic tet
MERGED	Qoph □ + Kaph □	□ both /k/	lost uvular qoph (mostly)
MERGED	Samekh □ + Sin □ □	□ both /s/	lost lateral fricative
KEPT	Bet □ / Vet □	□ /b/ and /v/	still distinct
KEPT	Kaf □ / Khaf □	□ /k/ and /x/	still distinct
KEPT	Pe □ / Fe □	□ /p/ and /f/	still distinct
LOST	Gimel-soft □	□ just /g/	gh sound gone
LOST	Dalet-soft □	□ just /d/	th-voiced gone
LOST	Tav-soft □	□ just /t/	th-unvoiced gone

## — · — NEW SOUNDS · FROM LOANWORDS AND REVIVAL — · —

new consonants entered Hebrew through loanwords and are now standard

□'	□'	□'	□' (foreign)
j / dj /d□/ jungle like English j	ch / t□/ check like English ch	zh / □/ measure like French j	w /w/ Wikipedia in foreign loanwords

## — · — STRESS · NOW PHONEMIC — · —

Biblical Hebrew stress followed vowel length rules · Modern Hebrew lost vowel length  
 result: stress became phonemic · two words can differ only in stress position

□□□□□	vs	□□□□□□	vs	□□□□□	vs	□□□□□
O-khel = food		o-KHEL = eats		NA-qam = was avenged		na-QAM = he took revenge

same letters · same vowels · different stress = different meaning

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# PLATE 13A · ARABIC · SCRIPT

28 letters · right to left · cursive abjad · four positional forms · dots distinguish letters

## — · — ARABIC · 1.9 BILLION SPEAKERS · WIDEST GEOGRAPHIC SPREAD — · —

Arabic is spoken from Morocco to the Persian Gulf · Classical Arabic unchanged for 1,400 years  
the Quran has preserved the classical form · any literate Arabic speaker can read texts from 650 CE  
genetically related to Hebrew · many cognate roots · sister language not daughter or ancestor

## — · — THE 28 LETTERS · ISOLATED FORM · READ RIGHT TO LEFT — · —



Alif  
/·/ā/



Ba  
/b/



Ta  
/t/



Tha  
/θ/



Jim  
/j/d□/



Ha  
/ħ/



Kha  
/x/



Dal  
/d/



Dhal  
/ð/



Ra  
/r/



Zay  
/z/



Sin  
/s/



Shin  
/ʃ/



Sad  
/s□/



Dad  
/d□/



Tta  
/t□/



Dha  
/ð□/



Ain  
/ʔ/



Ghain  
/ɣ/



Fa  
/f/



Qaf  
/q/



Kaf  
/k/



Lam  
/l/



Mim  
/m/



Nun  
/n/



Ha  
/h/



Waw  
/w/ū/



Ya  
/y/ī/

## — · — FOUR POSITIONAL FORMS · SAME LETTER · DIFFERENT SHAPE — · —

letters change shape depending on position in word · software handles this automatically

Ba /b/

<input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>
isolated	initial	medial	final

Ain /ʔ/

<input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>
isolated	initial	medial	final

Ha /ħ/

<input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>
isolated	initial	medial	final

SIX NON-CONNECTORS: □ □ □ □ □ □ · these do not connect to the following letter

## — · — VOWEL MARKS · HARAKAT · ADDED IN QURAN AND TEACHING TEXTS — · —

Arabic is an abjad · only consonants written normally · vowels omitted in everyday text

Quran, children's books, and learner texts add vowel marks (harakat) for precision

<input type="checkbox"/> <input type="checkbox"/>	fatha /a/ short a · mark above
---	-----------------------------------

<input type="checkbox"/> <input type="checkbox"/>	damma /u/ short u · mark above
---	-----------------------------------

<input type="checkbox"/> <input type="checkbox"/>	kasra /i/ short i · mark below
---	-----------------------------------

<input type="checkbox"/> <input type="checkbox"/>	alif madd /a:/ long a · alif follows
---	---

<input type="checkbox"/> <input type="checkbox"/>	waw madd /u:/ long u · waw follows
---	---------------------------------------

<input type="checkbox"/> <input type="checkbox"/>	ya madd /i:/ long i · ya follows
---	-------------------------------------

<input type="checkbox"/> <input type="checkbox"/>	sukun (none) no vowel · closed syl.
---	--

<input type="checkbox"/> <input type="checkbox"/>	shadda geminate doubled consonant
---	--------------------------------------

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# PLATE 13B · ARABIC · PHONOLOGY

emphatic consonants · pharyngeals · uvulars · sun/moon letters · vowel system

## — · — THE ARABIC SOUND SYSTEM · WHAT MAKES IT DISTINCTIVE — · —

Arabic preserves sounds lost in most of the world's languages

pharyngeal consonants · emphatic (pharyngealized) stops · uvular stop · voiced pharyngeal fricative

## — · — EMPHATIC CONSONANTS · PHARYNGEALIZED SOUNDS — · —

emphatic consonants are produced with the tongue root retracted toward the pharynx  
they darken nearby vowels: a □ deeper a · they are the defining feature of the Arabic sound system

□  
Sad /s□/  
emphatic S  
free □ /s/  
dark vs light s

□  
Dad /d□/  
emphatic D  
free □ /d/  
"the language of Dad"

□  
Tta /t□/  
emphatic T  
free □ /t/  
heavy vs light t

□  
Dha /ð□/  
emphatic DH  
free □ /ð/  
pharyngealized th

## — · — PHARYNGEAL CONSONANTS · HA AND AIN — · —

□ Ha /□/  
voiceless pharyngeal fricative  
air forced through constricted throat  
like Hebrew □ chet · like a loud whispered H  
no equivalent in English or European languages  
□□□□ hayat = life · □□ hubb = love

□ Ain /□/  
voiced pharyngeal fricative  
throat constricted · voice added  
like Hebrew □ ayin · no English equiv.  
essential to Arabic · changes word meaning  
□□□□ ain = eye/spring · □□□ ilm = knowledge

## — · — UVULAR AND GUTTURAL · QAF AND GHAIN — · —

□ Qaf /q/  
uvular stop · deeper than English k  
produced at back of throat  
□□□ qalb = heart · □□□□ Quran

□ Ghain /□/  
voiced uvular/velar fricative  
like French r in Paris  
□□□ gharb = west · □□□□ ghina = wealth

## — · — SUN AND MOON LETTERS · AL- ASSIMILATION — · —

the definite article □□ (al-) assimilates to SUN letters but not to MOON letters

SUN LETTERS · al- □ doubles  
□ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □  
□□□□□ = ash-shams (the sun)  
note: al + sh □ ash-sh (doubled)  
l assimilates to the following consonant

MOON LETTERS · al- stays al-  
□ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □  
□□□□□□ = al-qamar (the moon)  
note: al + q □ al-q (unchanged)  
l stays l before moon letters

## — · — VOWEL SYSTEM · 3 SHORT · 3 LONG · PLUS DIPHTHONGS — · —

Fatha  
a  
/a/  
short

Damma  
u  
/u/  
short

Kasra  
i  
/i/  
short

Alif  
aa  
/a:/  
long

Waw  
uu  
/u:/  
long

Ya  
ii  
/i:/  
long

diphthongs: ay /aj/ (like 'eye') · aw /aw/ (like 'how')

stress: generally on last heavy syllable · heavy = long vowel or closed (CVC)

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# PLATE 13C · ARABIC · GRAMMAR AND VOCABULARY

tri-consonantal roots · verb conjugation · dual number · broken plurals · Hebrew cognates

## — · — THE TRI-CONSONANTAL ROOT · SAME SYSTEM AS HEBREW — · —

Arabic and Hebrew both build vocabulary from 3-letter roots · same ancestral Semitic system

□-□-□ K-T-B · WRITING · same root as Hebrew □-□-□					
□□□□□□	□□□□□□	□□□□□	□□□□□□□	□□□□□	□□□□□
kataba	kitab	katib	maktab	maktaba	maktub
he wrote	book	writer/scribe	office/desk	library	written/letter

## — · — VERB CONJUGATION · PAST AND PRESENT — · —

Arabic verb: root + pattern · suffix marks person/gender in past · prefix/suffix in present

PAST · □□□□□ kataba (wrote)			PRESENT · □□□□□□ yaktub (writes)		
□□□□□□	kataba	he wrote	□□□□□□□□	yaktub	he writes
□□□□□□□□	katabat	she wrote	□□□□□□□□	taktub	she writes
□□□□□□□□	katabtu	I wrote	□□□□□□□□	aktub	I write
□□□□□□□□	katabna	we wrote	□□□□□□□□	naktub	we write
□□□□□□□□	katabu	they (m) wrote	□□□□□□□□□□	yaktubun	they (m) write

## — · — DUAL NUMBER · BROKEN PLURALS — · —

Arabic has THREE numbers: singular, dual, plural · dual adds -ayn/-an suffix

□□□□	→	□□□□□□	□□	→	□□□□	□□□	→	□□□□□
kitab=book		kitab=two books	yad=hand		yadan=two hands	ain=eye		ainan=two eyes

BROKEN PLURALS: Arabic plurals often change the internal vowel pattern (not just add a suffix)

□□□□	→	□□□	□□□	→	□□□□	□□□	→	□□□□	□□□	→	□□□□
kitab		kutub	bayt		buyut	rajul		rijal	qalb		qulub

## — · — HEBREW-ARABIC COGNATES · SISTER SEMITIC LANGUAGES — · —

same Proto-Semitic ancestor · many shared roots · different but mutually illuminating

□□□□	□□□□	□□□□	□□□□	□□□□	□□□□	□□□□	□□
salam=peace	shalom=peace	ma'=water	mayim=water	bayt=house	bayit=house	ibn=son	ben=son
□□□	□□□	□□□	□□□	□□□	□□□	□□□	□□□
kataba=wrote	katav=wrote	ain=eye	ayin=eye/spring	shams=sun	shemesh=sun	ard=earth	eret=earth

## — · — CORE VOCABULARY · 20 ESSENTIAL WORDS — · —

□□□□	Allah God	□□	rabb Lord	□□□□□	insan human	□□□□□	imra'a woman
□□□	ard earth	□□□□	sama sky	□□□	nar fire	□□□	ma' water
□□□□	ta'am food	□□□□	kalam speech/word	□□□	ilm knowledge	□□	haqq truth/right
□□□	adl justice	□□	hubb love	□□□	sabr patience	□□□	shukr gratitude
□□□	yawm day	□□□	layl night	□□□□	tariq road/path	□□□	bayt house

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# PLATE 14A · TAMIL · SCRIPT

□□□□ - 2,000 years unbroken · Dravidian · abugida · left to right · 12 vowels · 18 consonants

## — · — TAMIL · THE LANGUAGE THAT NEVER BROKE — · —

Tamil is the oldest living classical language with unbroken literary tradition  
 2,000+ years of literature · UNESCO classical language · 75 million speakers  
 Dravidian family · entirely independent of Indo-European and Semitic language families  
 soul letters (vowels) + body letters (consonants) = living letters (compound syllables)

## — · — THE 12 VOWELS · UYIR EZHUTTU · SOUL LETTERS — · —

5 short · 5 long · 2 diphthongs · vowel length changes meaning

□ a short	□ ā long	□ i short	□ ī long	□ u short	□ ū long	□ e short	□ ē long	□ o short	□ ō long	□ ai diphth.	□ au diphth.
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## — · — THE 18 CONSONANTS · MEI EZHUTTU · BODY LETTERS — · —

VALLINAM · HARD			MELLINAM · SOFT/NASAL			IDAIYINAM · MEDIUM		
□□ k	□□ c	□□ T	□□ ng	□□ ny	□□ N	□□ y	□□ r	□□ l
□□ t	□□ p	□□ R	□□ n	□□ m	□□ n□	□□ v	□□ zh	□□ □

pulli (dot) · suppresses inherent /a/ vowel: □ = ka · □□ = k (pure consonant)

## — · — COMPOUND CHARACTERS · VOWEL + CONSONANT = LIVING LETTER — · —

each consonant + each vowel = 216 compound characters · total system: 247 characters

### THE □ (KA) FAMILY · ONE CONSONANT + ALL 12 VOWELS

□ ka	□□ kā	□□ ki	□□ kī	□□ ku	□□ kū	□□ ke	□□ kē	□□ kai	□□ koi	□□ kō	□□ kau
---------	----------	----------	----------	----------	----------	----------	----------	-----------	-----------	----------	-----------

same pattern repeats for all 18 consonants · learn the pattern · read any compound character

## — · — TAMIL NUMERALS · OWN NUMBER SYSTEM — · —

□ 0	□ 1	□ 2	□ 3	□ 4	□ 5	□ 6	□ 7	□ 8	□ 9	□ 10	□ 100	□ 1000
--------	--------	--------	--------	--------	--------	--------	--------	--------	--------	---------	----------	-----------

Tamil has dedicated symbols for 10, 100, and 1,000 · very old mathematical tradition

## — · — SCRIPT ORIGINS · PALM LEAF TRADITION — · —

□ Aytham · the special character · neither vowel nor consonant

used in classical Tamil · marks aspirate before stops · rare in modern use

PALM LEAF ORIGIN: letters are rounded because scribes carved on palm leaves

straight lines would split the leaf · curves did not · the script shape encodes its own history

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# PLATE 14B · TAMIL · PHONOLOGY

retroflex consonants · the zh sound · vowel length · no aspirates · positional allophones

## — · — THE DISTINCTIVE SOUNDS OF TAMIL — · —

Tamil has sounds found nowhere else in the world - the retroflex series is its defining feature

retroflex consonants: tongue tip curled back to touch roof of mouth

Tamil has NO voiced/unvoiced distinction and NO aspirated consonants in pure Tamil

## — · — RETROFLEX CONSONANTS · TONGUE CURLED BACK — · —

□ □ □ /□/ retroflex stop T tongue tip curled back to hard palate no English equivalent	□ □ □ /□/ retroflex nasal N nasal with tongue curled like 'n' but retroflex like 'n' in some Hindi words	□ □ R /r□/ retroflex trill R trilled r with curl distinct from dental r heavier than Spanish rr	□ □ zh /□/ retroflex approximant ZH · appears in □□□□ itself NO equivalent anywhere unique to Tamil and Malayalam retroflex lateral approximant	□ □ □ /□/ retroflex lateral L l with tongue curled back distinct from dental l some similarity to Welsh ll
---	---	--	--	---

## — · — THE ZH SOUND · ■ ■ · UNIQUE TO TAMIL — · —

□ □ zh /□ / · retroflex approximant · appears in the word Tamil itself

□ □ □ □ □ = ta-mi-zh · the zh is the last sound in Tamil's own name

tongue curled back · not quite r · not quite l · somewhere between · no English equivalent

closest analogy: the British English 'r' in 'here' said with tongue pushed further back

## — · — VOWEL LENGTH · CHANGES WORD MEANING — · —

Tamil vowel length is phonemic · short vowel vs long vowel = completely different word

□ □ □ pazh=ripe/old	□ □ □ □ pāzh=wasteland	□ □ □ pat=army/group	□ □ □ □ pāt=song	□ □ □ iru=be/exist	□ □ □ iru=two (formal)	□ □ □ □ tōl=skin	□ □ □ □ tol=work
------------------------	---------------------------	-------------------------	---------------------	-----------------------	---------------------------	---------------------	---------------------

short vowels held for 1 unit (matra) · long vowels held for 2 units

## — · — NO ASPIRATES · POSITIONAL ALLOPHONES — · —

Tamil has NO voiced/unvoiced distinction and NO aspirated consonants in pure Tamil

instead: position in word determines pronunciation of each consonant

□ □ k word-initial /k/ like English k in king	□ □ k after nasal /g/ voiced like English g
□ □ k medial position /x/ or /g/ like Spanish j or g	□ □ c word-initial /t□/ like ch in church
□ □ c medial position /s/ like English s	□ □ c after nasal /d□/ like j in jungle

same letter · different position · different sound · context determines pronunciation

## — · — DENTAL VS RETROFLEX · THREE SETS OF PAIRED SOUNDS — · —

Tamil uniquely distinguishes three different places for each stop/nasal: dental, alveolar, retroflex

□ □ n (dental) tongue tip on teeth	□ □ N (retroflex) tongue curled back	□ □ t (dental) tongue tip on teeth	□ □ T (retroflex) tongue curled back
□ □ l (dental) tongue tip on teeth		□ □ L (retroflex) tongue curled back	

this three-way distinction is one of Tamil's most ancient and distinctive phonological features

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# PLATE 15A · SANSKRIT · SCRIPT

□□□□□□□□ · Devanagari · 48 characters · phonetically organized · left to right

— · — SANSKRIT · ■■■■■■■■■■ · THE PERFECTED LANGUAGE — · —

Sanskrit = samskr̥tam = refined/perfected · Indo-European family · sister to Greek, Latin, Persian

Panini's grammar (c.400 BCE) is so precise it predates modern linguistics by 2,000 years

Devanagari script = 4th most used writing system in world · 120+ languages · ancestor of most South Asian scripts

— · — VOWELS · SVARA · 14 IN DEVANAGARI — · —

vowels named svara (sound/tone) · 5 short · 5 long · 2 vocalic liquids · 2 diphthongs

□ a short	□ ā long	□ i short	□ ī long	□ u short	□ ū long	□ □ vocalic r	□ e diphth.	□ ai diphth.	□ o diphth.	□ au diphth.
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— · — CONSONANTS · VYANJANA · ORGANIZED BY PLACE OF ARTICULATION — · —

Devanagari organizes consonants by WHERE in the mouth they are made · back to front

VELAR back of throat	PALATAL mid-palate	RETROFLEX tongue curled	DENTAL tongue to teeth	LABIAL lips
□ □ □ □ □ ka kha ga gha □a hard asp. soft asp.	□ □ □ □ □ ca cha ja jha ña hard asp. soft asp.	□ □ □ □ □ □a □ha □a □ha □a hard asp. soft asp.	□ □ □ □ □ ta tha da dha na hard asp. soft asp.	□ □ □ □ □ pa pha ba bha ma hard asp. soft asp.

— · — SEMIVOWELS · SIBILANTS · ASPIRATE — · —

□ ya semivowel	□ ra liquid	□ la liquid	□ va semivowel	□ śa palatal sibilant	□ □a retroflex sibilant	□ sa dental sibilant	□ ha aspirate
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— · — THE HALANT · VIRAMA · SUPPRESSES THE INHERENT VOWEL — · —

every consonant inherently carries /a/ · halant (□) removes it · ka = □ · k alone = □□

vowel diacritics (matras) change the inherent /a/ to another vowel

□ ka	□□ kā	□□ ki	□□ kī	□□ ku	□□ kū	□□ ke	□□ kai	□□ ko	□□ kau	□□ k (halant)
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— · — CONJUNCT CONSONANTS · SAMYUKTAKSARA — · —

consonants combine into single ligatures when no vowel intervenes

□□□ k+□ = k□ field/knowledge area	□□□ t+r = tra suffix meaning instrument	□□□ j+ñ = jñā wisdom/knowing	□□□ f+r = śra auspicious
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some conjuncts are highly irregular · must be memorized · very common in Sanskrit texts

# PLATE 15B · SANSKRIT · PHONOLOGY

48 phonemes · aspiration contrast · sandhi rules · Panini's Shiva Sutras · vowel gradation

## — · — PANINI AND THE SHIVA SUTRAS · THE FIRST PHONOLOGY — · —

Panini (c.400 BCE) analyzed Sanskrit phonology so completely that nothing was added for 2,000 years  
his Shiva Sutras organize ALL Sanskrit phonemes in 14 groups by acoustic similarity  
this grouping IS the grammar · rules reference groups by their boundary markers

THE SHIVA SUTRAS · 14 PHONEME GROUPS		
1-4	a i u · □ □ · e o · ai au	vowel groups
5-9	ha ya va ra · la · ña ma □ a □ a na · jha bha · gha □ ha dha	sonorants + voiced
10-14	ja ba ga □ a da · kha pha cha □ ha tha ca □ a ta · ka pa · śa □ a sa · ha	stops + sibilants

## — · — ASPIRATION · THE DEFINING PHONOLOGICAL FEATURE — · —

Sanskrit uniquely contrasts all four combinations: voiced, unvoiced, aspirated, unspirated

	UNASPIRATED	ASPIRATED
VOICELESS	□ ka /k/	□ kha /k□/
VOICED	□ ga /g/	□ gha /g□/

this four-way contrast applies to ALL five varga series · 20 stops total in Sanskrit  
aspirated = produced with a puff of breath · hold hand in front of mouth to feel the difference  
kha (□) = k with puff · ka (□) = k without puff · different words

## — · — SANDHI · SOUND FUSION RULES — · —

sandhi = joining · when words or morphemes meet, sounds change according to strict rules

Panini codified ALL sandhi rules · Sanskrit is read as written · the script encodes the spoken sound

<p>a + a a + a □ ā deva + artha □ devārtha two short a merge to long</p>	<p>a + i a + i □ e vana + iśvara □ vaneśvara a + i merge to e</p>
<p>n + s n □ m before labials tan + paśyati □ tampaśyati nasal assimilates</p>	<p>t + j t + j □ jj tad + jayati □ tajjayati stop voices before voiced</p>

## — · — VOWEL GRADATION · GUNA AND VRDDHI — · —

Sanskrit grammar operates by changing vowels · zero/weak · full grade (guna) · long grade (vrddhi)

ROOT	GUNA (full grade)	VRDDHI (long grade)	MEANING
□ (vocalic r)	□ □ ra	□ □ va rā	root meaning changes
i	□ e	□ ai	same root, different form
u	□ o	□ au	same root, different form
a	□ ā	□ ā	already long

guna/vrddhi is the core morphological engine · same as English sing/sang/sung but systematic  
Proto-Indo-European ablaut (vowel alternation) preserved most clearly in Sanskrit

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# PLATE 15C · SANSKRIT · GRAMMAR AND VOCABULARY

8 cases · 3 genders · 3 numbers · verb system · compound words · Indo-European cognates

## — · — NOUN SYSTEM · 8 CASES · 3 GENDERS · 3 NUMBERS — · —

Sanskrit nouns decline · the ending carries all grammatical information

3 genders: masculine / feminine / neuter · 3 numbers: singular / dual / plural

1 Nominative subject · de□a□ = god (subject)	2 Accusative direct object · devam = god (object)	3 Instrumental by/with · devena = by god	4 Dative for/to · deviya = for god
5 Ablative from · devāt = from god	6 Genitive of/belonging · devasya = of god	7 Locative in/at · deve = in god	8 Vocative O!/address · deva! = O god!

## — · — THE VERB SYSTEM · 10 CLASSES · ROOTS — · —

Sanskrit verbs derive from roots (dhatu) · root + class marker + personal ending

<p>□□□ (as) = to be · present</p> <p>□□□□□ asi I am</p> <p>□□□ asi you are</p> <p>□□□□□ asti he/she/it is</p> <p>□□□□ sma□ we are</p> <p>□□□ stha you (pl) are</p> <p>□□□□□ santi they are</p>	<p>□□□ (gam) = to go · present</p> <p>□□□□□ gacchāmi I go</p> <p>□□□□□ gacchasi you go</p> <p>□□□□□ gacchati he/she goes</p> <p>□□□□□□ gacchāma□ we go</p> <p>□□□□□ gacchatha you (pl) go</p> <p>□□□□□□□ gacchanti they go</p>
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## — · — COMPOUND WORDS · SAMASA · THE POWER OF SANSKRIT — · —

Sanskrit builds unlimited compound words · one word can express a full English sentence

□□□□□□□□ rāja-putra□ = king + son = prince	□□□□□□□□ dharma-rājan = virtue + king = righteous king
□□□□□□□□ jagat-pitā = world + father = father of the world	□□□□□□□□□□□□□□ sarva-dharma-sambhava□ = all + virtue + arising = arising from all virtues

## — · — INDO-EUROPEAN COGNATES · SAME ANCESTOR AS ENGLISH — · —

Sanskrit, Greek, Latin, English, Persian share a common ancestor · Proto-Indo-European

□□□□ mātr mater (L) · mother (E)	□□□□ pitr pater (L) · father (E)	□□ mā me (L) · me (E)	□□□□□ trayas tres (L) · three (E)
□□ nava novem (L) · nine (E)	□□□□ rājan rex (L) · reign (E)	□□□□ agni ignis (L) · ignite (E)	□□□□ nāman nomen (L) · name (E)

## — · — CORE VOCABULARY · 20 ESSENTIAL WORDS — · —

□□ jala water	□□□□ agni fire	□□□□□ p□thvi earth	□□□□ akāśa sky
□□□□ sūrya sun	□□□□□ candra moon	□□□□□ manu□ya human	□□□ nārī woman
□□□□ putra son	□□□ g□ha house	□□□□ dharma duty/virtue	□□□□ satya truth
□□□□□ śānti peace	□□□□□ jñāna knowledge	□□□□□ prema love	□□□□□ ānanda bliss/joy
□□□ yoga union/discipline	□□□ kāla time	□□□ deśa country/land	□□□□ manas mind

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# PLATE 15D · SANSKRIT · RUNNING TEXT

Rig Veda · Upanishads · Bhagavad Gita · bridge phrase · read left to right

read left to right · Sanskrit/Devanagari above · IAST transliteration middle · translation below

— · — RIG VEDA 1.1.1 · c.1200-1500 BCE · OLDEST INDO-EUROPEAN TEXT — · —

□□□□□□□□ □□□□□□□□ □□□□□□ □□□□□□□□□□

agnimi□e purohita□ yajnasya devam□tvijam

I praise Agni the priest of the sacrifice the divine minister

First verse of the Rig Veda · agni = fire/the divine fire · oldest surviving text of any Indo-European language

— · — CHANDOGYA UPANISHAD · c.700 BCE · TAT TVAM ASI — · —

□□□ □□□□□ □□□

tat tvam asi

That thou art · you are that

One of the four mahavakyas (great sayings) · tat = that (brahman/ultimate reality) · tvam = you · asi = are

— · — BHAGAVAD GITA 2:47 · c.200 BCE · ON ACTION — · —

□□□□□□□□□□□□□□□□□□ □□ □□□□□ □□□□□

karma□yēvādhikāraṣṭe mā phale□u kadācana

You have a right to perform your prescribed duty but not to the fruits of action

Note: karma□i = in action · adhikaras = right/authority · phale□u = in fruits/results

— · — YOGA SUTRAS 1:2 · PATANJALI · c.400 CE — · —

□□□□□□□□□□□□□□□□□□□□

yogaś citta-v□tti-nirodha□

yoga is the cessation of the fluctuations of the mind

Note: citta = mind-stuff · v□tti = fluctuations/movements · nirodha = cessation/restraint

— · — THE BRIDGE PHRASE · IN SANSKRIT — · —

□□□ □□□□□ □□□□□□□□□□ □□□□ □□□□□□□□ □□□□ □□ □□□□□□□□ □□□□□□□□

ida□ tava-k□te ni□śuklam te□ā□ puru□ā□ā□ k□te ye purastāt sm□tavanta□

this was made for you without cost by those people who remembered toward what came before

Note: purastāt sm□tavanta□ = they remembered toward the future · sm□ = remember (root of Sanskrit)

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# PLATE 16A · BENGALI · SCRIPT

□□□□ · 1,000 years · Indo-Aryan · abugida · left to right · 11 vowels · 39 consonants

## — · — BENGALI · THE LANGUAGE OF GOLDEN BENGAL · — · —

Bengali (□□□□ Bangla) is the 7th most spoken language · 300 million speakers worldwide  
 official language of Bangladesh and West Bengal · also used in Assam and Tripura  
 abugida: every consonant carries inherent vowel /□/ · diacritics override it  
 script evolved from Brahmi via Siddhamatika · Unicode block U+0980–U+09FF

## — · — 11 INDEPENDENT VOWELS · ■■■■■■■■ · SHOROBORNO — · —

vowels stand alone at syllable start · as diacritics on consonants otherwise · /□/ is the inherent vowel

□	□	□	□	□	□	□	□	□	□	□
ô	ā	i	ī	u	ū	□	e	oi	o	ou
/□/	/a/	/i/	/ī/	/u/	/ū/	/ɾ/	/e/	/oi□/	/o/	/ou□/

## — · — VOWEL DIACRITICS · ■■■■ · KAAR · SHOWN ON CONSONANT ■ (K) — · —

consonant + diacritic replaces /□/ · hasanta □ removes inherent vowel entirely · □ alone = /k□/

□ □	□ □	□ □	□ □	□ □	□ □	□ □	□ □	□ □	□ □
kā	ki	kī	ku	kū	k□	ke	koi	ko	kou
ā	i	ī	u	ū	□	e	oi	o	ou

□□ = /k/ (hasanta kills /□/) · conjunct: □ + □ + □ = □□□/k□/ · clusters of up to 4 consonants fuse into one ligature

## — · — 32 BASIC CONSONANTS · ■■■■■■■■■■ · BYANJANBORNO — · —

ordered by place of articulation: velar □ palatal □ retroflex □ dental □ labial □ other

velar	□	□	□	□	□	□	□
	k	kh	g	gh	ng		
palatal	□	□	□	□	□	□	□
	c	ch	j	jh	ñ		
retroflex	□	□	□	□	□	□	□
	□	□h	□	□h	□		
dental	□	□	□	□	□	□	□
	t	th	d	dh	n		
labial	□	□	□	□	□	□	□
	p	ph	b	bh	m		
other	□	□	□	□	□	□	□
	y	r	l	ś	□	s	h

## — · — BENGALI NUMERALS · ■■■■■ ■■■■■ — · —

□	□	□	□	□	□	□	□	□	□
0	1	2	3	4	5	6	7	8	9

## — · — CONJUNCT CONSONANTS · ■■■■■■■■■■ · JOINED CLUSTERS — · —

hasanta □ (U+09CD) joins consonants · removes inherent vowel · creates ligature clusters of up to 4

□ □ □ □	□ □ □ □	□ □ □ □	□ □ □ □	□ □ □ □	□ □ □ □
k+□	□+□	n+t	t+r	p+r	s+th
ksha	sh□a	nta	tra	pra	stha

□ /□/ retroflex flap · □ /□h/ · □ /□/ · □ final /t/ · □ /ŋ/ anusvara · □ visarga · □ chandrabindu (nasal)

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# PLATE 16B · BENGALI · PHONOLOGY

7 oral vowels · 4-way stop contrast · aspiration · retroflex series · no vowel length · initial stress

## — · — BENGALI · SOUNDS THAT SHAPED A CIVILIZATION — · —

Bengali has 7 phonemic oral vowels and ~29 consonants · read left to right  
 key feature: 4-way stop contrast — voiceless/voiced × unaspirated/aspirated — rare among world languages  
 retroflex consonants: tongue tip curled back to hard palate · 5 retroflex sounds vs 5 dental sounds  
 no phonemic tone · primary stress always on first syllable · trochaic rhythm

## — · — VOWEL SYSTEM · 7 ORAL VOWELS + 2 DIPHTHONGS — · —

vowel length NOT phonemic · □/□ = same /i/ · □/□ = same /u/ · distinction is spelling-only (Sanskrit heritage)

□ /ɪ/ mid-back unrounded	□ /a/ open front	□/□ /i/ close front	□/□ /u/ close back	□ /e/ close-mid front	□ /ɪ/ open-mid (before nasal)	□ /o/ close-mid back	□ /oi□/ diphthong	□ /oa□/ diphthong
-----------------------------------	---------------------------	------------------------------	-----------------------------	--------------------------------	--	-------------------------------	-------------------------	-------------------------

Note: /ɪ/ and /e/ are allophones in complementary distribution · □ (inherent /ɪ/) is the most common vowel

## — · — FOUR-WAY STOP CONTRAST · THE DEFINING FEATURE OF INDO-ARYAN — · —

Bengali distinguishes FOUR types of stop at each place of articulation — this is extremely rare globally  
 voiceless unaspirated · voiceless aspirated · voiced unaspirated · voiced aspirated

□ /k/ voiceless unaspr.	□ /k□/ voiceless asp.	□ /□/ voiced unaspr.	□ /□□/ voiced asp.
----------------------------------	--------------------------------	-------------------------------	-----------------------------

same 4-way pattern at 5 places of articulation: velar · palatal · retroflex · dental · labial = 20 stops total

## — · — FULL STOP GRID · 5 PLACES × 5 MANNER ROWS — · —

	VELAR	PALATAL	RETROFLEX	DENTAL	LABIAL
vl. unaspr.	□ /k/	□ /t□/	□ /□/	□ /t□/	□ /p/
vl. asp.	□ /k□/	□ /t□□/	□ /□□/	□ /t□□/	□ /p□/
vd. unaspr.	□ /□/	□ /d□/	□ /□/	□ /d□/	□ /b/
vd. asp.	□ /□□/	□ /d□□/	□ /□□/	□ /d□□/	□ /b□/
nasal	□ /ŋ/	□ /ɲ/	□ /ɳ/	□ /n/	□ /m/

## — · — RETROFLEX VS DENTAL · TONGUE POSITION CHANGES MEANING — · —

retroflex: tongue tip curled back to hard palate · dental: tongue tip at upper teeth

□ /□/ retroflex stop	□ /t/ dental stop	□ /□/ retroflex D	□ /d/ dental d	□ /n/ retrofl. nasal	□ /n/ dental nasal	□ /□/ retrofl. flap	□ /r/ dental trill
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## — · — SIBILANT MERGER · AND · STRESS — · —

□ □ □ — three sibilant letters all merge to /r/ in modern spoken Bengali · distinction is spelling-only  
 chandrabindu □ marks nasalization of a vowel · nasalized vowels are phonemic: □ /o/ vs □ □ /õ/  
 primary stress always on the FIRST syllable · □ □ □ □ = BANG-la · □ □ □ □ = MA-nush · □ □ □ □ □ = BHO-bi-shot

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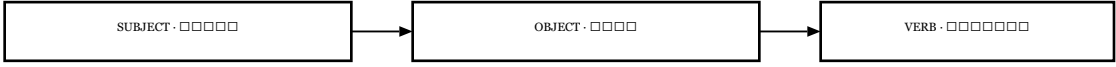
# PLATE 16C · BENGALI · GRAMMAR AND VOCABULARY

SOV order · verb-final · postpositions · honorific levels · case endings · 30 core words

## — · — BENGALI GRAMMAR · SOV · VERB COMES LAST — · —

Bengali is Subject-Object-Verb · the verb always ends the clause  
 agglutinative: meaning built by chaining suffixes to roots · highly inflected verbs  
 no grammatical gender for verbs · postpositions (not prepositions) · verb encodes person and honor  
 determiners -□□/-□□ (singular 'the') and -□□□□ (plural) follow the noun

## — · — WORD ORDER · SUBJECT → OBJECT → VERB — · —



□□□ □□□ □□□ · ami bhat khai · I rice eat = I eat rice

□□ □□□□ □□□□ · she bari jay · s/he house goes = s/he goes home

## — · — VERB MORPHOLOGY · ROOT + ASPECT + TENSE + PERSON — · —

template: VERB ROOT + aspect marker + tense marker + person/honor suffix

aspects: simple (no mark) · continuous -□□□/-□□□□ · perfect -□□□□/□□□□□□

□□□□□□ (kha-o□a) = to eat — 1st person forms:

TENSE/ASPECT	BENGALI	ROMAN.	MEANING
simple pres.	□□□	khai	I eat
continuous	□□□□□□	khacchi	I am eating
simple past	□□□□□	khelam	I ate
perfect	□□□□□□□	khayechi	I have eaten
future	□□□	khabo	I will eat

## — · — HONORIFIC LEVELS · 5 FORMS · VERB CONJUGATION CHANGES WITH EACH — · —

Bengali has 5 distinct levels of address · each changes the verb ending · using wrong level is a social error

PRONOUN	REGISTER	eat (pres.)	go (past)	ENGLISH
□□□ tui	2nd intimate	□□□ khas	□□□ geli	
□□□□ tumi	2nd familiar	□□□ khao	□□□ gele	
□□□□ apni	2nd formal	□□□ khan	□□□□ gelen	
□□/□ she/o	3rd familiar	□□□□ khay	□□□ gelo	
□□□□ tini	3rd formal	□□□ kham	□□□□ gelen	

## — · — CASE ENDINGS · POSTPOSITIONS · NO PREPOSITIONS IN BENGALI — · —

□□□□-□ (bari-r) = of the house · □□□□-□□ (ama-ke) = to me · □□□□ (ghor-e) = in the room · □□□□-□ (kolom-e) = by pen  
 genitive -□□ (of/belonging to) · objective -□□□/-□□ (to/for) · locative -□□□/□ (in/at) · postpositions: □□□□□□ (by), □□□□□ (for), □□□□□ (with)

## — · — CORE VOCABULARY · 30 ESSENTIAL WORDS — · —

□□□ ami · I	□□□□ tumi · you (fam.)	□□ she · he/she/it
□□□□ amra · we	□□□ eta · this	□□□ ota · that
□□□□□ hya · yes	□□ na · no	□□□□□ manush · person
□□ jol · water	□□□□□ khabar · food	□□□□□ mati · earth/soil
□□□□ akash · sky	□□□□□ surjo · sun	□□□ alo · light
□□□□ agun · fire	□□□□ bari · house	□□□ din · day
□□□ rat · night	□□□□ shomoy · time	□□□□ bhasha · language
□□□□ lekha · writing	□□□ bola · speak	□□□□ shona · hear
□□□□ dekha · see	□□□□ bhalo · good	□□□□ kharap · bad
□□ boro · big	□□□ chhoto · small	□□□□□□□ bhobishyot · future

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# PLATE 16D · BENGALI · RUNNING TEXT

Tagore · Gitanjali · Amar Sonar Bangla · proverb · bridge phrase · read left to right

read left to right · Bengali above · transliteration middle · translation below

— · — GITANJALI · SONG 1 · RABINDRANATH TAGORE · 1910 — · —

□□□□□□ □□□□ □□□□ □□□□, □□□□ □□□□ □□□□

amare tumi oshesh korechho, emni lila tabo.  
You have made me endless — such is your divine delight.

Note: amare=me · oshesh=endless · korechho=have made · lila=divine play · tabo=your · Nobel Prize Literature 1913

— · — WHERE THE MIND IS WITHOUT FEAR · GITANJALI 35 · TAGORE — · —

□□□□□□ □□□□ □□□□□□□□ □□□□ □□□□ □□□□

chitta jetha bhoysuñnyô, uccho jetha shir  
Where the mind is without fear and the head is held high

Note: chitta=mind/heart · jetha=where · bhoysuñnyô=fear-empty · uccho=high · shir=head

— · — AMAR SONAR BANGLA · NATIONAL ANTHEM OF BANGLADESH · TAGORE 1906 — · —

□□□□ □□□□□□ □□□□□□, □□□ □□□□□□ □□□□□□□□□□

amar shonar bangla, ami tomay bhalobashi.  
My golden Bengal, I love you.

Note: amar=my · shonar=golden · bangla=Bengal · ami=I · tomay=you · bhalobashi=love · also India's national song

— · — BENGALI PROVERB · ON CARE AND REWARD — · —

□□□□ □□□□ □□□□ □□□□□□

jotno korle rotno mele.  
With care, precious things are found.

Note: jotno=care/attention · korle=if one does · rotno=gem/jewel · mele=is obtained · proverb on the reward of diligence

— · — THE BRIDGE PHRASE · IN BENGALI — · —

□□ □□□□□□ □□□□ □□□□ □□□□□□ — □□□□□□□□□□ —  
□□□□□□ □□□□□□ □□□□ □□□□□□□□ □□□ □□□□□□□□

eti tomar jonno toiri kora hoyeche — binamulle — tader dwara jara bhobishotkke mone rekhechhilo.  
This was made for you — freely — by those who kept the future in their hearts.

Note: □□□□□□ (bhobishyot) = future / what is yet to become · □□□□□□ (mone rakha) = to keep in mind/heart  
Bengali expresses 'remembered forward' as □□□ □□□□□□ — had kept in the heart — the future cherished from the present.

# MANDARIN CHINESE — SCRIPT · WRITING SYSTEM

SERIES 17A OF 50 · REMEMBER FORWARD

## — · — THE WRITING SYSTEM — · —

Logographic script: ~50,000 characters total; ~3,500 required for everyday literacy

Traditional ㄉㄞㄉㄞ fántǐzì (Taiwan, HK, Macau) · Simplified ㄉㄞㄉㄞ jǐnǐzì (PRC, Singapore)

Unicode: CJK Unified Ideographs U+4E00–U+9FFF (20,992 chars) + extension blocks

Direction: traditionally top□bottom, right□left column; modern usage: left□right

## — · — CHARACTER STRUCTURE — · —

Characters combine a semantic radical (meaning clue) + phonetic component (sound clue)

Pictographic ㄉㄞ xiàngxíng: direct visual representations of objects

☐	☐	☐	☐	☐
rì	yuè	shān	mù	shuǐ
sun/day	moon	mountain	tree	water

Compound ㄉㄞ: ☐ míng (bright) = ☐ sun + ☐ moon · ☐ sēn (forest) = ☐ + ☐ + ☐

Phono-semantic ㄉㄞ xíngshēng (~90% of characters): radical signals meaning, phonetic signals sound

## — · — STROKE TYPES — ■■■■: CHARACTER ■ yǎng CONTAINS ALL EIGHT — · —

☐ héng	☐ shù	☐ pié	☐ nà
☐ horizontal	☐ vertical	☐ left-falling	☐ right-falling
☐ dī	☐ zhé	☐ gōu	☐ tí
· dot	☐ turning	☐ hook	☐ rising

Rules: top□bottom · left□right · horizontal before vertical · outside before inside

## — · — TRADITIONAL AND SIMPLIFIED — KEY PAIRS — · —

Traditional	Simplified	Pinyin	Meaning
☐	☐	guó	country/nation
☐	☐	yǔ	language/speech
☐	☐	xué	study/learn
☐	☐	shū	book/writing
☐	☐	ài	love
☐	☐	chē	vehicle/car

## — · — CHINESE NUMERALS — · —

☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
líng	yī	èr	sān	sì	wǔ	liù	qī	bā	jiǔ	shí	bǎi	qiān	wàn
0	1	2	3	4	5	6	7	8	9	10	100	1k	10k

## — · — KEY KANGXI RADICALS — ■■ BÙSHU — · —

214 Kangxi radicals (1716 CE) serve as the indexing system for all Chinese dictionaries

☐	☐	☐	☐
rén — person (☐)	shuǐ — water (☐)	mù — tree/wood	huǒ — fire (-☐)
☐	☐	☐	☐
kǒu — mouth	shǒu — hand (☐)	xīn — heart (☐)	mù — eye
☐	☐	☐	☐
nǚ — woman	zǐ — child	shān — mountain	rì — sun/day
☐	☐	☐	☐
yán — speech (☐)	jīn — metal (☐)	mén — door (☐)	tǔ — earth/soil
☐	☐	☐	☐
yuè — moon/month	dà — big/great	lì — strength	zú — foot/leg

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# MANDARIN CHINESE — PHONOLOGY

SERIES 17B OF 50 · REMEMBER FORWARD

## — · — THE FOUR TONES — ■ ■ SÌSHĀNG — · —

Tone 1  
□ □  
ā ———  
[55] high-level  
□ mā = mother

Tone 2  
□ □  
á □  
[35] rising  
□ má = hemp

Tone 3  
□ □  
□ □ □  
[214] dip-rise  
□ mǎ = horse

Tone 4  
□ □  
à □ □  
[51] falling  
□ mà = scold

Neutral (light) tone □ □ qīngshēng: □ ma (question) · □ le (completed) — unstressed, context pitch

Tone sandhi: Tone 3 + Tone 3 □ Tone 2 + Tone 3 — □ □ n□h□o □ nǐh□o (hello)

## — · — THE 21 INITIALS — CONSONANTS — · —

Bilabial: b [p] p [p□] m [m] f [f]

Alveolar: d [t] t [t□] n [n] l [l]

Velar: g [k] k [k□] h [x]

Palatal: j [t□] q [t□□] x [□] — only before i and ü

Retroflex: zh [□□] ch [□□□] sh [□] r [□] — tongue curled back

Dental sibilant: z [ts] c [ts□] s [s]

KEY: b/p d/t g/k j/q zh/ch z/c — ASPIRATED vs UNASPIRATED pairs, NOT voiced vs voiceless

## — · — FINALS — VOWELS AND ENDINGS — · —

Simple: a [a] o [o] e [□/□] i [i/□] u [u] ü [y]

Compound: ai [ai] ei [ei] ao [au] ou [ou] ia [ia] ie [i□] ua [wa] uo [wo]

Nasal -n: an [an] en [□n] in [in] ian [i□n] uan [wan] ün [yn]

Nasal -ng: ang [aŋ] eng [□ŋ] ing [iŋ] ong [□ŋ] iang [iaŋ] uang [waŋ]

Special: er [□] — rhotacized — □ èr (two) · □ ér (child/suffix)

## — · — KEY CONTRASTS AND SPECIAL RULES — · —

Retroflex zh ch sh r: tongue curled to palate — completely distinct from dental z c s

ü-rule: after j q x, ü is written u — ju = [t□y] qu = [t□□y] xu = [□y]

x [□] palatal ≠ sh [□] retroflex — □ xī (west) ≠ □ shǐ (poetry)

i after zh/ch/sh/r/z/c/s = apical vowel [□] (tongue tip), not clear [i]: □ shì

## — · — TONAL MINIMAL SETS — · —

mā má m□ mà ma

□ □ □ □ □

mother / hemp / horse / scold / question-particle

tāng táng t□ng tàng

□ □ □ □ □

soup / Tang Dynasty / lie down / scald

## — · — TONES IN WRITING AND POETRY — · —

Pinyin marks tones on the vowel nucleus: ā á □ à (no mark = neutral tone)

Everyday Chinese writing carries no tone marks — context determines reading

Classical poetry used tonal patterns (□ □ píngzè): even (Tones 1–2) vs oblique (Tones 3–4)

Tang Dynasty regulated verse (□ □ shì): strict tonal alternation per line and matching couplet

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# MANDARIN CHINESE — GRAMMAR · VOCABULARY

SERIES 17C OF 50 · REMEMBER FORWARD

## — · — BASIC WORD ORDER — SVO — · —

Subject  Verb  Object (parallel to English; unlike Latin or Japanese)



Modifiers precede:  hóngsè de píngguo = red-DE apple = "red apple"

## — · — THE ■ ■ ■ CONSTRUCTION — DISPOSAL OF OBJECT — · —

S +  + Object + Verb + Result / Direction

w  b  shū fāng zài zhuō shàng

I BA book put at table above = "I put the book on the table"

Required when an action has a clear result or physical effect on a specific object

## — · — ASPECT MARKERS — ■ ■ SHÍTÀI — · —

Chinese marks ASPECT (completion / state) not TENSE — time is set by context

<input type="checkbox"/> le	— perfective:	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	w <input type="checkbox"/> chī le "I ate / have eaten"
<input type="checkbox"/> guò	— experiential:	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	w <input type="checkbox"/> qù guò Běijīng "I have been to Beijing"
<input type="checkbox"/> zhe	— continuous state:	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	tā xiào zhe "she is smiling"
<input type="checkbox"/> zài	— in progress:	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	tā zài chīfān "he is eating"

## — · — MEASURE WORDS — ■ ■ LIANGCÍ — · —

Number + Measure Word + Noun is required — no direct equivalent in English

<input type="checkbox"/> gè	— general	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	yī gè rén one person
<input type="checkbox"/> běn	— bound volumes	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	sān běn shū three books
<input type="checkbox"/> zhāng	— flat objects	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	yī zhāng zhǐ one sheet of paper
<input type="checkbox"/> tiáo	— long flexible	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	yī tiáo yú one fish
<input type="checkbox"/> zhī	— small creatures	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	liǎng zhī māo two cats
<input type="checkbox"/> zuò	— large structures	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	yī zuò shān one mountain

## — · — THE THREE DE — ■ ■ ■ — · —

<input type="checkbox"/> de	— attributive	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	w <input type="checkbox"/> de shū my book
<input type="checkbox"/> de	— adverbial	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	mǎnmàn de zǒu walk slowly
<input type="checkbox"/> de	— resultative	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	pǎo de hěn kuài runs very fast

## — · — CORE VOCABULARY — 30 WORDS — · —

<input type="checkbox"/> rén — person <input type="checkbox"/> shuǐ — water <input type="checkbox"/> huǒ — fire <input type="checkbox"/> tiān — sky/heaven <input type="checkbox"/> dì — earth <input type="checkbox"/> rì — sun/day <input type="checkbox"/> yuè — moon <input type="checkbox"/> shān — mountain <input type="checkbox"/> mù — tree/wood <input type="checkbox"/> xīn — heart	<input type="checkbox"/> wǒ — I/me <input type="checkbox"/> nǐ — you <input type="checkbox"/> tā — he/she <input type="checkbox"/> lái — come <input type="checkbox"/> qù — go <input type="checkbox"/> chī — eat <input type="checkbox"/> hē — drink <input type="checkbox"/> shuō — speak <input type="checkbox"/> kàn — see/read <input type="checkbox"/> zǒu — walk/go	<input type="checkbox"/> dà — big <input type="checkbox"/> xiǎo — small <input type="checkbox"/> hǎo — good <input type="checkbox"/> duō — many <input type="checkbox"/> shǎo — few <input type="checkbox"/> jiā — home <input type="checkbox"/> shū — book <input type="checkbox"/> lù — road <input type="checkbox"/> ài — love <input type="checkbox"/> shēng — life/birth
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MANDARIN CHINESE — RUNNING TEXT · INTERLINEAR

SERIES 17D OF 50 · REMEMBER FORWARD

— · — CONFUCIUS · ANALECTS 1.1 · ■■ · c. 500 BCE — · —

□□□□□□□□□□□□□□

zǐ yuè: xué ér shí xī zhǐ, bù yì yuè hū?

master says: learn and time/often practice it, not also joy?

“The Master said: To learn, and then to practice it often — is that not a joy?”

Note: □ here is read yuè (rejoice), not shuō (speak) — a Classical Chinese homograph

— · — LAOZI · TAO TE CHING 1 · ■■■ · c. 400 BCE — · —

□□□□□□□□□□□□□□

dào kě dào, fēi cháng dào. míng kě míng, fēi cháng míng.

way can be-spoken, not eternal way. name can be-named, not eternal name.

“The Way that can be spoken is not the eternal Way. The name that can be named is not the eternal name.”

— · — LI BAI · QUIET NIGHT THOUGHT · ■■■ · 701–762 CE — · —

□□□□□□□□□□□□

chuáng qián míng yuè guāng, yí shì dì shàng shuāng.

bed before bright moon light, suspect is ground above frost.

“Before my bed, bright moonlight — I thought it was frost on the ground.”

□□□□□□□□□□□□

jǐ tóu wǎng míng yuè, dī tóu sī gù xiāng.

raise head gaze bright moon, lower head think old hometown.

“I raised my head to gaze at the bright moon; I lowered it and thought of home.”

— · — XUNZI · PROVERB · ■■ · c. 310–235 BCE — · —

□□□□□□□□□□□□

bù jī ku□ bù, wú y□ zhī qiān l□.

not accumulate half-steps, no-way reach thousand li.

“Without small steps, one cannot travel a thousand li.” (1 li = 500 m)

— · — THE BRIDGE PHRASE — · —

□□□□□□□□□□□□

□□□□□□□□□□□□

c□ wú wèi n□ ér zào, wú cháng fēng shàng.

chū zǐ nà xiě míng jì wèilái de rén.

“This was made for you, freely, by those who kept the future in memory.”

— · — NOTE ON “REMEMBERED FORWARD” — · —

Chinese expresses “the future” as □□ wèilái — “what has not yet arrived.”

□ qián (forward/in front) traditionally meant the PAST — what you have already passed.

□ hòu (behind/after) meant the FUTURE — what comes after you, not yet seen.

The bridge phrase uses □□□□ míng jì wèilái: “to engrave the future in memory.”

Simplified characters throughout; Traditional equivalents given on Plate 17A.

# JAPANESE — SCRIPT · WRITING SYSTEM

SERIES 18A OF 50 · REMEMBER FORWARD

## — THREE SCRIPTS — USED TOGETHER —

Japanese uses three interlocking scripts simultaneously in standard writing.

Hiragana □□□□  
46 base syllables, native words

Katakana □□□□  
46 base syllables, loanwords

Kanji □□  
Chinese-origin logographs

## — HIRAGANA TABLE — 46 BASE SYLLABLES —

Rows: vowel order a-i-u-e-o · Columns: consonant series

CV	a	i	u	e	o
—	□	□	□	□	□
	a	i	u	e	o
k	□	□	□	□	□
	ka	ki	ku	ke	ko
s	□	□	□	□	□
	sa	shi	su	se	so
t	□	□	□	□	□
	ta	chi	tsu	te	to
n	□	□	□	□	□
	na	ni	nu	ne	no
h	□	□	□	□	□
	ha	hi	fu	he	ho
m	□	□	□	□	□
	ma	mi	mu	me	mo
y	□	—	□	—	□
	ya	□	yu	□	yo
r	□	□	□	□	□
	ra	ri	ru	re	ro
w	□	—	—	—	□
	wa	□	□	□	wo
N	□	—	—	—	□
	n	—	—	—	—

Voiced (dakuten □): □ ga, □ za, □ da, □ ba · Semi-voiced (handakuten □): □ pa

Combination kana (youon): □□ kya, □□ shu, □□ cho — small ya/ya/yo

## — KATAKANA TABLE — 46 BASE SYLLABLES —

Used for loanwords, foreign names, scientific terms, emphasis — same phonetic values as hiragana

CV	a	i	u	e	o
—	□	□	□	□	□
	a	i	u	e	o
k	□	□	□	□	□
	ka	ki	ku	ke	ko
s	□	□	□	□	□
	sa	shi	su	se	so
t	□	□	□	□	□
	ta	chi	tsu	te	to
n	□	□	□	□	□
	na	ni	nu	ne	no
h	□	□	□	□	□
	ha	hi	fu	he	ho
m	□	□	□	□	□
	ma	mi	mu	me	mo
y	□	—	□	—	□
	ya	□	yu	□	yo
r	□	□	□	□	□
	ra	ri	ru	re	ro
w	□	—	—	—	□
	wa	□	□	□	wo
N	□	—	—	—	□
	n	—	—	—	—

## — KANJI — LOGOGRAPHIC CHARACTERS —

Approx. 2,136 jōyō kanji (□□□□) required for literacy · Each has ON (Chinese) + kun (Japanese) readings

□ yama/SAN mountain	□ kawa/SEN river	□ hi/KA fire	□ mizu/SUI water	□ ki/MOKU tree
□ hi/NICHI sun/day	□ tsuki/GETSU moon/month	□ hito/JIN person	□ ōki/DAI big	□ chiisai/SHŌ small

## — SCRIPT HISTORY —

300–700 CE: Chinese kanji adopted · 9th c: hiragana from cursive man'yōgana · katakana from radical elements

Man'yōgana (□□□□): oldest Japanese writing — Chinese characters used phonetically, not semantically

Meiji era (1868–): national literacy drive · 1946: postwar simplification of kanji forms and official list

Writing direction: traditionally right□left, top□bottom in columns; modern: left□right horizontal rows

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# JAPANESE — PHONOLOGY · SOUND SYSTEM

SERIES 18B OF 50 · REMEMBER FORWARD

## — MORA-TIMED LANGUAGE —

Japanese is MORA-timed, not syllable-timed. Each mora (haku □) takes equal duration.

A mora = one kana character. Long vowels, double consonants, and □ each count as one mora.

Example: □□ Tō-kyō = 4 morae (TO + U + KYO + U) · □□□□ Sap-po-ro = 4 morae

## — VOWEL SYSTEM — 5 SHORT + 5 LONG —

/a/	□ a	low central, like "ah"
/i/	□ i	high front, like "ee"
/□/	□ u	high back unrounded — NO lip rounding
/e/	□ e	mid front, like "eh"
/o/	□ o	mid back, like "oh"

Long vowels: double duration — □□□□ obasan (aunt) vs □□□□□ obāsan (grandmother)

Vowel devoicing: /s/ and /n/ often whispered between voiceless consonants: □□ desu □ "des"

## — CONSONANT INVENTORY —

Japanese has a small consonant inventory — no /l/, /r/, /θ/, /ð/ in native phonology

p b	bilabial stops	□ row /h/ □ /p/ with □, voiced /b/ with □
t d	alveolar stops	/t/ □ [t□] before i, [ts] before u (affrication)
k g	velar stops	/g/ also realized as [ŋ] (nasal) in medial position
s z	fricatives	/s/ □ [□] before i (□ shi) · /z/ □ [d□] before i (□ ji)
n m	nasals	□ /N/ is a special moraic nasal: [m] [n] [ŋ] □ by context
r	liquid	Japanese /r/ = flap □ — between English r and l; neither exactly
h	glottal	/h/ □ [ç] before i (□ hi) · □ before u (□ fu)
y w	glides	Palatal and labial-velar approximants

## — SYLLABLE STRUCTURE — CV DOMINANT —

Native Japanese syllables are (C)V — consonant-vowel — with very few exceptions.

Closed syllables occur only in loanwords: □□□ miruku (milk) □ syllabified MU-RU-KU

Geminate (double) consonants: □/□ (small tsu) — □□□ zasshi (magazine) = ZA+S+SHI (3 morae)

## — PITCH ACCENT — TOKYO DIALECT —

Japanese uses PITCH accent (not stress): syllables are High (H) or Low (L) tone.

First mora sets pitch; subsequent morae follow pattern; a downstep (drop) occurs at most once.

Four accent classes in Tokyo dialect — defined by position of downstep (if any)

Pitch accent minimal pairs (Tokyo standard):

□□  
hashi H-L  
candy

□□  
hashi L-H  
oyster

□□  
hashi L-H-□  
persimmon

□□  
ame H-L  
fence

## — PROSODY AND PHONOLOGICAL NOTES —

Particles □ wa, □ ga, □ wo retain kana spelling but shift pronunciation (□ = /wa/ as topic marker)

Pitch accent varies by dialect: Kyoto-Osaka has more complex system; many dialects are accentless (flat)

Loanword phonology: adapts to CV structure — "strike" □ □□□□ sutoraiku (6 morae)

Rendaku (sequential voicing □□): second element of compound gains voiced consonant: hana+bi □ hanabi □□

Onomatopoeia (□□□ giongo, □□□ gitaigo): extremely productive — pika-pika, fura-fura, kira-kira

N-mora □: pronounced [m] before b/p, [n] before t/d/n, [ŋ] before k/g, [□] phrase-finally

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# MALAY / INDONESIAN — SCRIPT · WRITING

SERIES 19A OF 50 · REMEMBER FORWARD

## — LATIN SCRIPT — RUMI (SINCE 1972 STANDARDIZATION) —

Malay (Bahasa Melayu) and Indonesian (Bahasa Indonesia) share a standardized Latin orthography.

The 1972 Melindo/EYD agreement unified spelling across Malaysia, Indonesia, and Brunei.

Official names: Rumi (Malaysia) = "Roman script" · Ejaan yang Disempurnakan (Indonesia) = "Perfected Spelling"

## — THE 26-LETTER ALPHABET — RUMI —

A	B	C	D	E	F
/a/	b	t□/c	d	/e,□/	f
a	bi	si	di	i	ef
G	H	I	J	K	L
g/□/	h	/i/	d□/j	k	l
ji	éc	ai	jei	kei	el
M	N	O	P	Q	R
m	n	/o/	p	k/kw	r
em	en	o	pi	kiu	ar
S	T	U	V	W	X
s	t	/u/	v	w	ks/z
es	ti	yu	vi	dabel-yu	eks
Y	Z				
y/j	z				
wai	zet				

## — DIGRAPHS — LETTER COMBINATIONS WITH SPECIAL SOUNDS —

ng	/ŋ/	velar nasal	berenang (swim), bukan (not)	like "ng" in "sing"
ny	/ɲ/	palatal nasal	nyonya (ma'am), nyaman (comfortable)	like "ny" in Spanish "señor"
kh	/x/	velar fricative	khas (special), akhir (end)	Arabic/Persian borrowing — "ch" in "Bach"
gh	/ɣ/	voiced velar fric.	ghairah (passion), maghrib (west)	Arabic borrowing — voiced "kh"
sy	/ʃ/	palato-alveolar fric.	syarat (condition), syukur (gratitude)	like "sh" in "shoe" — Arabic borrowing

## — JAWI — HISTORICAL ARABIC-BASED SCRIPT —

Before Romanization, Malay was written in Jawi — an adapted Arabic alphabet with extra letters for Malay sounds.

Jawi is still used officially in Malaysia (signage, religious texts, royal documents) and in Brunei.

Written right-to-left. 37 letters total: 28 Arabic + 6 added for Malay phonemes (ca, nga, pa, ga, nya, va).

Sample: □□□□ □□□□□ = Bahasa Melayu · □□□□□ = kita (we) · □□□□□ = hati (heart)

Jawi literacy is taught in Malaysian schools alongside Rumi, keeping both scripts active.

## — HISTORICAL SCRIPTS — RENCONG AND OTHERS —

Before Jawi spread via Islam (~13th–16th c.), Malay was written in indigenous Indic-derived scripts.

Rencong / Incung: abugida script of Sumatra (Kerinci, Rejang, Lampung regions) — written on bamboo.

Pallava/Kawi: Old Malay inscriptions (7th–14th c.) in Tamil Pallava and Javanese Kawi scripts.

Kedukan Bukit inscription (683 CE, Palembang): oldest known Old Malay text — in Pallava script.

Lontara: Bugis/Makassar script still used in Sulawesi — an abugida descended from Brahmi.

## — SPELLING SYSTEM — KEY RULES —

Stress	Always on penultimate (second-to-last) syllable: ba-HA-sa, ma-KAN-an
e ambiguity	<e> = /e/ (clear) or /□/ (schwa) — context determines: enam (6)=/e/, emak (mum)=/□/
c	Always /t□/ (like "ch") — cinta (love), cantik (beautiful)
j	Always /d□/ (like "j" in "joy") — jalan (road), juga (also)
r	Trilled /r/ in careful speech; flap [□] in fast speech
f, v, z	Appear in Arabic/English loanwords: fikir (think), vitamin, zaman (era)

## — MALAY vs INDONESIAN — SAME LANGUAGE? —

Bahasa Malaysia and Bahasa Indonesia are mutually intelligible. Differences are lexical and minor.

Malaysia: kereta (car) vs Indonesia: mobil · Malaysia: pekan vs Indonesia: kota (city)

Combined: ~270 million speakers (Indonesia alone ~199M native) — 4th most-spoken world language.

ISO 639: ms (Malay) · id (Indonesian) — classified separately but share standard written form.

Arabic influence: 40%+ of literary vocabulary via Jawi-era Islam · Dutch/Portuguese in Indonesian.

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# MALAY / INDONESIAN — PHONOLOGY · SOUNDS

SERIES 19B OF 50 · REMEMBER FORWARD

## — OVERVIEW — NO TONES, PENULTIMATE STRESS —

Malay/Indonesian is a NON-TONAL language with simple syllable structure and fixed stress.

Stress: always on the PENULTIMATE (second-to-last) syllable in base words.

Exception: words with schwa /ɤ/ in penultimate position — stress shifts to final syllable.

e.g., em-PAT (4), se-KO-lah (school) · BUT: te-LAH (already), me-NGERT-i (understand)

## — VOWEL SYSTEM — 6 VOWELS —

/a/	a	low central open	apa (what), badan (body)	like "ah"
/e/	é	mid front	enam (six), pergi (go)	like "e" in "bed"
/ɤ/	e	mid central schwa	emak (mother), empat (four)	like "a" in "about"
/i/	i	high front	ini (this), ibu (mother)	like "ee"
/o/	o	mid back rounded	orang (person), bola (ball)	like "oh"
/u/	u	high back rounded	ular (snake), buku (book)	like "oo"

## — CONSONANT INVENTORY —

Malay/Indonesian has 19 native consonant phonemes. Loanwords add f, v, z, sy, kh, gh.

p	/p/	bilabial stop	pagi (morning)	b	/b/	bilabial stop	baru (new)
t	/t/	alveolar stop	tahu (know)	d	/d/	alveolar stop	dan (and)
k	/k/	velar stop	kita (we)	g	/g/	velar stop	guru (teacher)
c	/tʃ/	palatal affricate	cinta (love)	j	/dʒ/	palatal affricate	jalan (road)
m	/m/	bilabial nasal	makan (eat)	n	/n/	alveolar nasal	nama (name)
ng	/ŋ/	velar nasal	dengan (with)	ny	/ɲ/	palatal nasal	nyawa (life)
s	/s/	alveolar fricative	satu (one)	h	/h/	glottal fricative	hari (day)
r	/r/	alveolar trill	rumah (house)	l	/l/	lateral approx.	laut (sea)
w	/w/	labial-velar glide	waktu (time)	y	/j/	palatal glide	yang (which/that)
ʔ	/ʔ/	glottal stop	rakyat (people) final k				

## — SYLLABLE STRUCTURE — CV(C) —

Most syllables are CV (consonant-vowel) or V. Final consonants allowed but limited.

Final position: -k is realized as glottal stop [ʔ] in careful speech: tidak [tɪkdaʔ] (not)

Diphthongs: /ai/ ɪ [aɪ] pandai (clever) · /au/ ɔ [aʊ] pulau (island) · /oi/ ɔ [ɔi] amboi (wow)

## — GEMINATION — DOUBLE CONSONANTS IN BORROWINGS —

Native Malay has no geminate consonants. Loanwords from Arabic may have doubled consonants.

Arabic loanwords: massa (mass), sunnah (tradition), qiblat (prayer direction)

In normal speech, geminates are reduced: kelas (class) /kelas/ not /kell-as/

## — INTONATION — QUESTION FORMATION —

Questions formed by rising intonation OR by adding particle kah/tah (formal) or kan/ke (colloquial).

Dia datang? "Is he coming?" (rising tone) · Adakah dia datang? (formal marker adakah)

Dia datang, kan? "He's coming, right?" — tag question with kan

## — REGIONAL PHONOLOGICAL VARIATION —

Standard (KL/Jakarta): /r/ = trill or flap depending on position and register.

Javanese-influenced Indonesian: /e/ often realized as [ɤ] · /o/ as [ɔ] in open syllables.

Colloquial Malaysian: final /a/ ɔ [a] /ɤ/ in fast speech: saya ɔ sayɔ (I/me).

H-deletion: hari (day) ɔ [a.rɪ] in rapid colloquial speech in many regions.

Northern Malaysian dialects (Kedah, Kelantan): distinct vowel systems, tonal features — not standard.

IPA summary: /p b t d k g tʃ dʒ m n ŋ ɲ s h r l w j ʔ/ + /a e ɔ i o u/

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# MALAY / INDONESIAN — GRAMMAR · VOCABULARY

SERIES 19C OF 50 · REMEMBER FORWARD

## — SENTENCE STRUCTURE — SVO, NO INFLECTION —

Malay/Indonesian is SVO (Subject–Verb–Object) with NO grammatical gender, NO case, NO tense inflection.

Time is indicated by TIME WORDS, not verb forms: sudah (already), akan (will), sedang (currently).

Saya makan nasi. "I eat/ate/am eating rice." — context + time words clarify tense.

Dia pergi semalam. "She went yesterday." — semalam (yesterday) establishes past.

## — AFFIX SYSTEM — DERIVATIONAL MORPHOLOGY —

Malay/Indonesian has a rich system of prefixes and suffixes that derive new words from roots.

me-	active verb	makan (eat) □ memakan (to eat/is eating)
ber-	intrans. verb / have	kerja (work) □ bekerja (to work)
-kan	causative/transitive	tahu (know) □ beritahukan (to inform/tell)
-an	noun/result	makan (eat) □ makanan (food)
pe-	agent noun	kerja (work) □ pekerja (worker)
per...-an	abstract noun	buat (do) □ perbuatan (deed/act)
ke...-an	state/condition	sakit (sick) □ kesakitan (pain/illness)
ter-	accidental/passive	jatuh (fall) □ terjatuh (accidentally fell)
di-	passive voice	makan (eat) □ dimakan (was eaten)
se-	one/same/as	kolah □ sekolah (school, lit. "one class")

## — REDUPLICATION — PLURALS AND EMPHASIS —

Full reduplication of nouns = plural (usually): orang (person) □ orang-orang (people)

Reduplication can also indicate variety, intensity, or process rather than strict plurality:

sayur-sayuran (all kinds of vegetables) · berlari-lari (running around) · perlahan-lahan (very slowly)

Note: context often implies plurality without reduplication — no singular/plural confusion in practice.

## — NEGATION —

tidak / tak: negates verbs and adjectives — Saya tidak tahu. "I do not know."

bukan: negates nouns and pronouns — Bukan saya. "Not me." · Dia bukan guru. "She is not a teacher."

jangan: prohibitive — Jangan pergi! "Do not go!"

## — CORE VOCABULARY — 25 WORDS —

ya / tidak	yes / no	terima kasih	thank you
maaf / tolong	sorry / please/help	saya / anda/kamu	I (formal) / you
kita / kami	we (incl.) / we (excl.)	ini / itu	this / that
di mana	where	apa	what
siapa	who	mengapa / kenapa	why
air	water	makan / makanan	eat / food
orang	person / people	rumah	house / home
jalan	road / walk	hari	day / sun
malam	night	buku	book
bahasa	language	dunia	world
besar / kecil	big / small	baik / buruk	good / bad
baru / lama	new / old	masa depan	future (lit. "time ahead")
ingat / kenang	remember / recall fondly		

## — QUESTION WORDS AND TIME MARKERS —

apa	siapa	di mana	bila/kapan	mengapa
what	who	where	when	why
bagaimana	sudah	sedang	akan	pernah
how	already (past)	currently (prog.)	will (future)	ever (exp.)

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# MALAY / INDONESIAN — RUNNING TEXT · PASSAGES

SERIES 19D OF 50 · REMEMBER FORWARD

## — PASSAGE 1 — GREETING —

Selamat datang. Kami gembira kerana anda ada di sini.

Welcome We-EXCL happy because you exist here.

"Welcome. We are glad that you are here."

Bahasa adalah jambatan antara masa lalu dan masa depan.

Language is bridge between time past and time ahead.

"Language is the bridge between the past and the future."

## — PASSAGE 2 — NATURE PASSAGE —

Laut yang dalam menyimpan rahsia yang tidak terhitung.

Sea REL deep stores secrets REL not counted.

"The deep sea stores uncountable secrets."

Seperti air, ilmu mengalir ke tempat yang lebih rendah.

Like water knowledge flows to place REL lower.

"Like water, knowledge flows to lower places." — Malay proverb

## — PASSAGE 3 — PERIBAHASA (MALAY PROVERB) —

Biar putih tulang, jangan putih mata.

Let white bones-of, don't white eyes.

"Better to die (bones white) than to live in shame (eyes white with horror)."

Seperti katak di bawah tempurung — menyangka langit itu sempit.

Like frog at under coconut-shell — thinks sky that narrow.

"Like a frog under a coconut shell, thinking the sky is small." — parochialism

## — PASSAGE 4 — PANTUN (MALAY POETIC FORM) —

Buah pisang masak sebuah,  
fruit banana ripe one-CLASSIFIER

Jatuh ke dalam parit tua;  
falls into inside ditch old

Kalau kasih masih menanggung,  
If love still endures,

Sampai mati tidak akan lupa.  
Until death not will forget.

A pantun: rhyming quatrain (AB AB). Lines 1-2 are imagery; lines 3-4 carry the meaning.

"If love still endures, until death we will not forget."

## — BRIDGE PHRASE — REMEMBER FORWARD —

Ini dibuat untukmu, dengan cuma-cuma, oleh orang-orang yang mengingat masa depan.

This made for-you, with free-free, by person-PLUR REL remembers time ahead.

"This was made for you, freely, by people who remembered the future."

## — LANGUAGE NOTE — "FORWARD / FUTURE" IN MALAY —

"masa depan" = "time ahead" (lit. masa=time, depan=front/ahead) — the future is spatially IN FRONT.

Malay/Indonesian conceives time as spatial movement: depan (front=future), belakang (back=past).

cuma-cuma: reduplication of cuma (only/free) □ "completely free, at no cost" — colloquially natural.

orang-orang: reduplicated plural "people" (not orang alone, which is "a person" without number).

mengingat: active verb with me- prefix from ingat (remember) — "who are remembering / who remembered."

yang: relative clause marker — "people WHO remembered" — the same word as "which/that/who."

## — DECODING NOTE — FOR FUTURE READERS —

Malay/Indonesian is written in the Latin alphabet — the same 26 letters as English.

Pronunciation is highly phonemic: each letter has a consistent sound. c=/t□/ and j=/d□/ are key.

If you speak any language using Latin script, you can approximate the sounds from the spelling.

Spoken by ~270M people across Maritime Southeast Asia (Indonesia, Malaysia, Brunei, Singapore).

Related to Tagalog, Javanese, Sundanese, and other Austronesian languages of the Pacific.

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# SWAHILI — SCRIPT · WRITING SYSTEM

SERIES 20A OF 50 · REMEMBER FORWARD

## — LATIN SCRIPT — STANDARD SINCE ~1900 —

Swahili (Kiswahili) is written in the Latin alphabet — 26 letters, highly phonemic spelling.

Standardized by the Inter-Territorial Language Committee (ITLC) in 1930 for East Africa.

Before Latin script: Arabic-based Ajami script used from ~14th century along Swahili coast.

## — THE 26-LETTER LATIN ALPHABET IN SWAHILI —

One letter = one sound. No silent letters. No tonal diacritics needed.

A	B	C	D	E	F
/a/	b	ch	d	/e/	f
G	H	I	J	K	L
g	h	/i/	j/d□	k	l
M	N	O	P	Q	R
m	n	/o/	p	q(loan)	r
S	T	U	V	W	X
s	t	/u/	v	w	x(loan)
Y	Z				
y/j	z				

## — SWAHILI DIGRAPHS AND CONSONANT CLUSTERS —

ch	/t□/	palatal affricate	chakula (food), chini (below)
sh	/□/	postalveolar fric.	shule (school), shamba (farm)
gh	/□/	voiced velar fric.	ghali (expensive), halagha (rhetoric)
ng'	/ŋ/	velar nasal (standalone)	ng'ombe (cattle), ng'o (emphatic)
ny	/□/	palatal nasal	nyumba (house), nyama (meat)
dh	/ð/	voiced dental fric.	dhahabu (gold), dhana (concept)
th	/θ/	voiceless dental	thamani (value), thithi (gruel)
mb	/mb/	prenasalized stop	mbwa (dog), mbali (far)
nd	/nd/	prenasalized stop	ndizi (banana), ndani (inside)
ng	/ŋg/	prenasalized stop	ngoja (wait), ngapi (how many)
nj	/nd□/	prenasalized affric.	njia (path/way), njiva (dove)

## — AJAMI — ARABIC-BASED HISTORICAL SCRIPT —

Ajami = Arabic script adapted for Swahili. Used ~14th–early 20th century along coast.

Coastal city-states (Mombasa, Malindi, Zanzibar, Kilwa) produced Ajami manuscripts and poetry.

Utendi wa Tambuka (Epic of Heraklios, 1728) is among the oldest surviving Swahili texts in Ajami.

Read right-to-left like Arabic. Vowel diacritics added to mark Swahili vowels not in Arabic.

Sample: □□□□□□□□ = Kiswahili · □□□ = mtu (person) · □□□□ = maji (water)

## — NOUN CLASS SYSTEM — OVERVIEW (8 MAJOR CLASSES) —

Swahili nouns belong to grammatical classes marked by prefixes. Each class has its own agreement prefix.

M/WA	M-/WA-	mtu/watu	people/humans	M/MI	M-/MI-	mti/miti
MA	Ø/MA-	tunda/matunda	fruits/paired things	KI/VI	KI-/VI-	kitu/vitu
N/N	N-/N-	nyumba/nyumba	houses/animals	U/U	U-/Ø-	ukuta/kuta
PA	PA-	mahali	specific place	KU	KU-	kusoma

## — LANGUAGE HISTORY AND SPREAD —

Swahili = Bantu base (~50-70%) + Arabic (~20-30%) + Persian, Portuguese, English, Hindi loanwords.

Origin: Swahili coast trade lingua franca from ~1st millennium CE. Name from Arabic sawahil (coasts).

Official language of Tanzania, Kenya, Uganda, Rwanda, DRC, Comoros. UN official language (2022).

~15-20M native speakers; ~100-200M as second language across East and Central Africa.

5 vowels /a e i o u/ — the same as Italian/Spanish. All pure, no diphthongs in native words.

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# SWAHILI — PHONOLOGY · SOUND SYSTEM

SERIES 20B OF 50 · REMEMBER FORWARD

## — OVERVIEW — NON-TONAL, PENULTIMATE STRESS —

Swahili is NON-TONAL. Stress always falls on the PENULTIMATE (second-to-last) syllable.

ki-ta-BU (book) · ma-JI (water) · ra-FI-ki (friend) · u-je-MB-o (building)

Exception: Arabic/English loanwords may carry non-penultimate stress in careful speech.

## — VOWEL SYSTEM — 5 PURE VOWELS —

/a/	a	low open central	asali (honey), baba (father)	"ah" — never reduced
/e/	e	mid front	embe (mango), peke (alone)	"eh" — always clear
/i/	i	high front	ina (has), imani (faith)	"ee" — pure
/o/	o	mid back rounded	oa (marry), mto (river)	"oh" — always full
/u/	u	high back rounded	ua (flower/kill), mtu (person)	"oo" — always full

NO schwa. NO diphthongs in native vocabulary. Vowels maintain full quality in all positions.

## — CONSONANT SYSTEM —

Standard Swahili has ~25 consonant phonemes including a unique set of prenasalized stops.

p b	/p b/	bilabial stops	paka (cat), baba (father)	t d	/t d/	alveolar stops	tatu (three), dawa (medicine)
k g	/k ɡ/	velar stops	kazi (work), gari (vehicle)	ch j	/tʃ dʒ/	palatal affricates	chakula (food), jiwe (stone)
f v	/f v/	labiodentals	fupi (short), vita (war)	s z	/s z/	alveolar fricatives	saba (seven), zawadi (gift)
sh	/ʃ/	postalveolar fric.	shule (school), shida (problem)	th dh	/θ ð/	dental fricatives	thamani (value), dhahabu (gold)
gh	/ɣ/	voiced velar fric.	ghali (expensive)	h	/h/	glottal fric.	hapa (here), hewa (air)
m n	/m n/	nasals	mama (mother), nne (four)	ny ng'	/ŋ ɲ/	palatal/velar nasals	nyama (meat), ng'ombe (cow)
l r	/l r/	lateral/trill	leo (today), rafiki (friend)	w y	/w j/	glides	watu (people), yeye (he/she)

## — PRENASALIZED CONSONANTS — SINGLE PHONEMES —

Prenasalized consonants are SINGLE phonemes in Swahili — the nasal is not a separate syllable.

They allow word-initial consonant clusters not found in most other Bantu languages' loanword adaptations.

mb	/mb/	mbwa (dog), mbali (far), mbuzi (goat)
mv	/mv/	mvua (rain), mvuke (steam)
nd	/nd/	ndizi (banana), ndugu (sibling/comrade)
nj	/ndʒ/	njia (path), njema (good — in phrases)
ng	/ŋ ɲ/	ngoma (drum), ngoja (wait)
ng'	/ŋ/	ng'ombe (cattle) — same velar nasal, no stop

## — SYLLABLE STRUCTURE AND PROSODY —

Syllable structure: (C)V — open syllables dominate. Final consonants are rare (only in loans).

Prenasalized consonants (mb, nd, ng) count as single consonants: mbu-zi = 2 syllables, not 3.

N- class nouns use the nasal as a consonant: n-dizi (banana) = 3 syllables: ndi-zi (z) Wait — N is prefix.

Vowel length: contrastive in some loanwords (from Arabic) — kaa (sit) vs. kaa (charcoal).

Intonation: declarative falls, question rises — but the language lacks lexical tone contrast.

IPA summary: /p b t d k ʃ t ʃ dʒ f v s z ʃ θ ð h m n ŋ mb nd ndʒ ŋ ɲ l r w j/ + /a e i o u/

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# SWAHILI — GRAMMAR · VOCABULARY

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## — NOUN CLASS AGREEMENT SYSTEM —

EVERY Swahili verb, adjective, and relative clause must AGREE with the noun class of its subject.

The prefix changes depending on noun class, tense, and mood. The root of the verb stays fixed.

Format: [SUBJECT PREFIX] + [TENSE MARKER] + [OBJECT PREFIX] + [VERB ROOT]

## — NOUN CLASS TABLE — SUBJECT AGREEMENT —

M/WA (1/2)	mtu/watu	a-/wa-	A-na-soma / Wa-na-soma	He reads / They read
M/MI (3/4)	mti/miti	u-/i-	U-na-anguka / I-na-anguka	Tree falls / Trees fall
MA (5/6)	tunda/matunda	li-/ya-	Li-na-anguka / Ya-na-anguka	Fruit falls / Fruits fall
KI/VI (7/8)	kitu/vitu	ki-/vi-	Ki-na-anguka / Vi-na-anguka	Thing falls / Things fall
N/N (9/10)	nyumba/nyumba	i-/zi-	I-na-anguka / Zi-na-anguka	House falls / Houses fall
U (11)	ukuta	u-	U-na-anguka	Wall falls
PA (16)	mahali	pa-	Pa-na-kelewa	Place is understood

## — TENSE SYSTEM — TENSE MARKERS IN VERB COMPLEX —

Tense is marked by an infix between subject prefix and verb root. Root stays constant.

-na-	present continuous	A-na-soma	He is reading
-ji-	simple past	A-li-soma	He read
-ta-	future	A-ta-soma	He will read
-me-	perfect	A-me-soma	He has read
-ku-	past (negative/infinitive)	A-ku-soma	He used to read / to read
-nge-	conditional	A-nge-soma	He would read
-ngeli-	past conditional	A-ngeli-soma	He would have read

## — NEGATION —

Negation changes the subject prefix: a- (pos.) □ ha- (neg.) for M/WA class:

Anasoma (He reads) □ Hasomi (He does not read) — note: negative present drops -na-, uses -i ending.

Negative past: Hakusoma (He did not read) · Negative future: Hatasoma (He will not read)

## — CORE VOCABULARY — 25 WORDS WITH NOUN CLASS —

ndiyo / hapana	M/WA	yes / no	asante	—	thank you
tafadhali / samahani	—	please / excuse me	mimi / wewe	M/WA	I / you
yeye / sisi	M/WA	he/she / we	hii / hiyo	N class	this / that
wapi	—	where	nini	—	what
nani	M/WA	who	kwa nini	—	why
maji	MA (6)	water	chakula	KI/VI (7)	food
mtu / watu	M/WA (1/2)	person / people	nyumba	N (9)	house
njia	N (9)	path / way	leo / jana	—	today / yesterday
kesho	—	tomorrow	kitabu / vitabu	KI/VI (7/8)	book / books
lugha	N (9)	language	dunia	N (9)	world
kubwa / ndogo	—	big / small	nzuri / mbaya	—	good / bad

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mpya / kale **THIS IS A PATIENT MESSAGE. IT WAS MADE FOR YOU, FREELY, BY PEOPLE WHO REMEMBERED FORWARD.** M/M

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kumbuka

remember (verb)

siku zijazo / kesho

future / tomorrow

# SWAHILI — RUNNING TEXT · PASSAGES

SERIES 20D OF 50 · REMEMBER FORWARD

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## — PASSAGE 1 — GREETING AND INTRODUCTION —

Habari yako? Nzuri sana, asante. Karibu.

News-of you? Good very, thanks. Welcome.

"How are you? Very well, thank you. Welcome."

Mimi ni binadamu. Ninakuandikia kutoka zamani zilizopita.

I am human. I write-to-you from times which-passed.

"I am a human. I write to you from times that have passed."

---

## — PASSAGE 2 — NATURE —

Bahari ni kubwa, lakini moyo wa binadamu ni mkubwa zaidi.

Ocean is big/great, but heart of human is bigger more.

"The ocean is great, but the heart of a human is greater still."

Mto hauzui safari — mtu hodari huvuka.

River not-stops journey — person capable crosses.

"A river does not stop a journey — a capable person crosses it." — Swahili proverb

---

## — PASSAGE 3 — MSEMO (SWAHILI PROVERB) —

Usiku ukijua siri, mchana ukifichue.

Night you-know secret, daytime you-reveal-it.

"What the night hides, the day reveals." — Swahili saying

Elimu ni nuru, tjinga ni giza.

Knowledge is light, ignorance is darkness.

"Knowledge is light; ignorance is darkness." — common Swahili wisdom

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## — PASSAGE 4 — INDEPENDENCE DECLARATION ECHO —

Uhuru na Umoja. Tanzania ilipata uhuru wake mwaka wa elfu moja,

Freedom and Unity. Tanzania received freedom its year of thousand one,

mia tisa sitini na moja. Kumbukumbu yake inadumu milele.

hundred nine sixty and one. Memory its endures forever.

"Freedom and Unity. Tanzania received independence in 1961. Its memory endures forever."

---

## — BRIDGE PHRASE — REMEMBER FORWARD —

Hii ilitengenezwa kwa ajili yako, bure, na watu waliokumbuka mbele.

This was-made for sake your, free, by people who-remembered ahead/forward.

"This was made for you, freely, by people who remembered forward."

---

## — LANGUAGE NOTE — "FORWARD / FUTURE" IN SWAHILI —

"mbele" = forward, ahead, in front — the SAME word for spatial "in front" and temporal "ahead."

Swahili time is spatial: mbele (future/ahead), nyuma (past/behind) — identical to Malay/Indonesian.

"siku zijazo" = "the days that will come" — formal word for future. "kesho" = tomorrow/future.

"kumbuka" = to remember · "waliokumbuka" = "who remembered" (relative clause with past tense).

"bure" = free of charge / freely / without cost — the same word as "in vain" in some contexts.

"ilitengenezwa" = it was made — passive voice: i- (N class) + li- (past) + tengenez- (make) + -wa (passive).

---

## — DECODING NOTE — FOR FUTURE READERS —

Swahili uses the 26-letter Latin alphabet. One letter = one sound. Completely phonemic.

Every noun carries a class prefix — the prefix on verbs/adjectives tells you the noun class.

Stress is always on the second-to-last syllable of each word. No exceptions in native words.

Spoken across East and Central Africa; official in Tanzania, Kenya, Uganda, Rwanda, DRC.

Swahili was added as a United Nations working language in 2022 — a major living world language.

Consult Plate 20A for the script, digraphs, and noun class overview if starting from scratch.

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# GREEK — SCRIPT · ALPHABET · HISTORY

SERIES 21A OF 50 · REMEMBER FORWARD

## — THE GREEK ALPHABET — 24 LETTERS —

The Greek alphabet (c. 800 BCE) is the ancestor of Latin, Cyrillic, Coptic, Gothic, and Armenian scripts. First alphabet to systematically represent vowels — adapted from Phoenician consonantal abjad.

Α α	Alpha Α	/a, a□/ □ /a/	Η η	Eta Ē	/i□/ □ /i/	Ν ν	Nu Ν	/n/ □ /n/	Τ τ	Tau Τ	/t/ □ /t/
Β β	Beta Β	/b/ □ /v/	Θ θ	Theta Th	/t□/ □ /θ/	Ξ ξ	Xi Χ	/ks/ □ /ks/	Υ υ	Upsilon Υ/У	/y, y□/ □ /j/
Γ γ	Gamma Γ	/g/ □ /□/ □ /j/	Ι ι	Iota Ι	/i, i□/ □ /i/	Ο ο	Omicron Ο	/o/ □ /o/	Φ φ	Phi Φ	/p□/ □ /f/
Δ δ	Delta Δ	/d/ □ /ð/	Κ κ	Kappa Κ	/k/ □ /k/	Π π	Pi Π	/p/ □ /p/	Χ χ	Chi Χ	/k□/ □ /s/ □ /f/
Ε ε	Epsilon Ε	/e/ □ /e/	Λ λ	Lambda Λ	/l/ □ /l/	Ρ ρ	Rho Ρ	/r/ □ /r/	Ψ ψ	Psi Ψ	/ps/ □ /ps/
Ζ ζ	Zeta Ζ	/z/ □ or /dz/ □ /z/	Μ μ	Mu Μ	/m/ □ /m/	Σ σ/ς	Sigma Σ	/s/ □ /s/	Ω ω	Omega Ω	/o□/ □ /o/

o is used medially; ς is used only in word-final position. Σιγμα = Sigma (example).

## — HISTORICAL DEVELOPMENT FROM PHOENICIAN —

Aleph □ Alpha Α	Phoenician ox-head (ʾu05do) □ Greek vowel A
Beth □ Beta Β	Phoenician house □ Greek B (reversed in early forms)
Gimel □ Gamma Γ	Phoenician camel □ Greek G (later became Latin C, G)
Daleth □ Delta Δ	Phoenician door □ Greek Δ (triangle form)
He □ Epsilon Ε	Phoenician window □ Greek vowel E
Yodh □ Iota Ι	Phoenician hand □ Greek vowel I (most-used letter)

Phoenician script (c. 1050 BCE) was abjad (consonants only). Greeks added vowel letters ~800 BCE.

## — ANCIENT vs. MODERN PRONUNCIATION — KEY CHANGES —

B β	Ancient /b/ □ Modern /v/	βῆτα: "beta" □ "vita"
Δ δ	Ancient /d/ □ Modern /ð/	δέλτα: "delta" □ "thelta"
Η η	Ancient /i□□/ (long e) □ Modern /i/	ἦτα: sounds like "ee"
Θ θ	Ancient /t□/ (aspirated t) □ Modern /θ/	θ: like English "th" in "thin"
Υ υ	Ancient /y/ (front rounded) □ Modern /i/	ὕψλον: now = "ee"
Φ φ	Ancient /p□/ (aspirated p) □ Modern /f/	φ: now = "f"
Χ χ	Ancient /k□/ (aspirated k) □ Modern /x/	χ: like German "ch" in "Bach"
ΟΙ/ΕΙ/ΥΙ	Ancient diphthongs □ Modern /i/	iotacism: many spellings □ /i/ sound

## — GREEK NUMERALS — ALPHABETIC SYSTEM —

Ancient Greeks used letters as numerals (iota-style). Three archaic letters added: digamma (6), koppa (90), sampi (900).

α=1	β=2	γ=3	δ=4	ε=5	□=6	ζ=7	η=8	θ=9
ι=10	κ=20	λ=30	μ=40	ν=50	ξ=60	ο=70	π=80	□=90
ρ=100	σ=200	τ=300	υ=400	φ=500	χ=600	ψ=700	ω=800	□=900

Thousands: □α = 1000, □β = 2000 (lower comma prefix). Myriad (M) = 10,000.

## — DIACRITICS — ANCIENT POLYTONIC SYSTEM —

Ancient Greek uses BREATHING MARKS and ACCENT marks. Modern Greek (1982+) uses monotonic (single accent only).

□ (rough breathing)	h-sound before vowel: □ hē (or)
□ (smooth breathing)	no h-sound: □ e
acute accent	high pitch on that syllable
□ (grave accent)	falling or secondary stress
□ (circumflex)	rise-fall pitch (long vowels)
□ (iota subscript)	historical /j/ written under long vowels

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# GREEK — PHONOLOGY · ANCIENT AND MODERN

SERIES 21B OF 50 · REMEMBER FORWARD

## — TWO SYSTEMS — ANCIENT ATTIC AND MODERN GREEK —

Ancient Greek (Attic dialect, c. 5th–4th BCE) and Modern Greek (Demotic, post-1976) differ substantially.

Ancient: pitch accent, vowel quantity distinctions, aspirated stops, front-rounded vowel /y/.

Modern: stress accent, all vowels simplified, spirantized stops, iotacism (η υ ει οι □ /i/).

## — VOWEL SYSTEMS — ANCIENT (ATTIC) vs MODERN —

Letter	Ancient IPA	Modern IPA	Note
α A	/a/ short, /a□/ long	/a/	unchanged
ε E	/e/ short	/e/	unchanged
η H	/□□/ long e	/i/	iotacism — sounds like "ee"
ι I	/i/ short, /i□/ long	/i/	unchanged
ο O	/o/ short	/o/	unchanged
υ Y	/y/ short, /y□/ long	/i/	front-rounded □ iotacism
ω Ω	/□□/ long o	/o/	merged with omicron
ει	/e□/ long e	/i/	diphthong □ iotacism
οι	/oi/ diphthong	/i/	merged to /i/
αι	/ai/ diphthong	/e/	simplified
αυ	/au/ diphthong	/av/ or /av/	context-dependent
ευ	/eu/ diphthong	/ev/ or /ef/	context-dependent

## — CONSONANT CHANGES — ANCIENT TO MODERN —

β	/b/	/v/	spirantization — bilabial stop □ labiodental fric.
γ	/□/	/□/ or /j/	velar stop □ voiced velar/palatal fricative
δ	/d/	/θ/	dental stop □ dental fricative (like English "the")
ζ	/zd/ or /dz/	/z/	simplified to simple fricative
θ	/t□/	/θ/	aspirated stop □ voiceless dental fricative
φ	/p□/	/f/	aspirated stop □ labiodental fricative
χ	/k□/	/x/ or /ç/	aspirated stop □ velar/palatal fricative
π, τ, κ	/p t k/	/p t k/	voiceless stops — UNCHANGED
μπ, ντ, γκ	—	/b d □/	modern voiced stops formed by clusters

## — BREATHING MARKS — ANCIENT POLYTONIC —

Every ancient Greek word beginning with a vowel carries a breathing mark.

Rough breathing (□ □ □ □ □): a preceding /h/ sound — □μέρα hēméra (day).

Smooth breathing (□ □ □ □ □): no /h/ — □νήρ anēr (man).

Rho at word start always carries rough breathing: □ήτωρ rhētōr (orator, root of "rhetoric").

Modern Greek: breathing marks abolished in 1982 reform (monotonic orthography).

## — PITCH ACCENT — ANCIENT GREEK —

Ancient Greek had lexical PITCH accent: syllables were high (acute ´) or low (grave `) or both (circumflex ˘).

The circumflex (˘) could only appear on long vowels/diphthongs: a rising-then-falling tone.

Three-syllable rule: accent cannot fall more than 3 syllables from the end of the word.

Example: □νθρώπος ánthrōpos (human being) — accent on first syllable, acute.

Modern Greek: stress accent replaces pitch — one stressed syllable, marked with á é ñ ì ó ù ó.

## — MODERN GREEK PHONEME INVENTORY —

Vowels: /a e i o u/ — 5 vowels (iotacism collapsed many distinctions).

Consonants: /p b t d k □ f v θ ð s z □ x □ m n □ l r j/

Note /b d □/ are written μπ ντ γκ/γγ respectively (e.g., μπαμπάς bampas = dad).

Geminate consonants: not phonemic in Modern Greek (simplified from ancient forms).

Stress: always marked in writing (except monosyllables). Position is lexically unpredictable.

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# GREEK — GRAMMAR · VOCABULARY

SERIES 21C OF 50 · REMEMBER FORWARD

## — INFLECTED LANGUAGE — CASES, GENDERS, VERB SYSTEM —

Greek is HIGHLY INFLECTED: nouns, adjectives, and verbs all change their endings.

Modern Greek: 4 cases (nominative, genitive, accusative, vocative). Ancient Greek: +dative (5).  
3 grammatical genders: masculine (ο), feminine (η), neuter (το). Articles indicate class.

## — DEFINITE ARTICLE — THE KEY TO NOUN CLASS —

The definite article agrees with gender and case. Masculine/Feminine/Neuter:

Case	Masc.	Fem.	Neut.	Masc.PL	Fem.PL	Neut.PL
Nominative	ο	η	το	οι	οι	τα
Genitive	του	της	του	των	των	των
Accusative	τον	την	το	τους	τις	τα
Vocative	—	—	—	—	—	—

## — VERB CONJUGATION — PRESENT ACTIVE (λῑνω / λῑνω — "to free/solve") —

Ancient Greek (Attic) vs Modern Greek — present active indicative

Person	Ancient	Translit.	Modern	Translit.	Meaning
1sg	λῑω	lῑō	λῑνω	lino	I free/solve
2sg	λῑεις	lῑeis	λῑνεις	līneis	you free
3sg	λῑει	lῑei	λῑνει	līnei	he/she frees
1pl	λῑομεν	lῑomen	λῑνουμε	līnoume	we free
2pl	λῑετε	lῑete	λῑνετε	līnete	you (pl) free
3pl	λῑουσι(ν)	lῑousi	λῑνουν	līnoun	they free

## — NOUN DECLENSION — ANCIENT: ἄνθρωπος (HUMAN BEING, MASC.) —

Nom.	ἄνθρωπος	anthrōpos	the human being (subject)
Gen.	ἄνθρώπου	anthrōpou	of the human being
Dat.	ἄνθρώπῳ	anthrōpōi	to/for the human being
Acc.	ἄνθρωπον	anthrōpon	the human being (object)
Voc.	ἄνθρωπε	anthrōpe	O human being! (address)

## — CORE VOCABULARY — 25 WORDS (MODERN GREEK) —

ναι / ὄχι	nai / óchi	yes / no	ευχαριστώ	efcharistó
παρακαλώ / συγγνώμη	parakaló / sygnómi	please / sorry	εγώ / εσύ	egó / esý
αυτός / αυτή	aftós / aftῑ	he / she	εδώ / εκεί	edó / ekéi
που	pu	where / who	τι	ti
πότε	póte	when	γιατί	giati
νερό	neró	water	φαγητό	fagitó
άνθρωπος	ánthrōpos	human being	σπίτι	spiti
δρόμος	drómos	road/way	ημέρα / νύχτα	iméra / nīhta
βιβλίο	vinlio	book	γλώσσα	glóssa
κόσμος	kósmos	world/cosmos	αγάπη	agápi
μεγάλος / μικρός	megálos / mikrós	big / small	καλός / κακός	kalós / kakós
νέος / παλιός	néos / palios	new / old	μέλλον	méllon
θυμάμαι / θυμώμαι	thimámai	I remember		

## — WORD ORDER AND SYNTAX —

Greek word order is flexible (due to inflection indicating roles) but SVO is most common.

The famous Greek copula: είμαι (I am) — Είμαι άνθρωπος. "I am a human being."

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# GREEK — RUNNING TEXT · PASSAGES

SERIES 21D OF 50 · REMEMBER FORWARD

— PASSAGE 1 — HOMER, ILIAD 1.1 (c. 8th BCE) —

Μενιν κείδε θεά Πηληϊάδεω Ἀχιλῆος

Ménin kéide theá Pēlēiádeō Achīlēos

Rage sing goddess of-Peleus's-son of-Achilles

"Sing, goddess, the rage of Achilles son of Peleus" — opening line of Western literature

— PASSAGE 2 — PLATO, APOLOGY 38A (c. 399 BCE) —

ὁ δὲ ἀνεξέταστος βίος οὐ βιωτὸς ἀνθρώπῳ

ho dè aneξétastos bíos ou biótōs anthrōpōi

the but unexamined life not livable for-human

"The unexamined life is not worth living for a human being." — Socrates (via Plato)

— PASSAGE 3 — JOHN 1:1, NEW TESTAMENT GREEK (c. 90–100 CE) —

Ἐν ἀρχῇ ἦν ὁ Λόγος, καὶ ὁ Λόγος ἦν πρὸς τὸν Θεόν

En archēi ēn ho Lógos, kai ho Lógos ēn prōs tōn Theón

In beginning was the Word, and the Word was toward the God

"In the beginning was the Word, and the Word was with God." — Koine Greek

— PASSAGE 4 — GREEK NATIONAL ANTHEM, FIRST STANZA (1823, SOLOMOS) —

Σε γνωρίζω ἀπὸ τὴν κόψη

Se gnōrizo apō tin kōpsi

You I-recognize from the edge

τοῦ σπαθιοῦ τὴν τρομερή,

tu spathiōú tin tromerī,

of-the-sword the terrible,

"I know you by the fearsome edge of your sword" — Hymn to Liberty, Dionysios Solomos

— BRIDGE PHRASE — REMEMBER FORWARD —

Αὐτὸ φτιάχτηκε γιὰ σένα, ἐλεύθερα, ἀπὸ ἀνθρώπους που θυμῆθηκαν τὸ μέλλον.

Aútō ftiáchtike gia sένα, eléfthera, apō anthrōpous pou thimīthikan to méllon.

This was-made for you, freely, from people who remembered the future.

"This was made for you, freely, by people who remembered the future."

— LANGUAGE NOTE — "FUTURE" IN GREEK —

μέλλον (méllon): "the future" — from μέλλω (méllō) "to be about to, to intend."

The future is literally "what is about to happen" — a participial noun from the verb of intention.

θυμῆθηκαν (thimīthikan): 3rd person plural aorist passive of θυμάμαι (remember) — "they remembered."

ἐλεύθερα (eléfthera): adverb from ἐλευθερός (free) — root of "Eleutherios", freedom, liberty.

ἐλευθερός shares roots with German "lieb" and English "love" — Proto-Indo-European \*leud-.

ἄνθρωπος / ἀνθρώπος (anthrōpos): "human being" — root of anthropology, philanthropy, misanthropy.

— TIMELINE OF THE GREEK LANGUAGE —

~1500 BCE	Mycenaean Greek — Linear B syllabary (not alphabet)
~800 BCE	Archaic Greek — first alphabetic inscriptions, Homer
~500–300 BCE	Classical Greek — Attic dialect: Plato, Aristotle, Sophocles
~300 BCE–300 CE	Hellenistic Koine — Alexander's empire lingua franca; New Testament
~300–1453 CE	Byzantine Greek — Eastern Roman Empire; Orthodox liturgy
1453–1830	Early Modern Greek — Ottoman period; diglossia begins
1830–1976	Katharevousa — purist form (official); Demotic (spoken)
1976–present	Modern Standard (Demotic) — official; monotonic orthography from 1982

— DECODING NOTE — FOR FUTURE READERS —

The 24 Greek letters and their sounds are given on Plate 21A. Read left to right, top to bottom.

Modern Greek has 5 vowel sounds: α=/a/ ε=/e/ η υ εἰ οἰ=/i/ ο ω=/o/ ου=/u/. Mostly phonemic.

Greek gave us: democracy, philosophy, alphabet, history, theatre, cosmos, and ~30% of English.

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# LATIN — SCRIPT · WRITING SYSTEM

SERIES 22A OF 50 · REMEMBER FORWARD

## — THE LATIN ALPHABET — ORIGIN AND SPREAD —

Latin is written in the Latin alphabet — the most widely used writing system on Earth today.

Descended from Etruscan script (7th c. BCE), itself from Greek, ultimately from Phoenician.

Classical Latin used 23 letters. Modern Latin-based alphabets vary from 18 (Hawaiian) to 40+ letters.

## — CLASSICAL LATIN ALPHABET — 23 LETTERS —

Letters I/J and U/V were single letters in Classical Latin (I=vowel/consonant; V=vowel/consonant).

Letter W did not exist. K and Y/Z were rare (used in Greek loanwords only).

MAJ	min	IPA	Notes
A	a	/a/	as in "father"
B	b	/b/	bilabial stop
C	c	/k/	always hard [k]; no /s/ in Classical Latin
D	d	/d/	alveolar stop
E	e	/e/	short, like "bed"
F	f	/f/	labiodental fricative
G	g	/g/	always hard [g]
H	h	/h/	weakly aspirated, often silent
I	i	/i/ or /j/	vowel or glide (consonant before vowel)
K	k	/k/	rare; used in Kalendae and Greek loans
L	l	/l/	lateral approximant
M	m	/m/	bilabial nasal
N	n	/n/	alveolar nasal; [ŋ] before velar
O	o	/o/	mid back vowel
P	p	/p/	bilabial stop, unaspirated
Q	q	/k/	used only before V: QV = [kw]
R	r	/r/	trilled alveolar [r]
S	s	/s/	always voiceless [s]
T	t	/t/	alveolar stop, unaspirated
V	v	/u/ or /w/	vowel [u] or consonant [w]
X	x	/ks/	digraph sound
Y	y	/y/	Greek upsilon; rare in loans
Z	z	/z/	Greek zeta; rare in loans

## — ROMAN NUMERALS —

Additive-subtractive system using letter symbols. No zero. Positional value limited.

I=1

V=5

X=10

L=50

C=100

D=500

M=1000

Subtraction rule: smaller before larger = subtract (IV=4, IX=9, XL=40, XC=90, CD=400, CM=900)

MCMXCIX = 1999 · MMXXVI = 2026 · Overbar: V̄ = 5000 · M̄ = 1,000,000

## — SCRIPT HISTORY AND EVOLUTION —

~700 BCE: Etruscan alphabet adapted from western Greek (Euboean) variant at Cumae

~600 BCE: Romans adapt Etruscan alphabet — dropping unused letters, adding G (Spurius Carvilius, 3rd c.)

1st c. BCE: Classical 23-letter Latin alphabet stabilized — monumental inscriptions (CAPITALIS QUADRATA)

2nd–4th c. CE: Rustic capitals (handwriting), then uncial (rounded) for manuscripts

8th–9th c.: Carolingian minuscule — lowercase letters standardized by Alcuin under Charlemagne

15th c.: Humanist script (basis of modern Roman type) — Poggio Bracciolini from Carolingian models

1450s: Gutenberg moveable type — Latin letters cast in metal, spread Latin alphabet globally

## — INSCRIPTION EXAMPLE — TRAJAN'S COLUMN, 113 CE —

SENATVS POPVLVSQVE ROMANVS

Senatus Populusque Romanus

"The Senate and People of Rome" — SPQR, official motto of Rome, still used today

Note V for both U and W sounds · Q followed by V as [kw] · No word spacing in early inscriptions

## — MODERN LATIN ALPHABET (26 LETTERS) —

Added letters: J (from I, ~15th c.) · U (from V, vowel use, ~16th c.) · W (from VV, ~10th c. Germanic)

Modern variants add diacritics: é ñ ü ç ø å — same 26 base letters underlie ~70 national alphabets

Latin alphabet now writes: English, Spanish, French, Portuguese, German, Malay, Swahili, Vietnamese, and more

Estimated 4+ billion people read some form of Latin-script language today

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# LATIN — PHONOLOGY · SOUND SYSTEM

SERIES 22B OF 50 · REMEMBER FORWARD

## — CLASSICAL LATIN PRONUNCIATION —

Classical Latin (1st c. BCE – 2nd c. CE) pronunciation reconstructed from grammarians, meter, and borrowings.

Latin is quantity-sensitive: vowel length (short vs. long) is phonemic — it changes meaning.

malum (short a) = "evil" · mālum (long ā) = "apple" — distinguished only by vowel length

## — VOWELS — 5 SHORT + 5 LONG —

Letter	IPA	Quality	Example
a / ā	/a/ vs /aː/	low central open	pater / māter
e / ē	/e/ vs /eː/	mid front	et / rēx
i / ī	/i/ vs /iː/	high front	in / vīta
o / ō	/o/ vs /oː/	mid back rounded	os / vōx
u / ū	/u/ vs /uː/	high back rounded	ut / lūna
y / □	/y/ vs /yː/	high front rounded (Greek loans)	tyrannus

Diphthongs: ae / aẽ / □ "eye" · oe / oẽ / □ rare · au / aũ / □ "ow" · eu / eũ / □ rare

## — CONSONANT INVENTORY —

p b	/p b/	bilabial stops	unaspirated — pater, bellum
t d	/t d/	alveolar stops	unaspirated — terra, deus
c g	/k ɡ/	velar stops	always hard — caelum, gloria
f	/f/	labiodental fricative	filia, fortis
s	/s/	always voiceless	sol, rosa (never /z/)
h	/h/	glottal, often silent	homo, herba
m n	/m n/	nasals	[ŋ] before velars: nunc / nunʒk/
l r	/l r/	lateral / trill	r = trilled [r], l = clear [l]
v	/w/	labio-velar glide	vir = [wir], not [vir]
i/j	/j/	palatal glide	iam = [jam], iocus = [jokus]
qu	/kw/	labiovelar cluster	quis, aqua = /akwa/
x	/ks/	consonant cluster	rex / reks/
z	/z/ or /dz/	Greek loans only	zona / zona/

## — SYLLABLE QUANTITY AND STRESS —

A syllable is **HEAVY** (long) if: (1) it contains a long vowel/diphthong, OR (2) it is closed by a consonant.

A syllable is **LIGHT** (short) if: it contains a short vowel and ends in that vowel.

Stress rule: stress the **PENULTIMATE** (second-to-last) syllable IF it is heavy.

If penultimate is light, stress falls on **ANTEPENULTIMATE** (third from last).

Two-syllable words: always stress first syllable.

ami-cus: ami- heavy (long ī) □ stress ami- □ a-Mī-cus

do-mi-nus: -mi- light (short i, open) □ stress DOM- □ DŌ-mi-nus

re-pub-li-ca: -pub- heavy (closed by b) □ stress -pub- □ re-PŪB-li-ca

## — POETIC METER — DACTYLIC HEXAMETER —

Homer and Virgil use dactylic hexameter: six feet per line, dactyl (— □ □) or spondee (— —).

Arma virumque cano — AR-ma vi-RUM-que CA-no (Aeneid 1.1)

— □ □ | — — | — — | — □ □ | — □ □ | — —

"I sing of arms and the man" — quantity-based, NOT stress-based meter

## — VOWEL CHANGES IN VULGAR LATIN → ROMANCE —

By 4th–5th c. CE: vowel length distinctions collapsed; stressed syllable quality (open/close) replaced them.

This collapse drove Romance divergence: Latin ē and ī merged in many areas; ō and ū merged elsewhere.

Latin caballum □ Spanish caballo, French cheval, Italian cavallo, Portuguese cavalo

Latin noctem □ Spanish noche, French nuit, Italian notte, Portuguese noite

The sound changes that built five modern languages are visible in the Latin source words.

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# LATIN — GRAMMAR · VOCABULARY

SERIES 22C OF 50 · REMEMBER FORWARD

## — INFLECTED LANGUAGE — SIX NOUN CASES —

Latin is highly inflected: endings mark grammatical role, not word order. Word order is flexible.

Nouns decline for: CASE (6) × NUMBER (singular/plural) × GENDER (M/F/N) × DECLENSION (5 patterns).

Case	Abbr	Function	Example	Gloss
Nominative	NOM	Subject	Puella amat.	The girl loves.
Genitive	GEN	Possession / of	amor puellae	love of the girl
Dative	DAT	Indirect object / to	dat puellae	gives to the girl
Accusative	ACC	Direct object	amat puellam	loves the girl
Ablative	ABL	By/with/from/in	cum puellā	with the girl
Vocative	VOC	Direct address	O puella!	O girl!

## — 1ST DECLENSION — puella "girl" (Feminine) —

Pattern -a stems: puella, terra, aqua, via, luna, stella — mostly feminine nouns

	Singular	Plural
NOM	puella	puellae
GEN	puellae	puellarum
DAT	puellae	puellis
ACC	puellam	puellas
ABL	puellā	puellis
VOC	puella	puellae

## — VERB SYSTEM — amare "to love" —

Latin verbs conjugate for: PERSON (1/2/3) × NUMBER (sg/pl) × TENSE × MOOD × VOICE (active/passive).

6 tenses: present, imperfect, future, perfect, pluperfect, future perfect.

4 moods: indicative, subjunctive, imperative, infinitive.

	Present Active Indicative		Perfect Active Indicative		
1sg	amō	I love	1sg	amāvī	I loved / have loved
2sg	amās	you love	2sg	amāvisti	you loved
3sg	amat	he/she/it loves	3sg	amāvit	he/she loved
1pl	amāmus	we love	1pl	amāvimus	we loved
2pl	amātis	you (pl) love	2pl	amāvistis	you (pl) loved
3pl	amant	they love	3pl	amāvērunt	they loved

## — CORE VOCABULARY — 25 WORDS —

ita / non	yes / no	deus	god
et / sed	and / but	vita	life
ego / tu	I / you	mors	death
hic / ille	this / that	tempus	time
ubi	where	lux	light
quid	what	verba	words
quando	when	memoria	memory
quis	who	futurum	the future
cur	why	liber	book / free
aqua	water	pax	peace
ignis	fire	amor	love
terra	earth	omnia	all things
homo	human being		

## — WORD ORDER AND STYLE —

Latin has NO fixed word order — case endings carry meaning. Any order is grammatically valid.

Preferred order: SOV in prose (Caesar, Cicero). Verb-final marks emphasis and closure.

"Gallia est omnis divisa in partes tres" — Gaul as a whole is divided into three parts (Caesar, BG 1.1)

Adjectives usually follow their noun; possessives precede; emphatics can go anywhere.

No definite or indefinite article (no "the" / "a"). Context determines specificity.

Latin vocabulary survives in: ~60% of English vocabulary, legal/scientific/medical terms worldwide.

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# LATIN — RUNNING TEXT · PASSAGES

SERIES 22D OF 50 · REMEMBER FORWARD

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— PASSAGE 1 — VIRGIL, AENEID I.1-3 (19 BCE) —

Arma virumque cano, Troiae qui primus ab oris

arms man-and I-sing Troy-of who first from shores

Italian, fato profugus, Laviniaque venit

Italy fate-by exile-NOM Lavinian-and came

litora — multum ille et terris iactatus et alto

shores — much he both on-lands tossed and on-deep

"I sing of arms and the man, who first from the shores of Troy, exiled by fate,  
came to Italy and the Lavinian shores — tossed much on land and sea."

---

— PASSAGE 2 — CAESAR, DE BELLO GALLICO I.1 (52 BCE) —

Gallia est omnis divisa in partes tres,

Gaul is all divided into parts three

quarum unam incolunt Belgae, aliam Aquitani,

of-which one inhabit Belgians another Aquitanians

tertiam qui ipsorum lingua Celtae, nostra Galli appellantur.

"All of Gaul is divided into three parts, one of which the Belgians inhabit,  
another the Aquitanians, the third those who in their own language are called Celts, in ours Gauls."

---

— PASSAGE 3 — CICERO, DE SENECTUTE 2.5 (44 BCE) —

Omnia aliena sunt, tempus tantum nostrum.

All foreign are time only our-own

"All things are foreign to us; time alone is our own."

Dum differtur vita transcurrit.

While it-is-delayed life runs-past

"While we delay, life runs on." — Seneca, Epistulae I.1

---

— PASSAGE 4 — HORACE, ODES I.11 (23 BCE) —

Carpe diem, quam minimum credula postero.

Seize day how least trusting to-tomorrow

"Seize the day, trusting as little as possible in the next."

Note: carpe is imperative of carpo "to pluck/harvest" — more "pluck the day (like fruit)" than merely seize.

---

— PASSAGE 5 — LUCRETIVS, DE RERUM NATURA I.1-2 (60s BCE) —

Aeneadem genitrix, hominum divumque voluptas,

Of-Aeneas-sons mother humans-of gods-and pleasure

alma Venus, caeli subter labentia signa

nurturing Venus sky-of beneath gliding signs

"Mother of the sons of Aeneas, delight of men and gods, nurturing Venus,  
who beneath the gliding signs of heaven..." — opening of the first Latin philosophical poem.

---

— BRIDGE PHRASE — REMEMBER FORWARD —

Hoc vobis, gratis, ab hominibus qui futura memoria tenebant, factum est.

This for-you freely by men who future-ACC memory held made is

"This was made for you, freely, by people who held the future in their memory."

---

— LANGUAGE NOTE — "FUTURE" IN LATIN —

Latin expresses "forward in time" via futurum (neut. gerundive of esse "to be" = "what is about to be").

futurum = "that which will be" — a participial noun, not an abstract concept: the future as event in motion.

memoria tenebant: "held in memory" — tenere is to hold physically; memory as something grasped, not merely stored.

gratis: ablative plural of gratia "grace/favor" — freely given, without expectation of return.

factum est: perfect passive — "it was made" — emphasizing the completed act and its recipient, not the maker.

---

— DECODING NOTE — FOR FUTURE READERS —

Latin is the ancestor of French, Spanish, Portuguese, Italian, Romanian, and Catalan.

It underlies ~60% of English vocabulary, all scientific nomenclature, and most legal and medical terms.

If this script is unfamiliar: the Latin alphabet is the same script used in English. All 26 letters appear above.

Latin was spoken ~700 BCE – 7th c. CE; thereafter it became the language of scholarship until ~1700 CE.

Estimated native speakers today: none. Estimated readers: millions. It is a living scholarly language.

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# PERSIAN / FARSI — SCRIPT · WRITING SYSTEM

SERIES 23A OF 50 · REMEMBER FORWARD

## — PERSO-ARABIC SCRIPT — READ RIGHT TO LEFT —

Persian is written in a modified Arabic script (Perso-Arabic), reading RIGHT to LEFT.

32 letters total (Arabic 28 + 4 Persian additions). Letters change form by position in word.

Cursive by nature: letters connect to their neighbors (some letters do not connect on the left).

Vowels: three long vowels written; three short vowels usually OMITTED in standard text (implied from context).

## — THE 32 LETTERS — ISOLATED · INITIAL · MEDIAL · FINAL —

Each letter shown in isolated form with transliteration and name. Forms vary by position.

(Note: Persian text shown below reads right-to-left)



a / ē · ef



k / kh · ke



g · med



d · yn



z · nun



h · he



v / w / u · vav



z · he



d · yn



z · nun



k · he



g · he



d · yn



z · he



k · he



k · he



g · he



d · yn



z · he



k · he

## — FOUR PERSIAN LETTERS — NOT IN ARABIC —



pe / p /

p sound — not in Arabic



che / t /

ch sound — "church"



zhe / /

zh sound — "measure"



gaf / /

g sound — hard g

## — VOWELS — SHORT (USUALLY OMITTED) AND LONG —

Short vowels: /a/ (zabar □), /e/ (zair □), /o/ (pish □) — written only in religious texts, poetry, children's books

Long vowels (always written): □ a □ · □ ī · □ u □ (u □ also represents /v/ and /o/ in some positions)

hamze (□): glottal stop — may appear on alef, vav, or ye; written □ □ / □ / □

## — PERSIAN / EASTERN ARABIC NUMERALS —

Persian uses its own numeral glyphs (based on Eastern Arabic forms), not Western Arabic (0–9).



0



1



2



3



4



5



6



7



8



9

## — SCRIPT HISTORY —

Old Persian (~600–300 BCE): cuneiform script — 36 signs, semi-syllabic, used for Achaemenid inscriptions.

Middle Persian / Pahlavi (~3rd c. BCE – 9th c. CE): Aramaic-derived script, 20 letters (highly ambiguous).

7th–10th c. CE: Arab conquest □ Perso-Arabic script adopted. Persian adapted Arabic letters, adding 4 new ones.

10th c.: New Persian (Dari/Farsi) written in Perso-Arabic — Rudaki, Ferdowsi write the first great Persian poetry.

Perso-Arabic script also adopted by Urdu, Pashto, Ottoman Turkish, Uyghur, Kashmiri, and others.

Direction: RIGHT to LEFT. Numbers written left to right within RTL text.

Today: Farsi (Iran), Dari (Afghanistan), Tajik (uses Cyrillic in Tajikistan, Perso-Arabic elsewhere).

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# PERSIAN / FARSI — PHONOLOGY · SOUND SYSTEM

SERIES 23B OF 50 · REMEMBER FORWARD

## — MODERN TEHRANI FARSI — STANDARD DIALECT —

Standard Persian (Farsi) is based on the Tehran dialect. 80+ million speakers across Iran, Afghanistan, Tajikistan.

Persian is an Indo-European language (Iranian branch) — related to English, Latin, and Sanskrit.

## — VOWEL SYSTEM — 6 VOWELS —

Modern Farsi has 6 vowels (the Classical long/short distinction has collapsed in Tehrani dialect).

IPA	Script	Translit	Description + example
/ɒ/	□	a□	low back, like "father" — □b a□b "water"
/æ/	(zabar)	a	low front, like "cat" — □□ bad "bad"
/e/	(zīr)	e	mid front, like "bed" — □□ del "heart"
/i/	□	i□/i	high front, like "see" — □□□ shi□□ "lion"
/o/	(pish)	o	mid back rounded — □□□ dost "friend"
/u/	□	u□/u	high back rounded — □□□ ku□d "child"

## — CONSONANT INVENTORY — 23 CONSONANTS —

p b	/p b/	bilabial stops	pa□ "foot", ba□d "wind"
t d	/t d/	alveolar stops	ta□j "crown", da□r "tree"
k g	/k □/	velar stops	ka□r "work", gol "flower"
□	/□/	glottal stop	□ayn — in Arabic loans
f v	/f v/	labiodentals	fa□rs "Persia", va□z□ "clear"
s z	/s z/	alveolar fricatives	sa□ "year", za□r "gold"
sh zh	/□ □/	palato-alveolar	sha□h "king", zha□n "world"
kh	/x/	velar fricative	kha□ne "house" — like German "Bach"
gh	/□/	voiced velar fricative	gha□r "cave" — voiced "Bach"
q	/q/	uvular stop	qa□lam "pen" — Arabic loans
h	/h/	glottal fricative	ha□r "each"
m n	/m n/	nasals	ma□h "moon", na□m "name"
l r	/l r/	lateral / tap	la□b "edge", ra□h "road"
y	/j/	palatal glide	ya□r "friend"
ch	/t□/	affricate	cha□y "tea"
j	/d□/	voiced affricate	jangal "forest"

## — STRESS AND PROSODY —

Stress: usually on the LAST syllable of the word (final stress), with exceptions for enclitics and some suffixes.

Prefixed verbs: stress shifts to the prefix (negative mi- or na- takes stress: NA-miram "I don't go").

Ezafe construction (see grammar plate) is unstressed — functions as a clitic.

## — KEY PHONOLOGICAL FEATURES —

No tones. No consonant clusters at syllable onset in native words (up to 2 in codas).

Syllable structure: (C)V(C)(C) — open syllables preferred in native vocabulary.

/q/ and glottal stop □/: inherited from Arabic loanwords — some speakers merge /q/ with /k/ or /gh/.

Persian /r/ is a tap [□] (single-contact trill), similar to Spanish "pero".

Word-final consonant clusters: possible (e.g. dast /dæst/ "hand", mard /mærd/ "man").

Colloquial Tehran: /□□/ often shortens to /æ/, /ou/ diphthong emerges from /av/ — significant dialect variation.

Borrowed Arabic emphatic consonants /s□ z□ t□ □□/ merged with plain counterparts in most spoken Persian.

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# PERSIAN / FARSI — GRAMMAR · VOCABULARY

SERIES 23C OF 50 · REMEMBER FORWARD

## — SOV LANGUAGE — VERB-FINAL, POSTPOSITIONS —

Persian is SOV (Subject-Object-Verb). Verb comes last. No grammatical gender. No case endings on nouns.

man sib mikharam. (I apple buy-PRES,1SG) = "I am buying an apple."

man = I · sib = apple · mi- = present prefix · kharam = buy-1sg

## — THE EZAFE CONSTRUCTION — NOUN CHAINS —

Ezafe (-e/-ye after vowel): links noun + adjective OR noun + possessor. Written as short /e/ (often omitted in script).

keta□b-e khub = "good book" (book-EZ,good) — adjective FOLLOWS noun, joined by ezafe

keta□b-e ma□n = "my book" (book-EZ,I) — possessor follows, joined by ezafe

keta□b-e khub-e ma□n = "my good book" — chains extend: book-EZ,good-EZ,my

## — VERB CONJUGATION — kardan "to do/make" (present stem: kon-) —

Present (mi- + stem + ending)			Simple past (past stem + ending)		
1sg	mikonam	I do / am doing	1sg	kardam	I did / made
2sg	mikoni	you do	2sg	kardi	you did
3sg	mikonad	he/she/it does	3sg	kard	he/she did
1pl	mikonim	we do	1pl	kardim	we did
2pl	mikonid	you (pl) do	2pl	kardid	you (pl) did
3pl	mikonand	they do	3pl	kardand	they did

Negation: na- prefix before verb: nami-konam "I do not do" · nakard "he did not do"

## — KEY GRAMMATICAL FEATURES —

ra (□□): direct object marker — added to definite/specific direct objects: "I bought the apple" □ sib-ra kharidam

No articles ("a" / "the") in formal Persian; -i suffix indicates indefinite: ketab-i "a book"

Plural: -ha□ suffix for all nouns: keta□b-ha□ "books" · a□dam-ha□ "people"

Relative clause: ke "that/which/who" — ma□rdi ke a□mad "the man who came"

Verb-object compounds: very common — del-tan-e man shodeh "I am missing you" (lit. "my heart became tight")

## — CORE VOCABULARY — 25 WORDS —

□□□ / □□	bale / na	yes / no	□□□□	zama□n	time
□□ / □□	man / to	I / you	□□□	ma□h	moon/month
□□□ / □□	in / a□n	this / that	□□□□□	seta□re	star
□□□	koja□	where	□□	del	heart
□□	chi	what	□□□	eshq	love
□□	ki	who	□□□□	a□za□d	free/freedom
□□□	chera□	why	□□□	ya□d	memory/remembrance
□□	a□b	water	□□□□□	a□yande	future
□□□	a□tash	fire	□□□□□	diru□z	yesterday
□□□	kha□k	earth/soil	□□□□	farda□	tomorrow/future
□□□	a□dam	person/human	□□□ / □□	khub / bad	good / bad
□□□□	dust	friend	□□□ □□□	hame chiz	everything
□□□□	keta□b	book			

## — PERSIAN LOANWORDS IN OTHER LANGUAGES —

Persian was the language of high culture, trade, and administration across a vast region for centuries.

English loans: check (chess piece), lemon, jasmine, paradise (Av. pairi-daeza "walled garden"), azure, caravan

Urdu, Hindi, Turkish, Azerbaijani, Armenian, Georgian all contain large Persian vocabulary layers.

Arabic borrowed from Persian too: shir (lion), khandaq (trench), zanjir (chain).

Persian was the court language of the Mughal Empire (India, 1526–1858) and the Ottoman court.

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# RUSSIAN — SCRIPT · WRITING SYSTEM

SERIES 24A OF 50 · REMEMBER FORWARD

## — THE CYRILLIC ALPHABET — RUSSIAN 33 LETTERS —

Russian is written in the Cyrillic alphabet, derived from Greek uncial script in the 9th century CE.

Created by Saints Cyril and Methodius (c. 863 CE) to write Old Church Slavonic for Slavic peoples.

Russian Cyrillic: 33 letters — 10 vowel letters, 21 consonant letters, 2 signs (soft Ъ, hard Ъ).

## — THE 33 LETTERS — PRINTED AND HANDWRITTEN FORMS —

Letter	Translit	IPA	Notes
А а	a	/a/	as in "father"
Б б	b	/b/	bilabial stop
В в	v	/v/	labiodental fricative
Г г	g	/g/	velar stop
Д д	d	/d/	alveolar stop
Е е	ye	/je/ or /e/	iotic e after consonant softens it
Ё ё	yo	/jo/	always stressed; often written as E
Ж ж	zh	/ʒ/	voiced palatal fricative — "measure"
З з	z	/z/	voiced alveolar fricative
И и	i	/i/	high front vowel
Й й	y	/j/	palatal glide — "boy"
К к	k	/k/	velar stop
Л л	l	/l/	lateral
М м	m	/m/	bilabial nasal
Н н	n	/n/	alveolar nasal
О о	o	/o/ (stressed)	unstressed: /ɔ/ — vowel reduction
П п	p	/p/	bilabial stop
Р р	r	/r/	alveolar trill
С с	s	/s/	voiceless alveolar fricative
Т т	t	/t/	alveolar stop
У у	u	/u/	high back rounded
Ф ф	f	/f/	labiodental fricative
Х х	kh	/x/	velar fricative — like German "Bach"
Ц ц	ts	/ts/	affricate — "cats"
Ч ч	ch	/tʃ/	affricate — "church"
Ш ш	sh	/ʃ/	voiceless palatal fricative
Щ щ	shch	/ʃtʃ/	long palatal fricative
Ъ ъ	˘	hard sign	separates prefix from iotic vowel
Ы ы	y	/ɨ/	central high vowel — no English equivalent
Ь ь	˙	soft sign	palatalizes preceding consonant
Э э	e	/e/	"backwards E" — non-iotic front vowel
Ю ю	yu	/ju/	iotic u
Я я	ya	/ja/	iotic a

## — RUSSIAN NUMERALS — ARABIC (WESTERN) —

Russian uses standard Western Arabic numerals (0–9) with standard decimal notation.

Ordinals decline like adjectives: первый (первый) "first" · второй (второй) "second" · третий (третий) "third"

## — SCRIPT HISTORY —

863 CE: Cyril and Methodius create Glagolitic (first Slavic alphabet) and later Cyrillic for Old Church Slavonic.

~10th c.: Cyrillic adopted in Kievan Rus after Christianization (988 CE); early manuscripts in Old Church Slavonic.

1708: Peter the Great reforms the alphabet — "civil script" (гражданский шрифт) drops archaic letters.

1917–18: Soviet reform removes 4 more letters (ѣть, ѝ, ѥица, ѣта) — creates modern 33-letter alphabet.

Cyrillic today: used by ~250 million people — Russian, Ukrainian, Bulgarian, Serbian, Kazakh, Mongolian, and more.

Direction: left to right, top to bottom. Same as Latin script.

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# RUSSIAN — PHONOLOGY · SOUND SYSTEM

SERIES 24B OF 50 · REMEMBER FORWARD

## — KEY FEATURE: PALATALIZATION — SOFT AND HARD CONSONANTS —

Russian has a pervasive contrast between HARD (plain) and SOFT (palatalized) consonants.

Palatalization: the body of the tongue rises toward the hard palate during the consonant — like adding /j/.

Soft sign ь signals palatalization: брат brat "brother" vs. брать brat' "to take"

Iotic vowels (e, ё, ю, я, и) also palatalize the preceding consonant automatically.

## — VOWEL SYSTEM — 6 PHONEMES, STRONG REDUCTION —

IPA	Letter	Translit	Notes
/a/	<b>а</b>	a	low central — stressed: [a], unstressed after hard: [ɑ]
/e/	<b>э/е</b>	e	mid front — stressed: [e], unstressed: [ɛ]
/i/	<b>и</b>	i	high front — stable across stress
/ɨ/	<b>ы</b>	y	high central — unique to Slavic; no English equivalent
/o/	<b>о</b>	o	mid back — stressed: [o], unstressed: [ɔ] or [ɑ]
/u/	<b>у</b>	u	high back rounded — relatively stable

VOWEL REDUCTION: unstressed /o/ and /a/ reduce toward [ɔ]/[ɑ] — молоко moloko [mɔkɔkɔkɔ] "milk"

## — CONSONANT INVENTORY — 36 PHONEMES (18 HARD/SOFT PAIRS + OTHERS) —

Most consonants come in hard/soft pairs — 15 pairs = 30 phonemes, plus unpaired consonants:

п/п'	/p/ - /p'□/	п/п'	п — papa rara · нь — перь pet'
б/б'	/b/ - /b'□/	б/б'	б — баба baba · бь — бить bit'
т/т'	/t/ - /t'□/	т/т'	т — там tam · ть — тесто testo
д/д'	/d/ - /d'□/	д/д'	д — да da · дь — день den'
к/к'	/k/ - /k'□/	к/к'	к — кот kot · кь — кит kit
г/г'	/g/ - /g'□/	г/г'	г — год god · гь — гиря girya
с/с'	/s/ - /s'□/	с/с'	с — сад sad · сь — сесть sest'
з/з'	/z/ - /z'□/	з/з'	з — зал zal · зь — зима zima
н/н'	/n/ - /n'□/	н/н'	н — нос nos · нь — нет net
л/л'	/l/ - /l'□/	л/л'	л — луна luna · ль — лес les
р/р'	/r/ - /r'□/	р/р'	р — рот rot · рь — ряд ryad
м/м'	/m/ - /m'□/	м/м'	м — мать mat' · мь — мир mir
в/в'	/v/ - /v'□/	в/в'	в — вот vot · вь — весна vesna
ф/ф'	/f/ - /f'□/	ф/ф'	ф — факт fakt · фь — фитиль fitil'
х/х'	/x/ - /x'□/	х/х'	х — ход khod · хь — химия khimiya

Unpaired hard: ж /□/ ш /□/ ц /□/ ч /□/ · Unpaired soft: ч /t□/ ш /□/ й /j/

## — STRESS — FREE AND MOBILE —

Russian stress is FREE: it can fall on any syllable. It is MOBILE: shifts in inflected forms.

рука (ruka) "hand" NOM sg □ руку (ruku) ACC sg □ руки (ruki) NOM pl — stress shifts each form

Stress is not marked in normal writing. Dictionaries and learner texts mark it with an accent: а́.

Unstressed vowels reduce: это (eto) "this" = [ɛtɛ□]; молоко (moloko) "milk" = [mɔkɔkɔkɔ]

## — ASSIMILATION AND FINAL DEVOICING —

Final devoicing: voiced obstruents become voiceless at word end — год god "year" pronounced [gɔt]

Regressive assimilation: consonants assimilate in voicing to the following consonant:

сделать sdelat' "to do" — с before voiced д □ [z]: [zdɛlat□]

Consonant clusters: Russian allows complex clusters: встреча vstretcha "meeting" /fstr□et□□/

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# RUSSIAN — GRAMMAR · VOCABULARY

SERIES 24C OF 50 · REMEMBER FORWARD

## — INFLECTED LANGUAGE — 6 CASES, 3 GENDERS —

Russian is highly inflected. Nouns decline for: CASE (6) × NUMBER (sg/pl) × GENDER (M/F/N).

Word order is flexible (SVO preferred, but any order is grammatically possible for emphasis).

Case	Abbr	Function	Example	Gloss
Nominative	НОМ	Subject	КОТ СПИТ.	The cat sleeps.
Genitive	РОД	Possession / absence	НЕТ КОТА	there is no cat
Dative	ДАТ	Indirect object	ДАЛ КОТУ	gave to the cat
Accusative	ВИН	Direct object	ВИЖУ КОТА	I see the cat
Instrumental	ТВО	By/with/as	С КОТОМ	with the cat
Prepositional	ПРЕ	Location (after prep)	О КОТЕ	about the cat

## — NOUN DECLENSION — ■■■ "cat" (masculine) —

	Singular	Plural
НОМ	КОТ	КОТЫ
РОД	КОТА	КОТОВ
ДАТ	КОТУ	КОТАМ
ВИН	КОТА	КОТОВ
ТВО	КОТОМ	КОТАМИ
ПРЕ	КОТЕ	КОТАХ

## — VERB CONJUGATION — ■■■■■■■■ "to speak" (2nd conjugation) —

	Present		Past (agrees with subject gender)		
Я	гов <sup>о</sup> рю	I speak	М sg	гов <sup>о</sup> рил	he spoke
ТЫ	гов <sup>о</sup> ришь	you speak	Ж sg	гов <sup>о</sup> рила	she spoke
ОН/ОНА	гов <sup>о</sup> рит	he/she speaks	Ср sg	гов <sup>о</sup> рило	it spoke
МЫ	гов <sup>о</sup> рим	we speak	Мн pl	гов <sup>о</sup> рили	they spoke
ВЫ	гов <sup>о</sup> рите	you (pl/formal) speak			
ОНИ	гов <sup>о</sup> рят	they speak			

Aspect: Russian verbs have PERFECTIVE (completed) and IMPERFECTIVE (ongoing) pairs:  
 писать (pisat') IMPF "to write (repeatedly)" vs написать (napisat') PERF "to write (once, completely)"

## — CORE VOCABULARY — 25 WORDS —

да / нет	da / net	yes / no	ВРЕМЯ	vremya	time
я / ты / вы	ya / ty / vy	I / you (inf) / you (pl)	ЛУНА	luna	moon
это	eto	this / that	ЗВЕЗДА	zvezda	star
где	gde	where	СЕРДЦЕ	serdtse	heart
что	chto	what	ЛЮБОВЬ	lyubov'	love
кто	kto	who	СВОБОДА	svoboda	freedom
когда	kogda	when	ПАМЯТЬ	pamyat'	memory
почему	pochemu	why	БУДУЩЕЕ	budushcheye	the future
вода	voda	water	МИР	mir	world / peace
огонь	ogon'	fire	ХОРОШО / ПЛОХО	khorosho / plokho	good / bad
земля	zemlya	earth	ВСЁ	vsyo	everything
человек	chelovek	person	ЖИЗНЬ	zhizn'	life
книга	kniga	book			

## — NO ARTICLES — VERBAL ASPECT INSTEAD —

Russian has NO definite or indefinite articles. Context and word order convey specificity.

The distinction between "a book" and "the book" is handled by context, demonstratives (эта книга), or order.

Instead, Russian grammaticalizes ASPECT — a distinction absent from English but pervasive in Russian:

читать (chitat') = to be reading / read habitually · прочитать (prochitat') = to read (and finish)

The perfective prefix changes meaning: написать "write completely", выпить "drink up", уйти "leave (and go)"

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# RUSSIAN — RUNNING TEXT · PASSAGES

SERIES 24D OF 50 · REMEMBER FORWARD

— PASSAGE 1 — PUSHKIN, EUGENE ONEGIN I.I (1825) —

Мой дядя самых честных правил,

Moy dyadya samykh chestnykh pravil,

My uncle [of-the] most honest rules,

Когда не в шутку занемог,

Kogda ne v shutku zanemog,

When [not as a] joke fell-ill,

"My uncle — of most honest principles — when he fell ill in earnest..."

— PASSAGE 2 — TOLSTOY, ANNA KARENINA I.I (1877) —

Все счастливые семьи похожи друг на друга,

Vse schastlivye sem'i pokhozhi drug na druga,

All happy families resemble one another,

каждая несчастливая семья несчастлива по-своему.

kazhdaya neschastlivaya sem'ya neschastliva po-svoemu.

"All happy families are alike; each unhappy family is unhappy in its own way."

— PASSAGE 3 — DOSTOEVSKY, THE IDIOT (1869) —

Красота спасёт мир.

Krasota spasoyt mir.

Beauty will-save world/peace.

"Beauty will save the world." — Note: mir means both "world" and "peace" in Russian.

— PASSAGE 4 — RUSSIAN PROVERBS —

Не откладывай на завтра то, что можно сделать сегодня.

Ne otkladyvay na zavtra to, chto mozno sdelat' segodnya.

"Do not put off until tomorrow what can be done today."

Язык до Киева доведёт.

Yazyk do Kiyeva dovedet.

"The tongue will lead you to Kiev." — Ask and you will find your way.

— PASSAGE 5 — CHEKHOV, THREE SISTERS (1901) —

В Москву! В Москву! В Москву!

V Moskvu! V Moskvu! V Moskvu!

"To Moscow! To Moscow! To Moscow!" — the longing for a life not lived, a future not reached.

— BRIDGE PHRASE — REMEMBER FORWARD —

Это послание создано для вас, бесплатно, людьми, которые помнили о будущем.

Eto poslanie sozdano dlya vas, besplatno, lyud'mi, kotorye pomnili o budushchem.

This message made for you freely people who remembered about future

"This message was made for you, freely, by people who remembered the future."

— LANGUAGE NOTE — "FUTURE" IN RUSSIAN —

Russian: будущее (budushcheye) = "the future" — a present active participle of быть (byt') "to be".

Literally: "that which is becoming / the becoming" — the future as an ongoing process, not a fixed destination.

помнили (pomnili): past imperfective — they remembered (habitually, over time), not just once.

бесплатно (besplatno): "without payment" — без (without) + плата (payment) — freely given.

мир (mir): appears in two senses in Russian culture — "world/universe" and "peace/community".

Tolstoy's title Война и мир (War and Peace) plays on this — some read it as "War and the World".

— DECODING NOTE — FOR FUTURE READERS —

Russian is an East Slavic language, spoken by ~170 million as a first language, ~300 million total.

Cyrillic alphabet: 33 letters. If unfamiliar, consult Plate 24A for the complete letter table.

Russian is the most widely spoken Slavic language and the 8th most spoken in the world.

Related languages in Cyrillic: Ukrainian, Bulgarian, Serbian, Belarusian, Macedonian.

Russian literature is among the world's richest: Pushkin, Tolstoy, Dostoevsky, Chekhov, Akhmatova.

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# HINDI — SCRIPT · WRITING SYSTEM

SERIES 25A OF 50 · REMEMBER FORWARD

## — DEVANAGARI SCRIPT — AN ABUGIDA —

Hindi is written in Devanagari (□□□□□□□□) — an abugida: each consonant carries an inherent /a/ vowel.

Vowels are modified by diacritic marks (matras) attached to consonants. Left to right, top to bottom.

The horizontal line (shirorekha) across the top connects letters into words — a distinctive visual feature.

## — VOWELS — 11 INDEPENDENT FORMS + MATRA MARKS —

□	a	/□/	inherent vowel (not written as matra)
□	aa	/□□/	long a — □ as matra: □ + □ = □□
□	i	/□/	short i — □ as matra: □ + □ = □□
□	ii	/□□/	long i — □ as matra: □ + □ = □□
□	u	/□/	short u — □ as matra: □ + □ = □□
□	uu	/□□/	long u — □ as matra: □ + □ = □□
□	e	/e□/	long e — □ as matra: □ + □ = □□
□	ai	/□□/	diphthong — □ as matra: □ + □ = □□
□	o	/o□/	long o — □ as matra: □ + □ = □□
□	au	/□□/	diphthong — □ as matra: □ + □ = □□
□	ri	/r□/	vocalic r — □ as matra: □ + □ = □□

## — CONSONANTS — 33 + ORGANIZED BY PLACE OF ARTICULATION —

Devanagari consonants are systematically ordered by phonetic class — a unique feature of Indian scripts.

Class	stop	ssd	stopz	ssdz	nasal
Velar	ka	gga	nga	ngga	na
Palatal	ka	cha	cha	cha	cha
Retroflex	ka	cha	ja	ja	ya
Dental	ka	cha	cha	cha	cha
Labial	ka	cha	cha	cha	cha
Semivow.	ka	cha	ka	ha	ma
Sibilant	ka	sha	sa	va	
Aspirate	ka	sha	sa		

## — SPECIAL CONSONANTS AND CONJUNCTS —

Conjunct consonants (sam्यukta akshara): two consonants combine visually — □ + □ = □□□ (ksha)

Halant (□): removes inherent vowel — □□ = k (no vowel). Used to form conjuncts or end words with consonant.

Anusvara (□): nasalizes vowel — □□□□□□ Samskrit · anusasika (□): nasal quality

Visarga (□): voiceless h after vowel — rare in modern Hindi, common in Sanskrit loans

## — DEVANAGARI NUMERALS —

□	□	□	□	□	□	□	□	□	□
0	1	2	3	4	5	6	7	8	9

Modern Hindi uses both Devanagari numerals and Western Arabic (0–9) numerals interchangeably.

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# HINDI — PHONOLOGY · SOUND SYSTEM

SERIES 25B OF 50 · REMEMBER FORWARD

## — HINDI PHONOLOGY — INDO-ARYAN BRANCH —

Hindi (Modern Standard Hindi, MSH) is the official language of India. ~600 million speakers total.  
Descended from Sanskrit via Prakrits and Apabhramsha. Closely related to Urdu (same spoken form, different script).

## — VOWEL SYSTEM — 10 ORAL + 5 NASAL VOWELS —

IPA	Letter	Translit	Quality
/ɔ/	□	a	short central, like "above" — inherent vowel
/ɔɔ/	□	aa	long low back, like "father"
/i/	□	i	short high front, like "sit"
/ii/	□	ii	long high front, like "see"
/u/	□	u	short high back rounded, like "put"
/uu/	□	uu	long high back rounded, like "cool"
/e/	□	e	long mid front, like "late"
/ai/	□	ai	diphthong — "aye"
/o/	□	o	long mid back, like "go"
/ow/	□	au	diphthong — "ow"

Nasal vowels: anusvara (◌ṅ) nasalizes any vowel — ◌ṅṅ haan "yes" · ◌ṅṅ aankh "eye"

## — CONSONANT SYSTEM — FOUR-WAY STOP CONTRAST —

Hindi has a four-way contrast in stops: voiceless unaspirated · voiceless aspirated · voiced unaspirated · voiced aspirated

This four-way distinction is rare in the world's languages. English has only two (voiceless/voiced).

Class	VL unaspirated	VL aspirated	Voiced unaspirated	Voiced aspirated
Velar	□ /k/	□ /kh/	□ /g/	□ /gḥ/
Palatal	□ /tʃ/	□ /tʃh/	□ /dʒ/	□ /dʒḥ/
Retroflex	□ /ɖ/	□ /ɖh/	□ /ɗ/	□ /ɗḥ/
Dental	□ /t̪/	□ /t̪h/	□ /d̪/	□ /d̪ḥ/
Labial	□ /p/	□ /pʰ/	□ /b/	□ /bḥ/

## — RETROFLEX CONSONANTS — A KEY FEATURE —

Retroflex consonants are produced with the tongue tip curled back to the hard palate — distinctive in Hindi.

□ /ɖ/, □ /ɖh/, □ /ɗ/, □ /ɗh/ — not found in European languages.

Retroflex vs. dental minimal pair: □ṅṅ taal "rhythm" /t̪ṅṅ/ vs. □ṅṅ taal "to avoid" /t̪ṅṅ/

## — STRESS, TONE, AND NASALIZATION —

Hindi has no lexical tone (unlike many neighboring languages). Stress is not strongly phonemic.

Stress falls on the first heavy syllable — a syllable is heavy if it contains a long vowel or ends in a consonant.

Schwa deletion: the final schwa /ɔ/ of words is often deleted in careful speech — kaam /kaṁm/, not /kaṁmɔ/

Schwa deletion is complex — depends on syllable structure and morpheme boundaries.

## — KEY PHONOLOGICAL FEATURES —

Aspirated voiced stops (/bḥ/, /dḥ/, /gḥ/) are typologically rare and mark Hindi/Urdu from most world languages.

Trill /r/ (like Spanish) in careful speech; tap [ɽ] common in casual speech. Retroflex tap [ɽ] also present.

/ɽ/ and /w/ are allophones — /ɽ/ between vowels, /w/ elsewhere in standard Hindi.

Urdu vs. Hindi phonology: identical. Urdu adds Persian/Arabic sounds /q/, /x/, /ɣ/, /z/ in loanwords.

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# HINDI — GRAMMAR · VOCABULARY

SERIES 25C OF 50 · REMEMBER FORWARD

## — SOV LANGUAGE — POSTPOSITIONS, SPLIT ERGATIVITY —

Hindi is SOV (Subject–Object–Verb). Verb comes last. Postpositions follow their noun phrases.

Two genders: masculine and feminine. No neuter. Adjectives agree in gender and number.

□□□ □□□ □□□□ □□□□ (main seb khaata hun.) "I eat an apple." — SBJ OBJ VERB-M-PRES AUX

## — POSTPOSITIONS — CASE MARKERS —

Hindi uses POSTPOSITIONS (after noun) not prepositions. They take the oblique case of the noun.

□□□ / mein	in, inside	□□□□ ghar mein "in the house"
□□ / par	on, at, upon	□□□□ □□ mez par "on the table"
□□ / ko	to, for (dative/acc)	□□□□ mujhko "to me"
□□/□□/□□ / ka	of, possessive	□□□□ □□ Ram ka ghar "Ram's house"
□□ / se	from, by, with	□□□□□□ □□ Dilli se "from Delhi"
□□ □□□ / ke liye	for (purpose)	□□□□□□□□ □□ tumhare liye "for you"
□□ □□□ / ke saath	with, together with	□□□□ □□□ mere saath "with me"
□□ / tak	until, up to	□□ □□ kal tak "until tomorrow"

## — VERB CONJUGATION — ■■■■ "to do" (karna) —

Hindi verbs agree with subject in gender, number, and person. Auxiliary verb □□/□□□ added for present.

Subj	Translit	Person	Verb form	Translit	Gloss
□□□	main	1sg M	□□□□ □□□	karta hun	I do (masc)
□□□	main	1sg F	□□□□ □□□	karti hun	I do (fem)
□□□	tum	2pl inf	□□□□ □□	karte ho	you do (masc)
□□	vah	3sg M	□□□□ □□	karta hai	he does
□□	vah	3sg F	□□□□ □□	karti hai	she does
□□	ham	1pl	□□□□ □□□	karte hain	we do (masc)
□□	ve	3pl	□□□□ □□□	karte hain	they do (masc)

Past: simple past uses perfective participle — □□□□□ □□□□ (maine kiya) "I did"

Ergative: in perfective past, transitive subject takes □□ (ne) — split ergativity

## — CORE VOCABULARY — 25 WORDS —

□□□ / □□□□	haan / nahin	yes / no	□□□□	samay	time
□□□ / □□□□ / □□	main / tum / aap	I / you (inf) / you (formal)	□□□□□□	chaand	moon
□□ / □□	yah / vah	this / that	□□□□□□	taara	star
□□□□	kahaan	where	□□□□□□	dil	heart
□□□□	kya	what	□□□□□□	pyaar	love
□□□	kaun	who	□□□□□□□	azaadi	freedom
□□	kab	when	□□□□□□	yaad	memory
□□□□□□	kyun	why	□□□□□□□	bhavishya	future
□□□□□	paani	water	□□□□□□□	duniya	world
□□	aag	fire	□□□□□□□ / □□□□□□	achhaa / buraa	good / bad
□□□□□□	zameen	earth / ground	□□□□□□□□	sab kuchh	everything
□□□□□□	insaan	human being	□□□□□□□□□	zindagi	life
□□□□□□	kitaab	book			

## — HINDI AND URDU — ONE SPOKEN LANGUAGE, TWO SCRIPTS —

Spoken Hindi and Urdu are mutually intelligible — the same colloquial language (Hindustani).

They diverge in formal registers: Hindi draws vocabulary from Sanskrit; Urdu from Persian and Arabic.

Hindi is written in Devanagari (left to right). Urdu is written in Nastaliq (Perso-Arabic, right to left).

Together, Hindi and Urdu represent the 3rd most spoken language group in the world: ~700 million speakers.

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# SPANISH — SCRIPT · WRITING SYSTEM

SERIES 26A OF 60 · REMEMBER FORWARD

## — THE SPANISH ALPHABET — 27 LETTERS —

Spanish uses the Latin alphabet with one addition: ñ (eñe). The alphabet has 27 letters.  
Digraphs ch and ll were treated as single letters 1803–2010; now alphabetised as two-letter sequences.  
Spanish orthography is highly phonemic — spelling closely matches pronunciation.

## — THE 27 LETTERS WITH NAMES AND KEY SOUNDS —

A a	a	/a/	Ñ ñ	eñe	/ɲ/
B b	be	/b/–[v]	O o	o	/o/
C c	ce	/k/ or /s/†	P p	pe	/p/
D d	de	/d/–[ð]	Q q	cu	/k/ in qu
E e	e	/e/	R r	erre	/r/ or /ʀ/
F f	efe	/f/	S s	ese	/s/
G g	ge	/ɣ/ or /x/	T t	te	/t/
H h	hache	silent	U u	u	/u/
I i	i	/i/	V v	uve	/b/–[v]
J j	jota	/x/	W w	doble uve	loans
K k	ka	/k/ loans	X x	equis	/ks/ or /s/
L l	ele	/l/	Y y	ye	/j/ or /j/
M m	eme	/m/	Z z	zeta	/s/ or /θ/
N n	ene	/n/			

† C = /k/ before a,o,u; /s/ (Americas) or /θ/ (Castilian Spain) before e,i

## — ACCENT MARKS AND SPECIAL CHARACTERS —

Acute accent (áéíóú): marks stress when it falls outside the default pattern, or disambiguates homophones.  
Default stress: penultimate syllable if word ends in vowel/n/s; final syllable otherwise.  
Tilde (ñ): distinct letter, /ɲ/ palatal nasal — mañana, señor, español.  
Díesis (ü): marks that u is pronounced in güe/güi: pingüino, cigüeña.  
Inverted punctuation: sentences begin with ¿ (question) or ¡ (exclamation): ¿Cómo estás?

## — DIALECTAL VARIATION IN WRITING AND SOUND —

Castilian Spain	c/z before e,i = /θ/ (thin)	vosotros form used
Latin America	c/z before e,i = /s/ (seseo)	vosotros absent; ustedes
Rio Plata (Arg/Uru)	seseo + yeísmo (/ɲ/ for ll/y)	vos instead of tú
Andean Spanish	vowel reduction; Quechua influence	strong /r/ distinction
Caribbean	final /s/ aspirated or deleted	coda consonants weakened

## — SPANISH NUMERALS AND SCRIPT HISTORY —

Spanish uses standard Western Arabic numerals 0–9.  
Latin alphabet adopted with Christianisation of Iberia (1st–6th c. CE).  
Old Spanish (El Cid, ~1140): c, ç, j, x, y used for sounds lost later. Modern orthography stabilised ~1741 (RAE).  
Real Academia Española (RAE, founded 1713): codifies spelling, grammar, and vocabulary for 20+ countries.  
Spanish is written by ~500 million native speakers across 20+ countries on 4 continents.  
2nd most spoken native language on Earth after Mandarin Chinese.

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# SPANISH — PHONOLOGY · SOUND SYSTEM

SERIES 26B OF 60 · REMEMBER FORWARD

## — VOWEL SYSTEM — 5 PURE VOWELS —

Spanish has 5 vowel phonemes — one of the simplest vowel systems among major world languages.

All vowels are short and pure (no diphthongisation). Consistent across most dialects.

/a/	a	low central	padre, mar, casa
/e/	e	mid front	mesa, tres, leche
/i/	i	high front	vida, mi, hijo
/o/	o	mid back	noche, voz, como
/u/	u	high back	luna, luz, uno

Diphthongs: rising (ia, ie, io, iu, ua, ue, ui, uo) and falling (ai, ei, oi, au, eu, ou) — two vowels in one syllable.

## — CONSONANT INVENTORY —

p b	/p b/	bilabial stops	B/V identical: both /b/ - [v] between vowels
t d	/t d/	dental stops	D = [ð] between vowels: nada [naða]
k g	/k ɡ/	velar stops	G = [ŋ] between vowels: lago [laŋo]
f	/f/	labiodental	fuerza, fácil
s	/s/	alveolar frict.	always voiceless in most dialects
x	/x/	velar frict.	j always = /x/: joven, ojo, rojo
θ	/θ/	dental frict.	Castilian c/z: cena, zapato (NOT in Latin Am.)
tʃ	/tʃ/	affricate	ch: noche, muchacho
m n	/m n/	nasals	n = [ɲ] before velars: banco [banʎo]
ɲ	/ɲ/	palatal nasal	ñ: mañana, español
l	/l/	lateral	leche, sol
ʎ	/ʎ/	palatal lateral	ʎ (Castilian): llave, calle — merged with /j/ elsewhere
r	/r/	tap	single r between vowels: caro, pero
rr	/r̄/	trill	double r / initial r: perro, rosa
j	/j/	palatal glide	ya, yo, hierba

## — STRESS RULES —

- Words ending in vowel, -n, or -s: stress falls on PENULTIMATE syllable: ca-SA, jo-VEN, ca-SAS.
- Words ending in any other consonant: stress falls on FINAL syllable: ciu-DAD, ha-BLAR, es-PAÑOL.
- Written accent overrides both rules: música (stress 1st), café (stress last despite -e).
- Monosyllables: no accent unless disambiguation needed: sí (yes) vs si (if); él (he) vs el (the).

## — KEY PHONOLOGICAL PROCESSES —

Lenition: voiced stops /b d g/ weaken to fricatives [β ð ɣ] between vowels — a defining Spanish feature.

Seseo/ceceo/distinción: the s/θ variation divides Spain from the Americas and reflects 15th-c. colonial settlement.

Yeísmo: merger of /ɲ/ (ʎ) and /j/ (y) — dominant in Latin America and most of Spain today.

Coda weakening: final and pre-consonantal /s/ aspirated [h] or deleted in Caribbean, Andalusian, and coastal dialects.

Vibrantes: tap /ɾ/ vs trill /r̄/ distinction is phonemic: pero (but) vs perro (dog).

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# SPANISH — GRAMMAR · VOCABULARY

SERIES 26C OF 60 · REMEMBER FORWARD

## — SVO LANGUAGE — FLEXIBLE ORDER, NULL SUBJECT —

Spanish is SVO but highly flexible — any constituent can front for emphasis or topic.

NULL SUBJECT: subject pronouns optional — verb ending marks person/number: (yo) hablo = "I speak".

Two genders: masculine (-o) and feminine (-a). Adjectives agree: libro rojo / mesa roja.

## — VERB CONJUGATION — hablar "to speak" (regular -ar) —

Present Indicative			Preterite (simple past)		
yo	hablo	I speak	yo	hablé	I spoke
tú	hablas	you speak	tú	hablaste	you spoke
él/ella	habla	he/she speaks	él/ella	habló	he/she spoke
nosotros	hablamos	we speak	nosotros	hablamos	we spoke
vosotros	habláis	you pl. (Spain)	vosotros	hablasteis	you pl.
ellos	hablan	they speak	ellos	hablaron	they spoke

Subjunctive: hable, hables, hable... — used for doubt, wishes, emotions, hypotheticals.

Ser vs Estar: both mean "to be" — ser = permanent identity; estar = state/location/condition.

## — OBJECT PRONOUNS AND REFLEXIVES —

Direct: me, te, lo/la, nos, os, los/las — Lo veo "I see him/it"

Indirect: me, te, le, nos, os, les — Le doy el libro "I give him the book"

Reflexive: me, te, se, nos, os, se — Se lava "he/she washes (him/herself)"

Clitic climbing: with infinitives — Quiero verlo OR Lo quiero ver (both = "I want to see it")

## — CORE VOCABULARY — 25 WORDS —

sí / no	yes / no	tiempo	time / weather
yo / tú	I / you	luna	moon
esto / eso	this / that	estrella	star
¿dónde?	where	corazón	heart
¿qué?	what	amor	love
¿quién?	who	libertad	freedom
¿cuándo?	when	memoria	memory
¿por qué?	why	futuro	future
agua	water	mundo	world
fuego	fire	bueno / malo	good / bad
tierra	earth	todo	everything
persona	person	vida	life
libro	book		

## — THE TWO "TO BE" VERBS — SER AND ESTAR —

SER (permanent / identity)

Mi madre es médica  
My mother is a doctor (identity)  
El cielo es azul  
The sky is blue (inherent)  
La fiesta es en Madrid  
The party is in Madrid (event location)

ESTAR (state / position)

Estoy cansado  
I am tired (state)  
El libro está en la mesa  
The book is on the table (position)  
Está muerto  
He is dead (resulting state)

## — TENSE SYSTEM OVERVIEW —

Spanish has 14 indicative tenses/moods + 6 subjunctive forms + imperative.

Key distinction: pretérito indefinido (completed) vs imperfecto (ongoing/habitual in past).

Hablé (I spoke once, done) vs hablaba (I was speaking / I used to speak).

Future can be expressed with ir + infinitive: voy a hablar "I am going to speak".

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# SPANISH — RUNNING TEXT · PASSAGES

SERIES 26D OF 60 · REMEMBER FORWARD

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— PASSAGE 1 — CERVANTES, DON QUIJOTE LI (1605) —

En un lugar de la Mancha, de cuyo nombre no quiero acordarme,

In a place of La Mancha of whose name not I-wish-to-remember,

no ha mucho tiempo que vivía un hidalgo de los de lanza en astillero...

not long time that lived a nobleman of those of lance on rack...

"In a village of La Mancha, the name of which I do not wish to recall, there lived not long ago a gentleman..."

---

— PASSAGE 2 — PABLO NERUDA, TONIGHT I CAN WRITE (1924) —

Puedo escribir los versos más tristes esta noche.

I-can write the verses most sad this night.

La querí, y a veces ella también me quería.

Her I-loved and sometimes she also me loved.

"Tonight I can write the saddest lines. I loved her, and sometimes she loved me too."

---

— PASSAGE 3 — GABRIEL GARCÍA MÁRQUEZ, CIEN AÑOS DE SOLEDAD (1967) —

Muchos años después, frente al pelotón de fusilamiento,

Many years later facing the firing squad,

el coronel Aureliano Buendía había de recordar aquella tarde remota...

the colonel Aureliano Buendia was to remember that remote afternoon...

"Many years later, as he faced the firing squad, Colonel Aureliano Buendía was to remember..."

---

— PASSAGE 4 — SPANISH PROVERBS —

Más vale tarde que nunca.

More is-worth late than never. — "Better late than never."

El que no arriesga, no gana.

He who not risks not wins. — "Nothing ventured, nothing gained."

---

— BRIDGE PHRASE — REMEMBER FORWARD —

Este mensaje fue hecho para usted, gratuitamente, por personas que recordaron el futuro.

This message was made for you freely, by people who remembered the future.

"This message was made for you, freely, by people who remembered the future."

---

— LANGUAGE NOTE — "FUTURE" IN SPANISH —

futuro (el futuro): from Latin futurum — same root. Grammatical future tense formed by adding endings to infinitive.

hablaré, hablarás, hablará... — The endings derive from Latin habere "to have": habl-ar-he´ = "speak-to-I have".

recordar: to remember — from Latin re-cord-are "to pass back through the heart" (cor/cordis = heart).

gratuitamente: freely — from Latin gratuitus "given without return", gratis "by grace".

---

— DECODING NOTE — FOR FUTURE READERS —

Spanish is spoken by ~500 million native speakers across Spain, all of Latin America except Brazil, the Caribbean, and large communities in the USA. It is the world's 2nd most spoken native language.

It uses the Latin alphabet (same as English) with ñ and optional accent marks. Pronunciation is highly regular.

Spanish is an Indo-European language — descended from Latin, related to Portuguese, French, Italian, and Romanian.

The passage above from Don Quijote (1605) is widely considered the first modern novel in any language.

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# PORTUGUESE — SCRIPT · WRITING SYSTEM

SERIES 27A OF 60 · REMEMBER FORWARD

## — THE PORTUGUESE ALPHABET — 26 LETTERS + DIACRITICS —

Portuguese uses the standard 26-letter Latin alphabet. Since 2009 reform, k, w, y are official letters.

Rich diacritic system: acute (áéíóú), grave (à), circumflex (âêô), tilde (ãõ), cedilla (ç).

The nasal vowels (ã, õ, ão, em, im) are a distinctive feature absent from Spanish.

## — DIACRITICS AND THEIR FUNCTIONS —

á é í ó ú	Acute	Marks stress + open vowel quality
à	Grave	Marks contraction only: a + a = à (to the-f)
â ê ô	Circumflex	Marks stress + close (narrow) vowel quality
ã õ	Tilde	Nasalisation: irmã (sister), põe (puts)
ç	Cedilla	C before a,o,u = /s/: França, ção

## — NASAL VOWELS — A DEFINING FEATURE —

Portuguese nasalises vowels before n/m or with tilde. These are separate phonemes, not allophonic.

ã	[ã]	irmã (sister), amanhã (tomorrow), pão (bread)
õ	[õ]	põe (puts), botões (buttons)
em/en	[ẽ]	tempo (time), dentro (inside)
im/in	[ĩ]	sim (yes), cinco (five)
om/on	[õ]	som (sound), onde (where)
um/un	[ũ]	um (one), mundo (world)
ão	[ãw]	mão (hand), coração (heart), não (no)

## — EUROPEAN VS BRAZILIAN PORTUGUESE — KEY DIFFERENCES —

Portuguese is spoken by ~250 million people. Brazil alone has ~215 million speakers.

Vowels	EP: unstressed vowels heavily reduced	BP: vowels more open and stable
S before C/P/T	EP: /s/ (sh)	BP: /s/
te/di	EP: /te/ /di/	BP: /tɛi/ /dɛi/ (palatalised)
Second person	EP: tu + você	BP: você dominant (3rd-person verb)
Clitic position	EP: verb-clitic (fá-lo)	BP: clitic-verb (fo fazer) or drop
Vocabulary	quinha, autocarro (EP)	quinho, ônibus (BP)

## — SCRIPT HISTORY —

Latin spoken in Iberia after Roman conquest (218 BCE). Vulgar Latin differentiated into Galician-Portuguese by ~9th c.

Oldest document: Notícia de Torto (~1214). First major literature: Cantigas de Santa Maria (13th c.).

15th–16th c.: Age of Exploration spreads Portuguese to Brazil, Angola, Mozambique, Goa, Macau, Cape Verde.

Today: official language of 9 countries on 4 continents. 3rd most spoken European language globally.

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# PORTUGUESE — PHONOLOGY · SOUND SYSTEM

SERIES 27B OF 60 · REMEMBER FORWARD

## — VOWEL SYSTEM — ORAL AND NASAL —

Portuguese has 7 oral vowels + 5 nasal vowels — one of the most complex vowel systems among Romance languages.

/a/	a	open low: pá (spade)
/æ/ or /ɔ/	a unstressed	reduced in EP: casa [kazɔ]
/e/	e close	mês (month)
/ɛ/	e open	pé (foot)
/i/	i	vir (come)
/o/	o close	avó (grandfather)
/ɔ/	o open	pó (dust)
/u/	u	luz (light)

## — CONSONANT INVENTORY —

p b	/p b/	bilabial stops	pato, boca
t d	/t d/	alveolar stops	EP dental; BP: /t/ /d/ before i
k g	/k ɡ/	velar stops	casa, gato
f v	/f v/	labiodentals	fogo, voz
s z	/s z/	alveolar frict.	sol, casa [kaza] (BP) / [kazɔ] (EP)
ç ʃ	/ç ʃ/	palatal frict.	chave, hoje; EP: s before voiceless C
m n	/m n/	nasals	mar, não
ɲ	/ɲ/	palatal nasal	ninho (nest), junho (June)
l	/l/	lateral	lua; EP: [l]; BP word-final: [w]
ʎ	/ʎ/	palatal lateral	filho (son), mulher (woman)
r	/r/ or /ʀ/	rhotic	caro (EP tap), carro (EP/BP trill or uvular)
ʁ	/ʁ/	uvular (EP initial)	rápido, rosa — EP initial r = uvular

## — STRESS AND VOWEL REDUCTION —

Stress: penultimate by default; acute/circumflex marks exceptions. Written accent obligatory when stress deviates.

EP vowel reduction: unstressed /e o a/ reduce heavily toward [ɨ u ɔ] — makes EP sound very consonantal.

BP vowel reduction: minimal. Unstressed vowels stay open. BP sounds more "vowel-heavy" than EP.

Example: palavra (word) — EP [paɫavɔ], BP [paɫavɔ] — same word, very different realisation.

## — SIBILANT SYSTEM —

EP: s/z before voiceless C [ç] (sh); before voiced C [ʃ] (zh): Lisboa = Lix-boa

BP: s remains /s/ in most positions — the EP sibilant rule does not apply.

ch = /ç/ in both varieties: chave "key", chocolate.

lh = /ʎ/ (palatal lateral): ilha "island", filho "son".

nh = /ɲ/ (palatal nasal): ninho "nest", caminho "path".

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# PORTUGUESE — GRAMMAR · VOCABULARY

SERIES 27C OF 60 · REMEMBER FORWARD

## — SVO — NULL SUBJECT — TWO GENDERS —

Portuguese is SVO, null-subject, two genders (M/F). Very similar structure to Spanish.

Key differences from Spanish: nasal vowels, personal infinitive, future subjunctive, mesoclisism.

## — VERB CONJUGATION — falar "to speak" —

	Present Indicative			Preterite	
eu	falo	I speak	eu	falei	I spoke
tu	falas	you (inf)	tu	falaste	you
ele/ela	fala	he/she	ele/ela	falou	he/she
nós	falamos	we	nós	falámos	we
vós	falais	you pl (archaic)	vós	flastes	you pl
eles	falam	they	eles	falaram	they

## — PERSONAL INFINITIVE — UNIQUE FEATURE —

Portuguese is rare in having an INFLECTED infinitive — it takes subject endings even in the infinitive.

Standard: "É importante trabalhar" (It is important to work — impersonal)

Personal: "É importante trabalharmos" (It is important for us to work — specified subject)

Forms: trabalhar / trabalhares / trabalhar / trabalharmos / trabalhardes / trabalharem

## — FUTURE SUBJUNCTIVE — ANOTHER UNIQUE FEATURE —

Portuguese retains the future subjunctive, lost in Spanish: used in temporal/conditional clauses.

"Quando chegar" = "When (he/she) arrives" (future sub.) — Spanish uses present sub. here.

"Se você quiser" = "If you want" — future sub.; Spanish: "Si quieres" (present indicative).

## — CORE VOCABULARY — 25 WORDS —

sim / não	yes / no	tempo	time
eu / você	I / you	lua	moon
isto / isso	this / that	estrela	star
onde	where	coração	heart
o que	what	amor	love
quem	who	liberdade	freedom
quando	when	memória	memory
por quê	why	futuro	future
água	water	munido	world
fogo	fire	bom / mau	good / bad
terra	earth	tudo	everything
pessoa	person	vida	life
livro	book		

## — SER VS ESTAR AND FICAR —

Portuguese has three "to be" verbs: ser (identity), estar (state/position), ficar (become/stay).

Ela é professora (She IS a teacher — ser, identity).

Ela está cansada (She IS tired — estar, state).

Ela ficou triste (She BECAME sad / She STAYED sad — ficar, change or continuation of state).

Ficar distinguishes Portuguese from Spanish, which uses quedarse or ponerse for similar meanings.

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# PORTUGUESE — RUNNING TEXT · PASSAGES

SERIES 27D OF 60 · REMEMBER FORWARD

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— PASSAGE 1 — CAMÕES, OS LUSÍADAS LI (1572) —

As armas e os barões assinalados,

The arms and the barons distinguished,

Que da Ocidental praia Lusitana,

Who from-the Western shore Lusitanian,

"The arms and the distinguished heroes who from the Western Lusitanian shore..." — Portugal's national epic.

---

— PASSAGE 2 — FERNANDO PESSOA, MENSAGEM (1934) —

Tudo vale a pena

Everything is-worth the trouble

Se a alma não é pequena.

If the soul not is small.

"Everything is worth the trouble if the soul is not small." — Portugal's most celebrated modern poet.

---

— PASSAGE 3 — CLARICE LISPECTOR, A PAÍXÃO SEGUNDO G.H. (1964) —

Eu te pergunto: existe a alegria? e tu me respondes com a existência da alegria.

I you ask: exists the joy? and you me answer with the existence of-the joy.

"I ask you: does joy exist? and you answer me with the existence of joy." — Brazilian modernist.

---

— PASSAGE 4 — PORTUGUESE PROVERBS —

Devagar se vai ao longe.

Slowly oneself goes to far. — "Slowly but surely."

Quem não arrisca não petisca.

Who not risks not tastes. — "Nothing ventured, nothing gained."

---

— BRIDGE PHRASE — REMEMBER FORWARD —

Esta mensagem foi feita para você, gratuitamente, por pessoas que se lembraram do futuro.

This message was made for you freely, by people who remembered of-the future.

"This message was made for you, freely, by people who remembered the future."

---

— LANGUAGE NOTE — "FUTURE" IN PORTUGUESE —

futuro: same Latin root as Spanish/French. Portuguese future tense: falarei, falarás, falará...

Unique feature: MESOCLISIS — object pronouns can be inserted into the future/conditional:

Dar-te-ei (I will give you) = dar + te + ei — pronoun inserted into the verb form. Now rare in BP.

lembrar-se de: to remember (lit. "to remind oneself of") — reflexive construction.

gratuitamente: from gratuito — same Latin root as Spanish/French gratuit/gratuito.

---

— DECODING NOTE — FOR FUTURE READERS —

Portuguese is spoken by ~250 million people as a native language — 3rd most spoken European language.

Countries: Brazil, Portugal, Angola, Mozambique, Cape Verde, Guinea-Bissau, São Tomé, East Timor, Macau.

Two major standards: European Portuguese (EP) and Brazilian Portuguese (BP) — mutually intelligible.

Uses the Latin alphabet with cedilla (ç) and nasal vowel markers (ã õ). Closely related to Spanish.

Descended from Galician-Portuguese, spoken in northwestern Iberia by ~14th century.

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# FRENCH — SCRIPT · WRITING SYSTEM

SERIES 28A OF 60 · REMEMBER FORWARD

## — THE FRENCH ALPHABET — 26 LETTERS + DIACRITICS —

French uses the standard 26-letter Latin alphabet. Spelling is historically conservative — many silent letters.

French spelling preserves medieval and Latin forms even when the pronunciation has changed drastically.

eau = /o/ · oi = /wa/ · eau, au, o, ô all = /o/ · silent final consonants common: grand, petit, beaux.

## — DIACRITICS — FIVE TYPES —

é	Acute (aigu)	Marks /e/ close: été, pré, bébé
ê ê	Grave / Circumflex	Marks /ɛ/ open: mère, fête, tête
à ù	Grave (a/u)	Disambiguates homophones: a (has) vs à (to); ou (or) vs où (where)
â î ô û é	Circumflex	Marks long/close vowel or lost s: hôpital < hospitale
ë ï ü	Diérèse (trema)	Vowel pronounced separately: Naï, Noël, naïve
ç	Cédille	C before a/o/u = /s/: français, garçon, reçu

## — SILENT LETTERS — A MAJOR FEATURE —

French has extensive silent letters — final consonants usually silent unless followed by a vowel (liaison).

grand ami	[gɑ̃ɑ̃t ami]	final -d silent; liaison: grand_ami = [gɑ̃ɑ̃t_ami]
les enfants	[le zɑ̃fɑ̃]	les = /le/; liaison s: [lezɑ̃fɑ̃]
est-il	[ɑ̃tɪl]	final -t of est pronounced in inversion
beaux	[bo]	final -x silent; eau = /o/
psychologie	[psikolɔ̃ɔ̃]	initial p silent in common speech
homme	[ɑ̃m]	initial h always silent; final -e silent

## — LIAISON AND ELISION —

Liaison: final silent consonant pronounced before a following vowel-initial word.

les amis [lezami] (the friends) · nous avons [nuzavɑ̃ɑ̃] (we have) · deux enfants [dozɑ̃fɑ̃]

Elision: final vowel of small words dropped before vowel: le + ami = l'ami · de + elle = d'elle

Required elision: le, la, de, que, ne, se, me, te, ce before vowels or silent h.

## — SCRIPT HISTORY —

Old French (~9th–14th c.): diverged from Vulgar Latin; Serments de Strasbourg (842 CE) first French document.

Middle French (14th–17th c.): heavy borrowing from Latin; spelling increasingly conservative vs. pronunciation.

Académie française (founded 1635): codifies French spelling and grammar; issues official dictionary.

French is spoken by ~80 million native speakers; ~275 million total (L1+L2) across 29 countries.

Second most learned language in the world; official language of the UN, EU, African Union, Olympic Committee.

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# FRENCH — PHONOLOGY · SOUND SYSTEM

SERIES 28B OF 60 · REMEMBER FORWARD

## — VOWEL SYSTEM — 12 ORAL + 4 NASAL —

French has one of the most complex vowel systems of any European language: 12 oral + 4 nasal vowels.

Front rounded vowels /y ø œ/ are absent from English — a common learning difficulty.

/i/	i	vie (life), midi (noon)
/e/	e close	été, donné
/ɛ/	e open	mère, fenêtre
/a/	a front	patte, chat
/ɑ/	a back	pâte (rare)
/y/	u	lune, pur — rounded /i/
/ø/	eu close	feu, deux — rounded /e/
/œ/	eu open	peur, fleur — rounded /ɛ/
/u/	ou	loup, bout
/o/	o close	eau, beau, môt
/ɔ/	o open	or, botte
/ɔ̃/	schwa	le, me, se (optional)

Nasal: /ã/ an- /ɔ̃/ in- /œ̃/ on- /œ̃/ un — bon, bain, blanc, brun

## — CONSONANT INVENTORY —

p b	/p b/	bilabial	pain, beau
t d	/t d/	dental	tu, dame
k g	/k ɡ/	velar	car, gare
f v	/f v/	labiodental	feu, voir
s z	/s z/	alveolar	sac, zéro
ç ʝ	/ç ʝ/	palatal	chat, jour
m n	/m n/	nasals	mer, non
ɲ	/ɲ/	palatal nasal	gagner, montagne
l	/l/	lateral	lune, sol
r	/r/	uvular rhotic	rue, Paris — NOT a trill
ʝ w ɥ	/ʝ w ɥ/	glides	yeux, oui, lui (rounded palatal)

## — STRESS AND RHYTHM —

French stress falls on the FINAL syllable of a phonological phrase — not individual words.

French is syllable-timed — each syllable gets roughly equal duration (unlike English stress-timing).

This gives French its characteristic even, flowing rhythm. Word-level stress is weak.

Enchainement: final consonant of one word attaches to initial vowel of next: avec elle = [avekɛl].

## — KEY PHONOLOGICAL FEATURES —

Uvular /ɣ/: French r is produced at the back of the throat — not a tongue-tip sound. Unique among Romance.

Front rounded vowels: /y ø œ/ — produced by combining front tongue position with lip rounding.

Schwa /ɔ̃/: optional in fast speech; e muet "mute e" — le cheval [lœ̃ʃal] or [lɔ̃ʃal].

Nasal vowels: vowel before n/m in same syllable becomes nasal and n/m disappears: bon = /bɔ̃/.

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# FRENCH — GRAMMAR · VOCABULARY

SERIES 28C OF 60 · REMEMBER FORWARD

## — SVO — OBLIGATORY SUBJECT — TWO GENDERS —

French is SVO. Unlike Spanish/Italian, subject pronouns are OBLIGATORY — not null-subject.

Two genders (M/F): le livre (M), la table (F). Gender must be memorised — not predictable.

Articles: le/la/les (definite), un/une/des (indefinite). Articles required where English often omits them.

## — VERB CONJUGATION — parler "to speak" —

	Present			Imparfait (past continuous)	
je	parle	I speak	je	parlais	I was speaking
tu	parles	you (inf)	tu	parlais	you
il/elle	parle	he/she	il/elle	parlait	he/she
nous	parlons	we	nous	parlions	we
vous	parlez	you (formal/pl)	vous	parliez	you
ils/elles	parlent	they	ils/elles	parlaient	they

Passé composé (perfect): avoir/être + past participle — j'ai parlé (I spoke/have spoken)

être verbs (motion/state change): je suis allé(e) (I went) — participle agrees with subject gender.

## — NEGATION AND QUESTION FORMATION —

Negation: ne...pas wraps the verb: Je ne parle pas (I do not speak). Spoken French often drops ne: je parle pas.

Other negatives: ne...jamais (never), ne...rien (nothing), ne...plus (no more), ne...personne (no one).

Questions: inversion (Parlez-vous?), est-ce que (Est-ce que vous parlez?), or intonation (Vous parlez?).

## — CORE VOCABULARY — 25 WORDS —

oui / non	yes / no	temps	time/weather
je / vous	I / you (formal)	lune	moon
ceci / cela	this / that	étoile	star
où	where	coeur	heart
quoi / qu'est-ce que	what	amour	love
qui	who	liberté	freedom
quand	when	mémoire	memory
pourquoi	why	avenir / futur	future
eau	water	monde	world
feu	fire	bon / mauvais	good / bad
terre	earth	tout	everything
personne	person	vie	life
livre	book		

## — SUBJUNCTIVE AND FORMAL REGISTER —

French subjunctive is still widely used (unlike its decline in Spanish/Italian colloquial speech).

Required after: vouloir que, il faut que, bien que, pour que, avant que...

Il faut que vous parliez (It is necessary that you speak) — subj. after il faut que.

Register: tu (familiar) vs vous (formal/plural). Vous for strangers, elders, professionals.

French has three registers: spoken colloquial, standard written, and soutenu (elevated/literary).

Académie française guards vocabulary — resists English loans (courriel not email, logiciel not software).

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# FRENCH — RUNNING TEXT · PASSAGES

SERIES 28D OF 60 · REMEMBER FORWARD

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— PASSAGE 1 — DESCARTES, DISCOURS DE LA MÉTHODE (1637) —

Je pense, donc je suis.

I think therefore I am.

"I think, therefore I am." — The foundation of modern Western philosophy. First published in French, not Latin.

---

— PASSAGE 2 — VICTOR HUGO, LES MISÉRABLES (1862) —

Aimer, c'est agir.

To-love it-is to-act.

"To love is to act." — Victor Hugo. One of the most translated novels in history.

---

— PASSAGE 3 — ANTOINE DE SAINT-EXUPÉRY, LE PETIT PRINCE (1943) —

On ne voit bien qu'avec le coeur.

One not sees well only-with the heart.

L'essentiel est invisible pour les yeux.

The-essential is invisible to the eyes.

"One sees clearly only with the heart. The essential is invisible to the eye."

---

— PASSAGE 4 — FRENCH PROVERBS —

Mieux vaut tard que jamais.

Better is-worth late than never. — "Better late than never."

Petit à petit, l'oiseau fait son nid.

Little by little the bird makes its nest. — Patience builds all things.

---

— PASSAGE 5 — DÉCLARATION DES DROITS DE L'HOMME (1789) —

Les hommes naissent et demeurent libres et égaux en droits.

The men are-born and remain free and equal in rights.

"Men are born and remain free and equal in rights." — Article 1, Declaration of the Rights of Man.

---

— BRIDGE PHRASE — REMEMBER FORWARD —

Ce message a été fait pour vous, gratuitement, par des personnes qui se sont souvenues de l'avenir.

This message has been made for you freely by some people who themselves remembered of the future.

"This message was made for you, freely, by people who remembered the future."

---

— LANGUAGE NOTE — "FUTURE" IN FRENCH —

avenir (m.): the usual word for "future" — from à + venir "to come toward" — the future as what comes to us.

futur (m.): also used, especially for the grammatical tense and abstract sense.

se souvenir de: to remember — lit. "to come up to oneself again" — reflexive, memory as self-reunion.

gratuitement: freely — from gratuit (free of charge), from Latin gratuitus.

The passé composé (se sont souvenues) marks completeness: they DID remember, and it is done.

---

— DECODING NOTE — FOR FUTURE READERS —

French is spoken by ~80M native speakers; ~275M total across 29 countries on 5 continents.

Official language of: France, Belgium, Switzerland, Canada, and 21 African nations (most of West/Central Africa).

French served as the dominant language of diplomacy, science, and high culture 1650–1900 CE.

Many English words derive from French (after 1066 Norman conquest): government, justice, language, people.

Uses the Latin alphabet. Spelling is conservative — pronounce by rules, not by spelling (see Plate 28A).

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# HAUSA — SCRIPT · WRITING SYSTEM

SERIES 29A OF 60 · REMEMBER FORWARD

## — HAUSA — MOST WIDELY SPOKEN CHADIC LANGUAGE —

Hausa is a Chadic language (Afroasiatic family), spoken by 70–100 million people as L1 or L2.

Lingua franca across Nigeria, Niger, Ghana, Chad, Cameroon, Sudan, and the Sahel belt.

Two writing systems: Boko (Latin-based, official) and Ajami (Arabic-based, traditional).

## — BOKO ALPHABET — OFFICIAL LATIN-BASED SCRIPT —

23 letters from the Latin alphabet + 3 special letters with hooks: □, □, 'y (glottalised).

A a	/a/	open low	M m	/m/	nasal
B b	/b/	bilabial stop	N n	/n/	nasal
□ □	/□/	implosive bilabial — ba□a (door)	O o	/o/	mid back
C c	/t□/	ch sound	R r	/r/	trill / flap
D d	/d/	alveolar stop	S s	/s/	alveolar frict.
□ □	/□/	implosive alveolar — □an (son)	Sh sh	/□/	palatal frict.
E e	/e/	mid front	T t	/t/	alveolar stop
F f	/□/	bilabial fricative	Ts ts	/ts/ or /□/	ejective affricate
G g	/□/	velar stop	U u	/u/	high back
H h	/h/	glottal	W w	/w/	labio-velar glide
I i	/i/	high front	Y y	/j/	palatal glide
J j	/d□/	voiced affricate	'y 'y	/□j/	glottalised palatal
K k	/k/	velar stop	Z z	/z/	alveolar frict.
L l	/l/	lateral			

## — AJAMI — ARABIC-BASED TRADITIONAL SCRIPT —

Ajami (from Arabic 'ajam — non-Arab) uses Arabic letters adapted for Hausa sounds.

Used before colonialism; still used in religious texts, poetry, and traditional manuscripts.

Hausa implosives (□ □) often written with dotted Arabic letters not standard in Arabic.

## — TONE MARKING —

Hausa is a TONAL language with 2 tones: High (H) and Low (L). Falling tone = H+L on one syllable.

Tone is not marked in standard Boko writing — must be learned in context or from dictionaries.

ba□a (door) H-L | ba□á (no) L-H | □an (son) H | □àn (person of) L

Tone changes word meaning and grammatical function. Critical for comprehension.

## — IMPLOSIVE CONSONANTS — KEY HAUSA FEATURE —

□ and □ are IMPLOSIVE stops: airstream moves inward while voicing occurs. Rare in world languages.

□ = voiced bilabial implosive: lips close, glottis descends — ba□a "door", □awa "sand"

□ = voiced alveolar implosive: tongue at alveolar ridge, glottis descends — □an "son"

Distinguished from plain b/d by direction of airflow: implosives pull air in rather than push out.

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# HAUSA — PHONOLOGY · SOUND SYSTEM

SERIES 29B OF 60 · REMEMBER FORWARD

## — TWO-TONE SYSTEM — HIGH AND LOW —

Hausa has two level tones (High and Low) plus a falling tone (H□L on one mora).

Tone is phonemic: identical segmental strings differ only in tone pattern.

mai	owner (H)	mài	stomach (L)
kāya	loads (HL)	kàya	thorns (LH)
gida	house (HL)	gida	(verb: go home) (LH)

## — VOWEL SYSTEM — 5 SHORT + 5 LONG —

Vowel length is phonemic in Hausa — like tone, it changes meaning.

/a/ vs /a□/	a vs aa	karA (pull) vs kaara (make a road)
/e/ vs /e□/	e vs ee	mee (what) vs meehe (whatchamacallit)
/i/ vs /i□/	i vs ii	cikin (inside) vs cikii (belly full)
/o/ vs /o□/	o vs oo	gona (farm) vs goona (farm-emph)
/u/ vs /u□/	u vs uu	muta (people) vs muuta (die-pl)

Diphthongs: ai /aĩˀ/ and au /aũˀ/ are common in Hausa.

## — CONSONANT INVENTORY —

p b □	/p b □/	labials — □ is implosive
t d □	/t d □/	alveolars — □ is implosive
k g	/k □/	velars
k □	/k/ ejective	glottalised velar: k□a□à (shoe)
ts	/ts□/ ejective	glottalised affricate — distinctive
c	/t□/	palatal affricate: cikin
j	/d□/	voiced affricate
f s z sh	/□ s z □/	fricatives
r	/r/	trill (word initial) / flap (medial)
l m n	/l m n/	lateral and nasals
w y ʔ	/w j □ j/	glides — ʔ is glottalised
□	/□/	glottal stop: ya□in (eye)

## — SYLLABLE STRUCTURE AND PROSODY —

Hausa syllables: CV or CVC. No complex clusters. Words tend to be disyllabic.

Long vowels count as two morae: CVV = heavy syllable; affects tone and grammar.

Word-final position: often determines tone pattern of entire word (WF tone).

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# HAUSA — GRAMMAR · VOCABULARY

SERIES 29C OF 60 · REMEMBER FORWARD

## — SVO — ASPECT-BASED VERB SYSTEM — TWO GENDERS —

Hausa is SVO with postverbal objects. Two grammatical genders: masculine and feminine.

Verbs do not conjugate for tense — instead, ASPECT is marked by a pronominal aspect complex (PAC).

The PAC (subject pronoun + aspect marker) precedes the verb and encodes person, number, gender, aspect.

## — PRONOMINAL ASPECT COMPLEX — COMPLETIVE ASPECT —

PAC	Person	Gloss	Example: zo (come)
nā	1sg	I (did)	nā zo
kā	2sg M	you-m (did)	kā zo
kī	2sg F	you-f (did)	kī zo
yā	3sg M	he (did)	yā zo
tā	3sg F	she (did)	tā zo
mun	1pl	we (did)	mun zo
kun	2pl	you pl (did)	kun zo
sun	3pl	they (did)	sun zo

## — ASPECT SYSTEM —

Completive	nā/yā...	completed action	yā ci ya'yi (he has eaten)
Continuative	inā/yā na...	ongoing action	yā na cīn (he is eating)
Future/Intentive	□an/zā...	future intention	zā yā ci (he will eat)
Subjunctive	yā... (no asp)	wish/command	yā ci! (let him eat!)

## — CORE VOCABULARY — 25 WORDS —

i□ā / a□a	yes / no	lokaci	time
ni / kai	I / you (m)	wata	moon
wannan / wancan	this / that	tauraro	star
ina?	where	zuciya	heart
me?	what	koyayya	love
wane?	who	yanci	freedom
yaushe?	when	tunawa	memory
don me?	why	gobe	tomorrow / future
ruwa	water	duniya	world
wuta	fire	mai kyau / mugu	good / bad
kāsa	earth/land	duka	everything
mutum	person	rai	life
littafi	book		

## — GENDER AND PLURALITY —

Gender: masculine default; feminine marked by final -aa or -iyaa suffix in many nouns.

Plural formation is complex and partly irregular — several plural patterns exist.

gida (house) □ gidaje (houses) · mutum (person) □ mutane (people) · kifi (fish, unchanged)

# HAUSA — RUNNING TEXT · PASSAGES

SERIES 29D OF 60 · REMEMBER FORWARD

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— PASSAGE 1 — HAUSA PROVERB —

Hausa: Hankali ya fi karfi.

Wisdom surpasses strength.

"Wisdom surpasses strength." — Intelligence overcomes brute force.

---

— PASSAGE 2 — HAUSA PROVERB —

Zaman lafiya shi ne dukiya.

Living peace it is wealth.

"Living in peace is wealth." — On the value of communal harmony.

---

— PASSAGE 3 — TRADITIONAL SAYING —

Dukā abinda Allah ya yi, da keya.

All things God did with wisdom.

"All that God has made, He made with wisdom." — On gratitude and purpose.

---

— PASSAGE 4 — ON MEMORY —

Tunawa da tarihi shi ne mabudin gobe.

Remembering the history it is key-of tomorrow.

"Remembering history is the key to tomorrow." — Hausa oral tradition.

---

— BRIDGE PHRASE — REMEMBER FORWARD —

Wannan sako an yi shi a gare ku, kyauta, daga mutanen da suka tuna da gobe.

This message was made it for you freely from people who remembered tomorrow/future.

"This message was made for you, freely, by people who remembered the future."

---

— LANGUAGE NOTE — "FUTURE" IN HAUSA —

Hausa: gobe = "tomorrow" — used colloquially for "the future". Also: nan gaba = "ahead / in the future".

tuna = "to remember" — tuna da = "to remember X". The completive aspect (sun tuna) means "they remembered".

kyauta = "gift / free of charge" — kyauta ne! = "it's free!" — from root kya (good).

Tone note: wannan (THIS) is H-H-L; sako (message) is L-H — both critical for comprehension.

---

— DECODING NOTE — FOR FUTURE READERS —

Hausa is spoken by 70–100 million people across Nigeria, Niger, Ghana, Chad, Cameroon, and Sudan.

It is the dominant trade and lingua franca language of the West African Sahel belt.

Script: Boko (Latin-based, left to right). Tone is not marked in normal writing — learned from context.

Hausa belongs to the Chadic branch of Afroasiatic — distantly related to Arabic and Amharic.

The two implosive consonants (ɓ, ɗ) are unique to the Chadic/Niger-Congo region and rare globally.

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# YORUBA — SCRIPT · WRITING SYSTEM

SERIES 30A OF 60 · REMEMBER FORWARD

## — YORUBA — NIGER-CONGO · ~45 MILLION SPEAKERS —

Yoruba is a Niger-Congo (Volta-Niger branch) language spoken in Nigeria, Benin, and Togo.

One of the three major languages of Nigeria alongside Hausa and Igbo.

Also the liturgical language of the Candomble and Lucumi/Santeria traditions of the Americas.

## — THE YORUBA ALPHABET — 25 LETTERS —

Standard Yoruba uses 25 Latin letters. Three additional vowels: e-dot (◌̣), o-dot (◌̣o), s-dot (◌̣s).

A a	/a/	open low	M m	/m/	nasal
B b	/b/	bilabial	N n	/n/	nasal
D d	/d/	alveolar	O o	/o/	mid back close
E e	/e/	mid front close	◌̣	/◌̣/	mid back open: ◌̣ run (heaven)
◌̣	/◌̣/	mid front open: ◌̣y◌̣ (language)	P p	/k◌̣/	labial-velar ejective (unique!)
F f	/f/	labiodental	R r	/r/	alveolar tap
G g	/g/	velar	S s	/s/	alveolar
Gb gb	/g◌̣/	labial-velar stop (unique!)	◌̣	/◌̣/	palatal frict.: ◌̣◌̣ (money)
H h	/h/	glottal	T t	/t/	alveolar
I i	/i/	high front	U u	/u/	high back
J j	/d◌̣/	affricate	W w	/w/	glide
K k	/k/	velar	Y y	/j/	glide
L l	/l/	lateral			

## — THREE-TONE SYSTEM — HIGH, MID, LOW —

Yoruba has THREE tones: High (´), Mid (unmarked), Low (˘). Tone is phonemic.

High: àrà (thunder) · Mid: ara (body) · Low: àrà (saw/tool)

Tones are marked with diacritics in standard orthography: acute=H, grave=L, unmarked=M.

Tonal downstep: a sequence of highs may step down in pitch through a phrase.

## — UNIQUE CONSONANTS: GB AND KP —

gb = /g◌̣/ labial-velar: lips and back of tongue close SIMULTANEOUSLY. Not found in European languages.

kp = /k◌̣/ or /p◌̣/: similar simultaneous closure, voiceless. Also in Igbo, Ewe, and other Niger-Congo languages.

These sounds exist in ~30% of Niger-Congo languages and are essentially absent outside Africa.

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# YORUBA — PHONOLOGY · SOUND SYSTEM

SERIES 30B OF 60 · REMEMBER FORWARD

## — THREE-TONE SYSTEM — PHONEMIC TONES —

Yoruba tone is critical: the same string of consonants and vowels has different meanings by tone alone.

awó	(H-H)	hand-washing basin
àwò	(L-H)	ashes
awò	(M-H)	colour / image
□`mó	(L-H)	child
□´mó	(H-H)	plant (young)
□m□	(L-M)	face that

## — VOWELS — 7 ORAL + 5 NASAL —

Yoruba has 7 oral vowels and 5 nasal vowels. Nasal vowels are phonemic (contrastive).

	Oral			Nasal
/i/	i	ile (house)	/ɨ/	in
/e/	e	eko (food)	/ɛ/	en
/ɛ̃/	e-dot	ɛ̃yɛ̃ (language)	/ɛ̃ɛ̃/	en-dot
/a/	a	aja (dog)	/ɔ/	on
/ɔ̃/	o-dot	ɔ̃ run (heaven)	/ɔ̃ɔ̃/	on-dot
/o/	o	ojo (day)		
/u/	u	unu (mouth)		

## — CONSONANT HIGHLIGHTS —

Yoruba has 18 consonants. Key features: labial-velar stops gb/kp and syllabic nasals.

Syllabic nasals: m and n can form complete syllables: m`bí (a name), nípá (there is a broom).

The syllabic nasal carries its own tone: m` (L) vs m´ (H).

No consonant clusters: every consonant is followed by a vowel (strict CV syllable structure).

## — DOWNSTEP AND DOWNDRIFT —

Downstep: a High tone after a floating Low tone is lower than a previous High — marked with □.

Downdrift: High tones gradually lower across an utterance with intervening Low tones.

This means identical tonal patterns at the start and end of a long sentence may be at very different pitches.

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# YORUBA — GRAMMAR · VOCABULARY

SERIES 30C OF 60 · REMEMBER FORWARD

## — SVO — ISOLATING LANGUAGE — NO INFLECTION —

Yoruba is an ISOLATING language: no inflectional suffixes. Grammatical meaning conveyed by particles and order.

No case endings, no verb conjugation for agreement. Tense/aspect marked by pre-verbal particles.

Mo fe lati lo. (I want to go.) — Mo=I, fe=want, lati=to, lo=go. No inflection at all.

## — TENSE-ASPECT-MOOD PARTICLES —

(none)	Simple present / habitual	Mo joko. (I sit / I sit habitually.)
ń	Progressive (present cont.)	Mo ń joko. (I am sitting.)
ti	Perfect (completed)	Mo ti joko. (I have sat.)
yoo / maá	Future / habitual future	Mo yoo joko. (I will sit.)
ńfá	Past habitual	Mo ńfá joko. (I used to sit.)

## — SERIAL VERB CONSTRUCTIONS —

Yoruba uses SERIAL VERBS: multiple verbs in sequence share one subject with no conjunction.

Mo mú omi mu. (I took water drank.) = "I drank water."

O wà w. (He came saw.) = "He came and looked / He came to see."

This is a defining feature of Niger-Congo languages — absent from Indo-European.

## — CORE VOCABULARY — 25 WORDS —

b ́ ́ / ràrà	yes / no	akókó	time
mi / ́ / èyìn	I / he-she / you pl	́ ́scó	moon
yí / `y` en	this / that	ish ́	star
íbo?	where	́ròkan	heart
ki ni?	what	if ́	love
ta ló?	who	ominira	freedom
ig <sup>o</sup> ti?	when	iranti	memory
pàtáki?	why	́j ́`á	future
́mi	water	ayé	world/life
́r ́ ́	fire	dara / bàjé	good / bad
àgbàl ́	earth/soil	gbogbo	everything
eni	person	ay ́	life
ive	book		

## — NOUNS AND PRONOUNS —

No grammatical gender. No articles. Definiteness marked by context or demonstratives.

Pronouns: mo/mi (I/me), o/` (you sg), ó (he/she/it), a (we), yin (you pl), w ́n (they).

Possessives: noun + pronoun: ilé mi (my house), ilé r ́ (your house), ilé r ́` (his house).

# YORUBA — RUNNING TEXT · PASSAGES

SERIES 30D OF 60 · REMEMBER FORWARD

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— PASSAGE 1 — YORUBA PROVERB —

Yoruba: Ajé l'ò' b' ori s'.

Wealth comes head finds.

"Wealth comes to the head that seeks it." — Fortune favours the prepared.

---

— PASSAGE 2 — YORUBA PROVERB —

Ori 'pé ló maa n' gbani j', kí 'sí aw' n' àgbàgbà.

Destiny that will save-one not are elders.

"It is one's destiny that saves, not the elders." — Personal fate and responsibility.

---

— PASSAGE 3 — ON THE NATURE OF MEMORY —

Ìrànṭi 'ní kí a m' dà s' hìn, kí a sì t' sí w'.

Memory says that we look back, that we face forward.

"Memory asks us to look back so that we may face forward."

---

— BRIDGE PHRASE — REMEMBER FORWARD —

Ọr' yí ni a Ṣ' fún , lófo, n'p' aw' n' eni ti w' n' ranti Ọj' à.

Message this it was made for you freely by people who they remembered future.

"This message was made for you, freely, by people who remembered the future."

---

— LANGUAGE NOTE — "FUTURE" IN YORUBA —

Ọj' à = "future" — literally "day coming" or "coming day". The future as an approaching moment.

ranti = "to remember" — iranti = "memory / remembrance" (noun from verb).

lófo = "freely / free of charge" — from ófo (free, no cost, without loss).

Tone note: Ọr' (message) is L-L; Ọj' à (future) is H-H-L — tone carries meaning.

---

— DECODING NOTE — FOR FUTURE READERS —

Yoruba is spoken by ~45 million people in Nigeria, Benin, and Togo. One of Africa's major literary languages.

It spread to the Americas through the slave trade: Candomble, Lucumi, and Santería preserve Yoruba liturgy.

Three tones (H/M/L) are marked in standard writing with acute, grave, and no accent.

Consult Plate 30A for the alphabet including dotted letters ( , , ) and the unique gb/kp sounds.

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# AMHARIC — SCRIPT · WRITING SYSTEM

SERIES 31A OF 60 · REMEMBER FORWARD

## — ETHIOPIC SCRIPT (FIDEL) — AN ABUGIDA —

Amharic is written in the Ethiopic script (Fidel □□□), an abugida: each symbol = consonant + vowel.

Each consonant has 7 forms (orders), one for each vowel. Base form includes inherent /□/ vowel.

~234 syllable signs in full Amharic fidel. Left to right, top to bottom.

## — SAMPLE FIDEL — CONSONANT ha IN ALL 7 VOWEL ORDERS —

Each row shows one consonant across all 7 vowels: □ u i a e - o

□	u	i	a	e	-	o	C
□	□	□	□	□	□	□	h...
□	□	□	□	□	□	□	l...
□	□	□	□	□	□	□	H...
□	□	□	□	□	□	□	m...
□	□	□	□	□	□	□	s...
□	□	□	□	□	□	□	sh...
□	□	□	□	□	□	□	q...

## — THE 7 VOWEL ORDERS —

1st / □□□	□	like "about" — base form
2nd / □□□	u	like "boot"
3rd / □□□□□	i	like "see"
4th / □□□	a	like "father"
5th / □□□□□	e	like "bed"
6th / □□□□□	(none)	consonant only / short □
7th / □□□	o	like "go"

## — SCRIPT HISTORY —

Ethiopic script descended from South Arabian (Sabaean) script via ancient Ge'ez (~4th c. CE).  
Ge'ez (Classical Ethiopic): liturgical language of the Ethiopian Orthodox Church; used in manuscripts.  
Amharic adopted Fidel from Ge'ez ~13th–14th c., adding new letters for Amharic-specific sounds.  
Ethiopia was never fully colonised — Ethiopic script was never replaced by Latin.  
Modern Amharic: official language of Ethiopia (~35M native speakers, ~100M L1+L2).  
Fidel is also used for Tigrinya, Ge'ez, and Tigre languages.

# AMHARIC — PHONOLOGY · SOUND SYSTEM

SERIES 31B OF 60 · REMEMBER FORWARD

## — SEMITIC PHONOLOGY — EJECTIVES AND PHARYNGEALS —

Amharic is a Semitic language (with Ethiopian Cushitic influence). Notable for ejective and pharyngeal consonants.

Ejectives: produced with glottalic airstream — simultaneous glottal and oral closure, then burst.

## — VOWEL SYSTEM — 7 VOWELS —

/ɨ/	1st order	central mid: like English "about" — most common vowel
/u/	2nd order	high back rounded: like "boot"
/i/	3rd order	high front: like "see"
/a/	4th order	low central: like "father"
/e/	5th order	mid front: like "bed"
/ɨ/	6th order	high central: "pure" consonant-adjacent schwa
/o/	7th order	mid back rounded: like "go"

## — CONSONANT INVENTORY — EJECTIVES AND PHARYNGEALS —

p b	plain bilabial stops	/p/ rare; /b/ common
p'	/pɨ/ ejective	glottalic burst: rare in Amharic
t d	alveolar stops	dental-alveolar
t'	/tɨ/ ejective	□ — frequent in Amharic
k g	velar stops	common
k'	/kɨ/ ejective	□ — very common: k'al (word)
ts dz	affricates	alveolar
ts'	/tsɨ/ ejective	□ — common
ch j	palatal affricate	/tɨ/ /dɨ/
ch'	/tɨɨ/ ejective	□ — ejective palatal
f s z sh	fricatives	labiodental, alveolar, palatal
□ □	/□ □/	pharyngeal fricatives — Semitic heritage
h H	glottal / pharyngeal	two distinct h sounds
m n	nasals	bilabial, alveolar
l r	lateral / rhotic	
w y	glides	

## — GEMINATION — CONSONANT LENGTH IS PHONEMIC —

Amharic distinguishes single and geminate (doubled) consonants: a key Semitic feature.

□□□ (tebabe) "wrapped" vs □□□□ (tebabet) "wrapped intensely" — the double b changes meaning.

Gemination in Amharic also marks verb-object agreement: y□-s□ma (he hears) vs y□-ss□m□□ (he listens).

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# AMHARIC — GRAMMAR · VOCABULARY

SERIES 31C OF 60 · REMEMBER FORWARD

## — SOV — VERB-FINAL — SEMITIC ROOTS —

Amharic is SOV (verb-final), like most Semitic languages. Extensive use of prefixes and suffixes.

Semitic root system: 3-consonant roots carry core meaning; vowel patterns and affixes create related words.

Root s-b-r = "break": s□bb□r□ (he broke), t□s□bb□r□ (it broke), as□bb□r□ (he broke it [causative]).

## — VERB CONJUGATION — n□gg□r□ "spoke / said" —

Form	Person	Gloss
(`n□gg□r-ku)	1sg	I spoke
(`n□gg□r-k)	2sg M	you-m spoke
(`n□gg□r-sh)	2sg F	you-f spoke
`n□gg□r□	3sg M	he spoke
`n□gg□r-□tch	3sg F	she spoke
`n□gg□rn□	1pl	we spoke
`n□gg□r-□chu	2pl	you pl spoke
`n□gg□ru	3pl	they spoke

## — DEFINITE ARTICLE AND CASE —

Definite article: suffix -u (M) or -wa (F) added to noun: b□t (house) □ b□t-u (the house).

Accusative (object): suffix -□n: b□t-□n (the house, as object).

Genitive: y□- prefix: y□-b□t b□r (the door of the house).

## — CORE VOCABULARY — 25 WORDS —

□□ / □□□□	□wunt / ayd□□m	yes / no	□□	□g□z□	time
□□ / □□□	□n□ / ant□	I / you (m)	□□□	□w□rh	moon
□□ / □	□yih / □ya	this / that	□□□□	□wk'iat	star
□□	□yet	where	□□	□lib	heart
□□	□mn	what	□□□	□t□q□r	love
□□	□man	who	□□□	□t□s□a	freedom
□□	□m□tch	when	□□□□□	memory (thought)	thought/memory
□□□	□□m□n	why	□□□□□	□w□d□ayt	future
□□	□w□ha	water	□□□	□al□m	world
□□	□ts'at	fire	□□ / □□	□q□na / m□t□□	good / bad
□□□	□m□dr	earth	□□□	everything	everything
□□	□s□w	person	□□□	□□men	life
□□	□m□ts□□af	book			

## — COMPOUND VERBS AND AUXILIARY —

Amharic uses "light verb" constructions: noun + a□□ (said/did) for complex meanings.

t□s□fa (hope) + a□□ = "hoped" · fi□r (love) + a□□ = "loved"

# AMHARIC — RUNNING TEXT · PASSAGES

SERIES 31D OF 60 · REMEMBER FORWARD

## — PASSAGE 1 — ETHIOPIAN PROVERB —

□ □ □ □ □ □ □ □ □ □ □ □ □ □

□m□sa l□k'aN□tu yas□sat□al.

The fish because-of-its-mouth is-caught.

"A fish is caught because of its mouth." — Be careful what you say.

## — PASSAGE 2 — ETHIOPIAN PROVERB —

□ □

□nd□mow□n□y□tt□nag□wat □nk□d□m t□nag□k m□z□m□d k□ts'il.

Before speaking what you will say, think whether it is useful.

"Before speaking, think whether what you will say is useful."

## — PASSAGE 3 — MOTTO OF ETHIOPIA —

□ □ □ □ □ □ □ □ □ □ □

Ityopy'a l□al□m

"Ethiopia forever" — Traditional patriotic expression.

## — BRIDGE PHRASE — REMEMBER FORWARD —

□ □

Y□h y□t□saN□w□ m□□□□kt l□□r□swo b□n□ts'ina t□z□□w□n□w□nt.

This message made for-you freely who-remembered future.

"This message was made for you, freely, by people who remembered the future."

## — LANGUAGE NOTE — "FUTURE" IN AMHARIC —

□ □ □ □ □ (w□d□ayt): "future" — lit. "the ahead / the forward direction". From w□d (toward) + ayt (direction).

Amharic has no simple future tense — uses imperfective + auxiliary y□h□onal (it will be) for future.

t□z□□w□n□w□nt: "memory / remembrance" — from root z-w-n "to remember; to be mindful".

b□n□ts'ina: "freely / for free" — from n□ts□ (free / freedom) — same root as freedom.

## — DECODING NOTE — FOR FUTURE READERS —

Amharic is the official language of Ethiopia (~35M native speakers, 100M+ L1+L2).

Written in the Ethiopic (Fidel) script — an abugida where each symbol = consonant + vowel order.

Consult Plate 31A for the full syllabary table and 7 vowel orders.

Amharic is a Semitic language — related to Arabic, Hebrew, and Tigrinya.

Ethiopia has one of the oldest continuous writing traditions in Africa, dating to the 4th century CE.

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# SOMALI — SCRIPT · WRITING SYSTEM

SERIES 32A OF 60 · REMEMBER FORWARD

## — SOMALI — CUSHITIC · ~25 MILLION SPEAKERS —

Somali is a Cushitic language (Afroasiatic family) — related to Oromo, Afar, and distantly to Arabic.

Spoken in Somalia, Djibouti, Ethiopia (Ogaden region), Kenya, and diaspora worldwide.

Official script: Osmanya (traditional) + Latin-based Somali Orthography (official since 1972).

## — OFFICIAL SOMALI LATIN ALPHABET — 26 LETTERS —

The 1972 standardised Somali orthography uses 26 Latin letters with NO diacritics.

All sounds represented by plain letters or digraphs. Tones NOT marked in standard orthography.

A a	/a□/	long or short a	M m	/m/	nasal
B b	/b/	bilabial stop	N n	/n/	nasal
C c	/□/	pharyngeal fricative (NOT /k/)	O o	/o□/	mid back
D d	/d/	alveolar stop (retroflex in some dialects)	Q q	/q/	uvular stop — deeper than k
DH dh	/□/	retroflex d	R r	/r/	alveolar trill / flap
E e	/e□/	mid front	S s	/s/	alveolar fricative
F f	/f/	labiodental	SH sh	/□/	palatal fricative
G g	/□/	velar stop	T t	/t/	alveolar stop
H h	/h/	glottal	U u	/u□/	high back
I i	/i□/	high front	W w	/w/	glide
J j	/d□/	affricate	X x	/h/	pharyngeal fricative (like Arabic H)
K k	/k/	velar stop	Y y	/j/	palatal glide
KH kh	/x/	velar fricative — like German Bach			
L l	/l/	lateral			

## — PHARYNGEAL AND UVULAR CONSONANTS —

C = /□/ pharyngeal approximant (voiced). Found in Semitic/Cushitic — like Arabic □ayn.

X = /h/ pharyngeal fricative (voiceless). Like Arabic H with friction. cayn vs xayn.

Q = /q/ uvular stop — further back in the throat than /k/: qof (person), qalbi (heart).

DH = /□/ retroflex d — tongue tip curled back: dhul (land), dhowr (several).

## — OSMANYA SCRIPT — TRADITIONAL SOMALI WRITING —

Osmanya script: invented 1920s by Osman Yusuf Kenadid. 22 letters, left to right. Unicode block U+10480.

Used for Somali before 1972 standardisation. Still used in some communities and Unicode (U+10480).

Other historical scripts: Wadaad (Arabic-based Ajami), Borama, Kaddare — all pre-1972.

# SOMALI — PHONOLOGY · SOUND SYSTEM

SERIES 32B OF 60 · REMEMBER FORWARD

## — TONE — PITCH-ACCENT SYSTEM —

Somali has a PITCH-ACCENT system: words have a tonal pattern but it is not a full tone language.

Two tone levels (High H and Low L). The accent position changes meaning.

niin (L-H) "date palm" vs niin (H-L) "woman" — same consonants, different tones, different meanings.

Tone is not marked in official orthography — learned from context and oral tradition.

## — VOWEL SYSTEM — 5 SHORT + 5 LONG —

Vowel length is phonemic: short vs long changes meaning.

/a/ vs /aː/	a vs aa	baad (go-past) vs baad (you go)
/e/ vs /eː/	e vs ee	ber (garden, obs.) vs beer (garden)
/i/ vs /iː/	i vs ii	bir (iron) vs biir (grain measure)
/o/ vs /oː/	o vs oo	gob (noble) vs goob (place)
/u/ vs /uː/	u vs uu	bur (flour) vs buur (mountain)

## — CONSONANT INVENTORY — 22 CONSONANTS —

b d g	voiced stops	bilabial, alveolar, velar
t k q	voiceless stops	alveolar, velar, uvular
dh	/ɗ/ retroflex	tongue tip curled back
f s sh kh	fricatives	labio-dental, alveolar, palatal, velar
c x	pharyngeals	/χ/ voiced, /ħ/ voiceless
h	/h/	glottal
ʾ	/ʔ/	glottal stop: aa'ad (you)
j	/d͡ʒ/	affricate
m n	nasals	bilabial, alveolar
l r	lateral / rhotic	
w y	glides	labio-velar, palatal

## — SYLLABLE STRUCTURE AND GEMINATION —

Somali syllables: CV, CVC, CVV (long vowel). Consonant clusters uncommon.

Geminate (doubled) consonants are phonemic: guri (house) vs gurri (to fold).

Word structure: typically C-V-(C) with productive suffixation for case, gender, definiteness.

# SOMALI — GRAMMAR · VOCABULARY

SERIES 32C OF 60 · REMEMBER FORWARD

## — SOV — CASE SYSTEM — FOCUS MARKING —

Somali is SOV with a complex system of case, gender, focus, and definiteness.

Two genders: masculine and feminine. Definiteness marked by suffixes: -ka (M def), -ta (F def).

FOCUS: a critical feature — subject and object can be marked with focus particles changing emphasis.

## — CASES AND DEFINITENESS —

Absolute (indef.)	No suffix	nin (a man), naag (a woman)
Nominative (def.)	M: -ku / -ka F: -tu / -ta	ninku (the man [subj]), naagtu (the woman)
Genitive	M: -ka F: -ta	guriga ninka (the man's house)
Dative	M: -ka F: -ta + -nimo	give TO the man
Locative	-ka / -ta	in the house: guriga (the house + loc)

## — VERB CONJUGATION — yiri "said" —

Somali verbs are highly complex — they inflect for tense, aspect, mood, person, number, gender, and focus.

Subject	Pronoun	Focus+aux (present)
Aniga	I	waxaan
Adiga	you	waxaad
Isaga	he	wuxuu
Iyada	she	waxay
Annaga	we	waxaynu
Idinka	you pl	waxaydin
Iyaga	they	waxay

## — CORE VOCABULARY — 25 WORDS —

haa / maya	yes / no	waqti	time
aniga / adiga	I / you	dayax	moon
tan / taas	this / that	xiddig	star
xaggee?	where	qalbi	heart
maxay?	what	jacayl	love
cidee?	who	xorriyad	freedom
goorma?	when	xusuus	memory
maxaa yeelay?	why	mustaqbal	future
biyo	water	adduunyo	world
dab	fire	wanaagsan / xun	good / bad
dhul	land/earth	wax kasta	everything
qof	person	nolol	life
buug	book		

## — FOCUS SYSTEM —

Somali distinguishes SUBJECT FOCUS (waa), OBJECT/VERB FOCUS (baa/ayaa), and NON-VERBAL sentences.

Ninku wuu tegay (the man went — neutral) vs Ninku buu tegay (the MAN went — subject focus).

This is one of the most complex focus systems in any language.

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# SOMALI — RUNNING TEXT · PASSAGES

SERIES 32D OF 60 · REMEMBER FORWARD

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— PASSAGE 1 — SOMALI PROVERB —

Aqoon la'aani waa iftiin la'aan.

Knowledge lacking is light lacking.

"Lack of knowledge is lack of light." — On the value of education.

---

— PASSAGE 2 — SOMALI PROVERB —

Nin baa nin tira, waa ka dheer tahay.

Man counts man, is him taller is.

"A person is made by other people." — On the social nature of humanity.

---

— PASSAGE 3 — TRADITIONAL SAYING —

Guri walaal leh kuma sugo xumaan.

Home siblings has not-waits evil.

"Evil does not wait in a house with siblings." — On family protection and unity.

---

— PASSAGE 4 — ON MEMORY AND TIME —

Waayo'arag waa aqoon.

Experience is knowledge.

"Experience is knowledge." — What is lived and remembered becomes wisdom.

---

— BRIDGE PHRASE — REMEMBER FORWARD —

Farriintani waxaa loogu talagalay adiga, bilaash ahaan, dadkii xusuustay mustaqbalka.

Message-this was-made-for you, free being, people-who remembered future-the.

"This message was made for you, freely, by people who remembered the future."

---

— LANGUAGE NOTE — "FUTURE" IN SOMALI —

mustaqbal: "future" — borrowed from Arabic mustaqbal "what is received / coming toward one".

The Arabic root q-b-l means "to face / to receive" — the future as what approaches and is received.

xusus: "memory / remembrance" — from Arabic dhikr/khuss root via Somali adaptation.

bilaash: "free / for free" — borrowed from Arabic bilash "without cost".

waxaa: focus-auxiliary particle — signals object/action focus in the sentence structure.

---

— DECODING NOTE — FOR FUTURE READERS —

Somali is spoken by ~25 million people in Somalia, Djibouti, Ethiopia, and Kenya.

It is a Cushitic language (Afroasiatic) — related to Oromo, Afar, and distantly to Arabic.

Script: standard Latin-based orthography (since 1972). No diacritics — see Plate 32A for letter values.

Key sounds not in English: C (/ɕ/), X (/h/), Q (/q/) — all produced in the throat.

Somali has one of the most complex grammatical focus systems of any known language.

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# LINGALA — SCRIPT · WRITING SYSTEM

SERIES 33A OF 60 · REMEMBER FORWARD

## — LINGALA — BANTU LINGUA FRANCA OF THE CONGO RIVER —

Lingala is a Bantu language spoken by ~70 million people as L1 or L2.

Lingua franca of the Democratic Republic of Congo, Republic of Congo, and the Congo River basin.

Also spoken in parts of Angola, Central African Republic, and South Sudan.

Used in the Congolese military, church, and urban centres. One of four national languages of DRC.

## — LINGALA ALPHABET — LATIN-BASED —

Lingala uses the Latin alphabet. Since 1976 standardisation, tones are marked with diacritics.

A a	/a/	open low	Ng ng	/ŋ/	velar nasal
B b	/b/	bilabial	Ny ny	/ɲ/	palatal nasal
D d	/d/	alveolar	O o	/o/	mid back
E e	/e/	mid front	□ □	/ɔ/	open o: I□k□ (tail)
□ □	/ɔ/	open e: b□t□ (arm)	P p	/p/	bilabial
F f	/f/	labiodental	S s	/s/	alveolar
G g	/ɔ/	velar	T t	/t/	alveolar
I i	/i/	high front	V v	/v/	labiodental
K k	/k/	velar	W w	/w/	glide
L l	/l/	lateral	Y y	/j/	palatal glide
M m	/m/	nasal	Z z	/z/	alveolar
N n	/n/	nasal			

## — TONE SYSTEM — TWO TONES —

Lingala has TWO tones: High (H marked with acute ´) and Low (L unmarked or grave `).

Tone is phonemic: motó (head) vs môto (person) – same segments, different tones, different meanings.

In colloquial urban Lingala, tones are often simplified or not marked in informal writing.

## — NOUN CLASS SYSTEM — BANTU CLASSES —

Like all Bantu languages, Lingala has noun classes – grammatical categories that determine agreement.

Each noun belongs to a class with a prefix. Adjectives, verbs, and pronouns agree with the noun class.

mo-	Class 1/3 (person sg)	moto (person), mokóló (elder)
ba-	Class 2/4 (person pl)	bato (people), bakóló (elders)
li-	Class 5/6 (things)	lkómbo (boat), monoko (mouth)
e-	Class 7/8 (things, actions)	emó (animal), ekóló (country)
n-	Class 9/10 (diverse)	ngái (I), nkótó (body)

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# LINGALA — PHONOLOGY · SOUND SYSTEM

SERIES 33B OF 60 · REMEMBER FORWARD

## — VOWEL SYSTEM — 7 VOWELS —

Lingala has 7 vowel phonemes, including the open-mid vowels /ɘ/ and /ɚ/.

/i/	i	high front: mibé (two)
/e/	e	mid front close: bekà (goat)
/ɘ/	e-open (ɘ)	mid front open: bɘkɘ (arm)
/a/	a	low central: balé (war)
/ɚ/	o-open (ɚ)	mid back open: lɚkɚ (tail)
/o/	o	mid back close: motó (head)
/u/	u	high back: mokóló (elder)

## — CONSONANT INVENTORY —

p b	bilabial stops	common
t d	alveolar stops	dental-alveolar
k g	velar stops	common
f v	labiodentals	present in urban/adapted words
s z	alveolar fricatives	common
m n	nasals	bilabial, alveolar
ŋ	/ŋ/	velar nasal: ngai (I)
ny	/ɲ/	palatal nasal: nyama (animal/meat)
l r	lateral / rhotic	tap in many dialects
w y	glides	common

## — TONE IN LINGALA —

High tone (H): marked with acute accent in formal writing: motó (head).

Low tone (L): unmarked or marked with grave: móto (person).

Tone affects meaning, grammatical role, and verb tense/aspect distinctions.

motó (H-H)	head
móto (L-H)	person
nalà (H-L)	I have (pres)
ókoséngeli (verb H)	he should help

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# LINGALA — GRAMMAR · VOCABULARY

SERIES 33C OF 60 · REMEMBER FORWARD

## — SVO — BANTU NOUN CLASSES — TONAL ASPECT —

Lingala is SVO. Verb agreement with noun class. Tense/aspect marked by verb prefixes and tone.

Subject prefixes agree with noun class: a- (class 1 sg), ba- (class 2 pl), e- (class 7), etc.

## — VERB CONJUGATION — kosala "to do/work" —

Subject	Pronoun	Past form	Gloss
Ngái	I	nasali	I did
Yo	you sg	osali	you did
Ye	he/she	asali	he/she did
Biso	we	tosali	we did
Bino	you pl	bosali	you pl did
Bango	they	basali	they did

Present: na-sala (I work) · Future: na-ko-sala (I will work) · Neg: na-sala-ki te (I did not work)

## — NOUN AGREEMENT —

All adjectives, demonstratives, and verbs agree with the noun class prefix.

moto mokóló (1 elder person) · bato bakóló (2/pl elder people) · class changes prefix throughout.

## — CORE VOCABULARY — 25 WORDS —

eyó / té	yes / no	ntango	time
ngái / yo	I / you	ngondé	moon
oyo / wana	this / that	nyóté	star
wapi?	where	motó ya pemó	heart/mind
nini?	what	bolingo	love
nani?	who	bonsomi	freedom
ntango nini?	when	makanisi	memory/thought
pona nini?	why	lobi / mikeó	tomorrow / future
mai	water	dúnya	world
moto (fire)	fire	malámu / mabé	good / bad
mabélé ya mwási	earth/ground	nyonso	everything
moto (person)	person	bomoi	life
buku	book		

## — URBAN LINGALA —

Urban Kinshasa/Brazzaville Lingala has absorbed many French words: foló (floor), tabló (table).

Also creative coinages: kobeta notá (to take notes, lit. "to hit notes"), mwaisé (baby, from French moi aussi).

Lingala is the language of Congolese rumba music (soukous) — hugely influential across Africa.

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# LINGALA — RUNNING TEXT · PASSAGES

SERIES 33D OF 60 · REMEMBER FORWARD

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— PASSAGE 1 — CONGOLESE PROVERB —

Libanga moko etongi ndako te.

Stone one builds house not.

"One stone does not build a house." — Communal effort is required for any great work.

---

— PASSAGE 2 — CONGOLESE PROVERB —

Moto azali moto na nzela ya bato banzó.

Person is person on path of people other.

"A person is a person through other people." — Parallels Ubuntu philosophy.

---

— PASSAGE 3 — LINGALA SONG (SOUKOUS TRADITION) —

Nakobundisa bolingo na ngai,

I-will-give love of me,

pona yo, pona biso nyonso.

for you for us all.

"I will give my love, for you, for all of us." — from the tradition of Congolese rumba.

---

— BRIDGE PHRASE — REMEMBER FORWARD —

Sango oyo esalami pona yo, na ofele, na bato oyo bakanisaki lobi.

Message this made for you for free by people who thought-of tomorrow/future.

"This message was made for you, freely, by people who thought of the future."

---

— LANGUAGE NOTE — "FUTURE" IN LINGALA —

lobi: "tomorrow" — also used for "future" in everyday speech.

mikeó: "ahead / in front / future" — from the spatial concept of forward direction.

makanisi: "thoughts / memory / remembrance" — from kokanisa (to think, to recall).

ofele: "free / for free" — from French "au fêle" / "gratis". Common in urban Lingala.

---

— DECODING NOTE — FOR FUTURE READERS —

Lingala is spoken by ~70 million people (L1+L2) primarily in DRC and Republic of Congo.

It is a Bantu language — related to Swahili, Zulu, Yoruba (distant), and hundreds of other African languages.

Script: Latin-based, left to right. Tones marked with accents in formal writing (see Plate 33A).

Lingala is the language of Congolese soukous and rumba — one of the most influential music traditions in Africa.

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# TIGRINYA — SCRIPT · WRITING SYSTEM

SERIES 34A OF 60 · REMEMBER FORWARD

## — TIGRINYA — SEMITIC · ~10 MILLION SPEAKERS —

Tigrinya is a Semitic language (Afroasiatic family), official language of Eritrea, spoken in northern Ethiopia.

~7 million speakers in Eritrea; ~3 million in Tigray region of Ethiopia.

Written in the same Ethiopic (Fidel) script as Amharic. Related to Ge'ez, Tigre, and Amharic.

## — ETHIOPIC SCRIPT (FIDEL) — SHARED WITH AMHARIC —

Same abugida system as Amharic (Plate 31A): each symbol = consonant + vowel order.

7 vowel orders. Tigrinya uses ~276 syllable signs (more than Amharic due to additional consonants).

□	u	i	a	e	-	o	C
□	□	□	□	□	□	□	h
□	□	□	□	□	□	□	l
□	□	□	□	□	□	□	H (pharyngeal)
□	□	□	□	□	□	□	S (emphatic)
□	□	□	□	□	□	□	r
□	□	□	□	□	□	□	s
□	□	□	□	□	□	□	sh

## — ADDITIONAL TIGRINYA CONSONANTS vs AMHARIC —

Tigrinya preserves some Semitic sounds reduced or absent in Amharic.

□□□  
□□□  
□□□  
□□□

nn — geminate nasal common in verb morphology

ʋ□□ — labialised consonants: t□, d□, k□ (rounded)

/□□/ — pharyngeal consonants preserved in Tigrinya

/ts□ q□ f□/ — ejective series

## — SCRIPT HISTORY AND STATUS —

Ethiopic script: ~4th century CE, derived from South Arabian (Sabaean) script via ancient Ge'ez.

Tigrinya uses the same script as Amharic but is a distinct language with distinct grammar.

Tigrinya became official language of Eritrea at independence (1993). Equal with Arabic in Eritrean constitution.

In Ethiopia, Tigrinya is the dominant language of the Tigray regional state.

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# TIGRINYA — PHONOLOGY · SOUND SYSTEM

SERIES 34B OF 60 · REMEMBER FORWARD

## — SEMITIC PHONOLOGY — EJECTIVES AND PHARYNGEALS —

Tigrinya shares the Semitic ejective and pharyngeal consonant inventory with Amharic and Arabic.

Ejectives: t□ k□ ts□ q□ — produced with glottalic (inward) airstream.

Pharyngeals: /□/ (voiced) and /h/ or /H/ (voiceless) — produced in the pharynx, behind the tongue root.

## — VOWEL SYSTEM — 7 VOWELS (SAME AS AMHARIC) —

/□/	1st	central mid — most common, like "about"
/u/	2nd	high back rounded: like "boot"
/i/	3rd	high front: like "see"
/a/	4th	low central: like "father"
/e/	5th	mid front: like "bed"
/□/	6th	high central: short vowel adjacent to consonant
/o/	7th	mid back: like "go"

## — KEY DIFFERENCES FROM AMHARIC PHONOLOGY —

Pharyngeals	Tigrinya PRESERVES /□/ and /h/	Amharic has largely merged/lost them
Labialisation	t□ d□ k□ series present in Tigrinya	less prominent in Amharic
Gemination	Both use consonant length as phonemic	same system, different distributions
Ejectives	Both have t□ k□ ts□ q□	Tigrinya q□ is more common
Tones	Neither Tigrinya nor Amharic is tonal	unlike many neighboring Cushitic languages

## — GEMINATION —

Tigrinya has phonemic consonant length (gemination) — doubled consonants change meaning.

t□bel□ "he hit" vs t□bbel□ "he fought" — double b = intensive/reciprocal meaning.

In Tigrinya, gemination is used systematically to form verb stems and derivational patterns.

## — SYLLABLE STRUCTURE —

Tigrinya syllables: CV, CVC, CVCC. Clusters possible in codas.

Epenthetic □: inserted to break up otherwise illegal consonant clusters.

Word stress: generally on the penultimate syllable; varies with verb morphology.

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# TIGRINYA — GRAMMAR · VOCABULARY

SERIES 34C OF 60 · REMEMBER FORWARD

## — SOV — SEMITIC ROOTS — TWO GENDERS —

Tigrinya is SOV (verb-final). Two genders: masculine and feminine. Verb-final, like Amharic.  
Semitic 3-consonant root system: same root k-t-b gives kṭabṭ (he wrote), kṭib (written), mṭktab (office).

## — VERB CONJUGATION — tḥaz "to take/hold" —

Subject	Person	Past form	Gloss
Ani (I)	1sg	( tḥaz-ku)	I took
Antṭ (you m)	2sg M	( tḥaz-kṭ)	you took
Antchi (you f)	2sg F	( tḥaz-ki)	you took
Nsu (he)	3sg M	tḥazṭ	he took
Nsa (she)	3sg F	tḥaz-at	she took
Nihna (we)	1pl	tḥaz-na	we took
Nkhum (you pl m)	2pl M	tḥaz-kum	you took
Nikṭn (they)	3pl	tḥaz-u	they took

## — DEFINITE ARTICLE AND CASE —

Definite article: suffix -u (M sg) / -a (F sg) / -om (M pl) / -en (F pl).

nṭbr (tiger, indef.) ṭ nṭbru (the tiger, M def.)

Accusative/object: not morphologically marked, conveyed by SOV word order.

## — CORE VOCABULARY — 25 WORDS —

ṭ / ṭṭ	ṭaw / yihayn	yes / no	ṭṭ	ṭgṭzṭ	time
ṭṭ / ṭṭṭṭ	ṭinṭya / antṭz	I / you (m)	ṭṭṭ	wṭrh	moon
ṭṭ / ṭṭ	ṭkṭy / tṭya	this / that	ṭṭṭṭ	wkṭat	star
ṭṭṭ?	ṭzṭyn	where	ṭṭ	lṭb	heart
ṭṭ?	man	what	ṭṭṭ	fṭqṭr	love
ṭṭṭṭ?	which person	who	ṭṭṭṭ	hṭmṭt	freedom
ṭṭṭṭ?	when	when	ṭṭṭṭ	zṭkarun	memory
ṭṭṭṭ?	why	why	ṭṭṭṭṭ	mṭqṭdṭmṭta	future
ṭṭṭ	ṭmṭyih	water	ṭṭṭ	alṭm	world
ṭ	ṭtsṭ at	fire	ṭṭ / ṭṭṭṭṭṭṭ	wṭbu / bad	good / bad
ṭṭṭ	ṭbrṭ	earth	ṭṭṭṭṭ	everything	everything
ṭṭ	sṭb	person	ṭṭṭṭṭ	mṭzṭnawṭt	life
ṭṭṭṭ	mṭntṭf	book			

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# TIGRINYA — RUNNING TEXT · PASSAGES

SERIES 34D OF 60 · REMEMBER FORWARD

## — PASSAGE 1 — ERITREAN PROVERB —

□□ □□ □□ □□ □□□□ □□□□

y□ha q□t□ w□d□ z□h□a y□tn□bib al□m.

The person who goes toward the light does not stumble.

"The one who walks toward the light does not stumble."

## — PASSAGE 2 — TIGRINYA PROVERB —

□□□ □□□ □□□□ □□□□ □□□ □□□ □□□□

That which you do not speak, even the wisest person does not know.

"What you do not say, even the wise do not know." — Speak your needs.

## — BRIDGE PHRASE — REMEMBER FORWARD —

□□ □□□□ □□□□ □□□□□ □□□ □□□□□□□ □□□□ □

Y□h m□s□z□t□ g□yr□n□ b□tat□z□k□t b□w□q□ z□y□m□q□d□m□ta z□w□kad□.

This message for-you freely by-those who-the-future remembered.

"This message was made for you, freely, by people who remembered the future."

## — LANGUAGE NOTE — "FUTURE" IN TIGRINYA —

□□□□ (m□q□d□m□ta): "future / ahead" — from q□d□m□ (to precede / to go before).

Literally "the preceding-ness" — the future as what stands ahead and goes before us.

□□□□ (z□w□kad□): "remembered" — from root w-k-d / z-k-r (to remember, to be mindful).

□□□ (b□w□q□): "freely / for free" — literally "without price".

## — DECODING NOTE — FOR FUTURE READERS —

Tigrinya is the official language of Eritrea and the dominant language of the Tigray region of Ethiopia.

~10 million speakers total. Written in the Ethiopic (Fidel) script — same as Amharic (Plate 31A).

Tigrinya is a Semitic language (Afroasiatic) — related to Arabic, Amharic, Hebrew, and Ge'ez.

Ge'ez (Classical Ethiopic) is the liturgical ancestor of Tigrinya, still used in church services.

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# IGBO

## Script & Writing System

### — WRITING SYSTEM —

Igbo uses the Latin alphabet, standardised in the 1961 Onwu orthography.

28 letters (a b c d e f g gb gh gw h i □ j k kp kw l m n □ o □ p r s sh t u □ w y z).

Diacritics mark tone (acute = high, grave = low) and distinguish vowels with dot-below.

### — VOWEL SYSTEM — 8 ORAL VOWELS —

a	/a/	arm
e	/e/	bed
□	/□/	Igbo vowel, between e and i
i	/i/	see
o	/o/	ore
□	/□/	open-o, pot
u	/u/	moon
□	/□/	Igbo vowel, between u and o

### — IGBO ALPHABET — ONWU ORTHOGRAPHY (1961) —

A a	B b	CH ch	D d
E e	F f	G g	GB gb
GH gh	GW gw	H h	I i
□ □	J j	K k	KP kp
KW kw	L l	M m	N n
N□ N□	O o	□ □	P p
R r	S s	SH sh	T t
U u	□ □	W w	Y y
Z z			

### — DIGRAPHS AND SPECIAL FEATURES —

GB /□b/ — simultaneous velar+bilabial: gbara (filled), gbe (hit).

KP /kp/ — simultaneous velar+bilabial (voiceless): kpoo (knock), kpa (carry).

GH /□/ — voiced velar fricative: ghara (do not), ngha (grinding).

SH /□/ — as in English: shiri (bird), sha (share out).

N□ /ŋ/ — velar nasal (ng in song): n□a (eat), n□e (carry).

### — TONE MARKING —

High tone: acute accent — á é í ó ú (e.g., á = yes, óbi = heart).

Low tone: grave accent — à è ì ò ù (e.g., à = then, that).

Mid/unmarked: no diacritic in many texts (tone is predictable in context).

Down-step (!) marks a high tone that is lower than the preceding high.

### — HISTORICAL SCRIPT —

Nsibidi: indigenous ideographic system used by Ekpe secret society.

Nsibidi not standardised for everyday Igbo; used for ritual/legal texts.

Modern Igbo literacy uses Latin-based Onwu orthography exclusively.

### — IGBO NUMERALS —

1 = otu	2 = abuo	3 = ato	4 = ano	5 = ise
6 = isii	7 = asaa	8 = asato	9 = toolu	10 = iri
20 = iri abuo · 100 = otu nar □ · 1000 = otu puku				

# IGBO

## Phonology & Sound System

### — CONSONANT INVENTORY —

Igbo has ~28 consonants including labial-velar stops, nasals, and fricatives.

p	bilabial stop vl	sh	/ɕ/ postalveolar
b	bilabial stop vd	gh	/ɕ/ velar fricative
t	alveolar stop vl	h	glottal fricative
d	alveolar stop vd	ch	/tɕ/ affricate
k	velar stop vl	j	/dɕ/ affricate
g	velar stop vd	m	bilabial nasal
kp	/kp/ labial-velar vl	n	alveolar nasal
gb	/ɕb/ labial-velar vd	nɕ	/ŋ/ velar nasal
f	labiodental fricative	l	lateral
v	labiodental fricative vd	r	flap /ɾ/
s	alveolar fricative	w	labio-velar approx
z	alveolar fricative vd	y	/j/ palatal approx

### — TONE SYSTEM — 2 OR 3 LEVELS —

Igbo is a tonal language. Tone is phonemic (distinguishes meaning).

High (H): ákɔ́ — chin. Low (L): ákɔ̀ — door.

Down-step: sequence HH in context of a preceding L lowers the second H.

Tone sandhi: Low+High across word boundary may merge or shift.

Verb tone patterns signal tense/aspect: ɔ́ bá (present perfect) vs. ɔ̀ bá (stative).

### — VOWEL HARMONY — ATR SYSTEM —

Igbo has Advanced Tongue Root (ATR) vowel harmony.

+ATR set: i e u o a — tongue root pushed forward, more open pharynx.

-ATR set: ɪ ɛ ʊ ɔ — three vowels with dot-below.

Within a word, vowels generally agree in ATR value (some exceptions).

Function words may not trigger harmony; certain affixes are transparent.

### — LABIAL-VELAR STOPS — KEY FEATURE —

GB /ɕb/: voiced. Both lips close AND back of tongue touches velum simultaneously.

KP /kp/: voiceless version. Two closures released simultaneously, not sequentially.

Found across West/Central Africa (Yoruba gb/kp, Igbo gb/kp, Ewe gb/kp).

English speakers often hear these as two-consonant clusters — they are single stops.

### — SYLLABLE STRUCTURE —

Igbo syllables: V, CV, CVN (N = syllabic nasal). No complex clusters.

Syllabic nasals carry tone: M!, N! (low-tone syllabic nasal + downstep).

Open syllables preferred; word-final consonants rare (except nasals).

# IGBO

## Grammar & Core Vocabulary

### — SENTENCE STRUCTURE — SVO —

Igbo is Subject-Verb-Object (SVO): Emeke ri-ara ji (Emeka ate yam).

Verbs are central; they carry tense, aspect, and negation morphology.

Subject pronouns are obligatory: m (I), i (you), (he/she/it), any (we), unu (y'all), ha (they).

### — VERB SYSTEM —

Igbo verbs use a root + tonal pattern to signal tense/aspect.

root	ri	eat
past imperfective	na-ar	was eating
past perfective	rir	ate (completed)
present hab	na-ar	eats (habitually)
future	g ar	will eat
stative	er-iri	have eaten
negative	anagh ar	does not eat
imperative	r!	eat!

### — SUBJECT PRONOUNS —

m / m	I / me (emphatic: m)
/ g	you (subject / emphatic)
	he/she/it (3rd sg)
any	we (inclusive)
unu	you (plural)
ha	they / them

### — NOUN CLASSES — GENDER BY PREFIX —

No grammatical gender; nouns modified by adjectives that follow: j b (the white yam).

Plurals often formed by tone change or N- prefix: ch ch (tree trees by context).

Classifiers used with numerals: otu oche (one chair), ise oche (five chairs).

### — CORE VOCABULARY —

bíarà	welcome	oji	kola nut
d m	thank you	ji	yam
íe	yes	mmiri	water
m ch kw	no	oku	fire
biko	please	ana	earth/ground
d	good morning	mmad	person
nd u?	how are you?	oge	time
a d m	I am fine	onwa	moon
a f m g	I love you	kpakpando	star
k?	what is your name?	ob	heart
ch m b ch	my name is...	ihunanya	love
bá	come	ononihu	freedom
ga	go	echeta	remember/memory
r	eat	z	tomorrow / future
nu n m	drink water	elu-ala	the world
ulo	house		

# IGBO

Running Text — Four Passages + Bridge Phrase

## — I. IGMEKELE — GREETING / PROVERB —

Onye wetara oji wetara ndu.

onye=who wetara=brought oji=kola-nut wetara=brought ndu=life

"The one who brings kola nut brings life." (Igbo ceremonial greeting proverb)

## — II. AJA — ON MEMORY AND ANCESTORS —

A na-echeta nd□ nna-ochie eme ka eze ha ndu na-aga n'iru.

a-na-echeta=one-remembers nd□=those nna-ochie=ancestors

eme=makes eze=their ka=so-that ha=them ndu=life na-aga=goes n'iru=forward

"Remembering the ancestors makes their life go forward." (traditional concept)

## — III. IHEMCHACHA — ON KNOWLEDGE —

Ihe onye m□ t□, onye ibe ya mara ya, mara ya rue na nna-ochie.

ihe=thing onye=a-person m□-t□=knows onye-ibe=another ya=it mara=knows

rue=reaches na=to nna-ochie=ancestors

"What one person knows, let another know it, let it reach the ancestors." (knowledge proverb)

## — IV. ELU IHU — FORWARD MOTION —

Any□ na-aga n'iru ma any□ na-eche nd□ nd□ gara aga.

any□=we na-aga=go n'iru=forward ma=while na-eche=think-of nd□=those

nd□=people gara=went aga=ahead/forward

"We go forward while thinking of those who went ahead." (guiding principle)

## — V. BRIDGE PHRASE —

A kere ihe a m□zi m□zi maka g□, n'an□□, site n'aka nd□

na-echeta n'iru.

a-kere=was-made ihe-a=this-thing m□zi-m□zi=freely maka=for g□=you

n'an□□=truly site-n'aka=from-the-hands nd□=those na-echeta=who-remember  
n'iru=forward (lit: who-face-forward)

"This was made for you, freely, by people who remembered forward."

## — BRIDGE PHRASE — NOTES —

N'iru (n'irù) literally means "in front / forward / facing ahead."

The phrase na-echeta n'iru means "remember(s) forward" — facing ahead while

honoring the past. This captures the Igbo cosmological sense that the living

walk forward into the future while the ancestors walk behind, guiding them.

Meedzi meedzi = completely freely / without cost (reduplication for emphasis).

## — LANGUAGE NOTES —

Igbo: ~44 million speakers in southeastern Nigeria (Enugu, Anambra, Imo, Abia states).

Language family: Niger-Congo, Volta-Niger branch. Closely related to Ika, Ekpeye.

Dialects: Central Igbo (Owerri-Onitsha basis of Standard Igbo), Inland, Delta.

Literary tradition since 19th century; Chinua Achebe wrote in English about Igbo life.

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# SHONA

## Script & Writing System

### — WRITING SYSTEM —

Shona uses the Latin alphabet. Standard Shona orthography codified 1955 (S.O.I.D.).

25 letters; no q or x. Digraphs and trigraphs mark complex sounds.

No diacritics in standard orthography; tone not marked in everyday writing.

### — SHONA ALPHABET —

A a /a/	B b /b/	Ch ch /t□/	D d /d/
Dz dz /dz/	Dzv dzv /dzv/	E e /□/	F f /f/
G g /□/	H h /h/	I i /i/	J j /d□/
K k /k/	M m /m/	N n /n/	Ng ng /ŋ/
Ny ny /□/	O o /□/	P p /p/	R r /r/
S s /s/	Sh sh /□/	T t /t/	V v /v/
W w /w/	Y y /j/	Z z /z/	Zh zh /□/
Sv sv /sv/	Zv zv /zv/		

### — SPECIAL CONSONANTS —

SV /sv/ — simultaneous s+v: svika (arrive), svosvoda (creep).

ZV /zv/ — simultaneous z+v: zvino (now), zvakana (good things).

DZV /dzv/ — voiced affricate + labiodental: dzva (a type of grass).

NY /□/ — palatal nasal (as in Spanish ñ): nyaya (matter/story), nyama (meat).

NG /ŋ/ — velar nasal (ng in song): ngoma (drum), nguwo (clothing).

### — TONE — UNMARKED BUT PHONEMIC —

Shona has a two-tone system (High H / Low L) with downstep.

Tone not written in standard orthography but is essential for meaning.

H baba = father (respectful) / L baba = father (neutral).

Tone marks tense on verbs: ndakauya (I came, H) vs ndakauya (I was coming, L).

### — DIALECTS OF STANDARD SHONA —

Standard Shona (1955) unified 5 main dialects: Karanga, Zezuru, Korekore,

Manyika, and Ndao. Spoken by ~15 million in Zimbabwe and Mozambique.

Zezuru dialect (Harare region) is most prestigious in broadcast media.

### — NUMERALS —

1=imwe/potsi

2=piri

3=tatu

4=ina

5=shanu

6=tanhatu

7=nomwe

8=sere

9=pfumbamwe

10=gumi

20 = makumi maviri · 100 = zana · 1000 = chiuru

# SHONA

## Phonology & Sound System

### — CONSONANT INVENTORY —

Shona has ~30 consonants. Notable features: fricative co-articulations (sv/zv),

prenasalised stops (mb, nd, ng), and tonal contrasts.

p	/p/	bilabial stop vl	sh	/ʃ/	postalveolar fricative
b	/b/	bilabial stop vd	zh	/ʒ/	postalveolar fricative vd
t	/t/	alveolar stop vl	sv	/sv/	labio-alveolar fricative
d	/d/	alveolar stop vd	zv	/zv/	labio-alveolar fricative vd
k	/k/	velar stop vl	h	/h/	glottal
g	/ŋ/	velar stop vd	m	/m/	bilabial nasal
ch	/tʃ/	postalveolar affricate	n	/n/	alveolar nasal
j	/dʒ/	postalveolar affricate vd	ng	/ŋ/	velar nasal
dz	/dʒ/	alveolar affricate	ny	/ɲ/	palatal nasal
dzv	/dʒv/	labio-alveolar affricate	r	/r/	trill/flap
f	/f/	labiodental fricative	l	/l/	lateral
v	/v/	labiodental fricative vd	w	/w/	labio-velar
s	/s/	alveolar fricative	y	/j/	palatal
z	/z/	alveolar fricative vd			

### — VOWEL SYSTEM — 5 VOWELS —

a	/a/	open central
e	/e/	mid-front
i	/i/	high front
o	/o/	mid-back rounded
u	/u/	high back rounded

### — TONE SYSTEM —

Two phonemic tones: High (H) and Low (L). Downstep (!H) also occurs.

Tone is carried by syllables, not individual segments.

Verb tense/aspect conveyed primarily by tone pattern, not affixes:

nda-ku-ya (H L H) = I came (perfect) / nda-ku-ya (H H L) = I was coming.

Noun classes also affect tonal patterns of associated words.

### — PRENASALISED STOPS —

MB /mb/: mbwa (dog), mberi (ahead). ND /nd/: ndiro (plate), ndenga (sky).

NG /ŋ/: ngoma (drum), nguo (clothing). NJ /ndʒ/: njere (a bead).

These are single phonological segments (not sequences) — one syllable onset.

### — SYLLABLE STRUCTURE —

Preferred syllable: CV (consonant + vowel). Open syllables dominate.

Syllabic nasals possible: m-ti (tree), n-zira (path).

Vowel sequences rare; hiatus resolved by glide insertion: chiyo ŋ chi.yo.

# SHONA

## Grammar & Core Vocabulary

### — SENTENCE STRUCTURE — SVO —

Shona is Subject-Verb-Object. Verb agreement prefixes mirror noun class.

Mwana adya sadza. Child 3SG.eat porridge = "The child is eating sadza."

### — NOUN CLASS SYSTEM (BANTU) —

Shona has ~15 noun classes (chi-/zvi-, mu-/mi-, mu-/va-, etc.) like all Bantu languages.

mu-/va-	persons: mwana (child) / vana (children)
mu-/mi-	trees/plants: muti (tree) / miti (trees)
chi-/zvi-	things: chibage (maize) / zvibage (maizes)
i-/ma-	mass/abstract: imba (house) / dzimba (houses)
ri-/ma-	body parts: rino (tooth) / mano (teeth)
ru-/n-	abstract/augmentative: rudo (love) / n- forms
u-/ma-	abstract: utano (health) / n- forms
pa-/ku-/mu-	locative classes: pano (here), kuenda (going)

### — VERB MORPHOLOGY —

Verb template: Subject prefix + Tense marker + Object prefix + Root + Final vowel.

ndinoda	I love (ndi-no-da)
ari-da	he/she loves (a-ri-da)
nda-ku-ya	I came (H tone = perfect)
ndichaenda	I will go (ndi-cha-end-a)
ndakauya	I had come (pluperfect)
enda!	go! (imperative)
handidi	I don't want (ha-ndi-di)
tinofarira	we like (ti-no-far-ir-a)

### — CORE VOCABULARY —

mhoru	hello	nyika	country/earth
waswera sei?	how was your day?	munhu	person
ndinofara	I am happy	nguva	time
ndinoda	I love / I want	mwedzi	moon
tatenda	thank you	nyeredzi	star
ndiregerei	please / forgive me	moyo	heart
hongu	yes	rudo	love
kwete	no	rusununguko	freedom
mwana	child	kuyeuka	memory/remember
mai	mother	mangwana	tomorrow / future
baba	father	nyika yose	the whole world
imba	house	zvakanaka	good things / it is good
mvura	water	hupenyu	life
moto	fire		

# SHONA

Running Text — Four Passages + Bridge Phrase

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## — I. TSUMO — PROVERB —

Chisi chibereke chisi; chiramu ndechemuzukuru.

chisi=today chibereke=let-it-give-birth chisi=today chiramu=in-law nde=is che=of muzukuru=grandchild

"Today, let today give birth to today; the future belongs to the grandchild." (Shona proverb on succession)

---

## — II. RUDO — ON LOVE AND MEMORY —

Kuyeuka kwevakafa ndiko rudo rwehupenyu.

kuyeuka=remembering kwe=of vakafa=those-who-died ndiko=that-is rudo=love rwe=of hupenyu=life

"Remembering those who have died is the love of life." (ancestral remembrance principle)

---

## — III. ZIVO — ON KNOWLEDGE AND TIME —

Zivo inogara; munhu anoenda. Chinyorwa ndicho chinotsigira zivo.

zivo=knowledge inogara=remains munhu=person anoenda=goes away

chinyorwa=writing ndicho=is-the chinotsigira=that-supports

"Knowledge endures; people pass away. Writing is what supports knowledge." (literacy concept)

---

## — IV. MBERI — FORWARD —

Tinoenda mberi tichiyeuka avo vakafamba mberi.

tinoenda=we-go mberi=forward tichiyeuka=while-remembering avo=those

vakafamba=who-walked mberi=forward (ahead)

"We go forward while remembering those who walked ahead." (guiding principle)

---

## — V. BRIDGE PHRASE —

Chinhu ichi chakagadzirirwa iwe, mahara, navanhu vakayeuka mberi.

chinhu-ichi=this-thing chakagadzirirwa=was-made-for iwe=you

mahara=freely (without cost) navanhu=by-people vakayeuka=who-remembered

mberi=forward / ahead

"This was made for you, freely, by people who remembered forward."

---

## — BRIDGE PHRASE — NOTES —

Mberi (from Bantu \*-bele) means "ahead / forward / in front."

Vakayeuka mberi = "who remembered forward" — facing ahead while holding the past.

In Shona cosmology, the mudzimu (ancestral spirits) walk ahead of the living, guiding them. To "remember forward" is to honour those who guide from in front.

Mahara = free of charge (from Arabic mahar, spread via Swahili trade routes).

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## — LANGUAGE NOTES —

Shona: ~15 million speakers; official language of Zimbabwe alongside Ndebele and English.

Language family: Bantu (Niger-Congo), S-branch (Shona group S10).

Standard Shona (1955) unified Karanga, Zezuru, Korekore, Manyika, Ndau dialects.

Rich oral literature: tsumo (proverbs), nhetembo (poetry), ngano (folktales).

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REMEMBER FORWARD — PLATE 36D — SHONA: RUNNING TEXT — rememberforward.org — CC BY-SA 4.0

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# ZULU

## Script & Writing System

### — WRITING SYSTEM —

Zulu uses the Latin alphabet. Standard orthography developed in 19th century by missionaries; codified in modern form during the 20th century.  
26 standard letters plus digraphs. Tone is not marked in standard writing.

### — ZULU ALPHABET AND DIGRAPHS —

A a /a/	B b /b/	C c /□/ dental click	D d /d/
E e /□/	F f /f/	G g /□/	H h /h/
I i /i/	J j /d□/	K k /k/	L l /l/
M m /m/	N n /n/	O o /□/	P p /p/
Q q /□/ palato-alveolar click	R r /r/	S s /s/	T t /t/
U u /u/	V v /v/	W w /w/	X x /□/ lateral click
Y y /j/	Z z /z/	sh /□/	ng /ŋ/
ny /□/	dl /□/	hl /□/ voiceless lateral	

### — CLICK CONSONANTS — DEFINING FEATURE —

Zulu has 3 click types inherited from Khoisan neighbours (contact languages).

C /□/ DENTAL CLICK: tongue tip against upper teeth, pulled back sharply.

Like the English "tsk tsk" disapproval click.

Q /□/ PALATO-ALVEOLAR CLICK: tongue body against hard palate.

Produces a loud "pop." Hard palate click.

X /□/ LATERAL CLICK: sides of tongue against upper molars.

Like the horse-urging click made by riders.

Each click has voiced (gc-, nc-, gc-), aspirated (ch-, qh-, xh-) and nasal variants.

### — PREFIXED CLICK VARIANTS —

c: basic dental	gc: voiced dental	ch: aspirated dental
nc: nasal dental	ngc: nasalised voiced dental	q: palato-alveolar
gq: voiced palato	qh: aspirated palato	nq: nasal palato
x: lateral	gx: voiced lateral	xh: aspirated lateral
nx: nasal lateral		

### — NUMERALS —

1 = kunye	2 = kubili
3 = kuthathu	4 = kune
5 = kublanu	6 = isithupha
7 = isikhombisa	8 = isishiyagalombili
9 = isishiyagalolunye	10 = ishumi
20 = amashumi amabili · 100 = ikhulu · 1000 = inkulungwane	

# ZULU

## Phonology & Sound System

### — CONSONANT INVENTORY —

Zulu has ~50+ consonants when click variants are included.

Core non-click consonants shown; click series add ~15 more segments.

p	/p/ bilabial stop vl	sh	/ʃ/ postalveolar
b	/b/ bilabial stop vd	hl	/χ/ lateral fricative vl
t	/t/ alveolar stop vl	dl	/χ/ lateral fricative vd
d	/d/ alveolar stop vd	h	/h/ glottal
k	/k/ velar stop vl	m	/m/ bilabial nasal
g	/g/ velar stop vd	n	/n/ alveolar nasal
ph	/pχ/ aspirated bilabial	ng	/ŋ/ velar nasal
th	/tχ/ aspirated alveolar	ny	/ç/ palatal nasal
kh	/kχ/ aspirated velar	l	/l/ lateral
f	/f/ labiodental	r	/r/ trill
v	/v/ labiodental vd	w	/w/ labio-velar
s	/s/ alveolar fricative	y	/j/ palatal
z	/z/ alveolar fricative vd		

### — VOWEL SYSTEM — 5 VOWELS —

a	/a/	open central: amanzi (water)
e	/e/	mid-front: ikhaya (home)
i	/i/	high front: izinto (things)
o	/o/	mid-back: umuntu (person)
u	/u/	high back: ubuntu (humanity)

### — TONE SYSTEM —

Zulu has two tones: High (H) and Low (L). Tone is phonemic.

Tone not written in standard orthography; context and knowledge required.

ukufa (L L L) = to die / ukufa (H L L) = to arrive at.

Downstep (!H) occurs after a low tone: hi!H sequences.

### — CLICK PHONOLOGY IN CONTEXT —

Clicks in Zulu are full consonants, inherited ~1,000+ years ago from contact with

Khoisan speakers. They occur in native vocabulary and borrowed words.

ucingo (dental nc-) = telephone. ukucula (dental c-) = to sting.

Clicks combine with tone, nasality, aspiration = large segment inventory.

### — ASPIRATION AND VOICED/VOICELESS PAIRS —

Zulu distinguishes plain, aspirated, and voiced stops: p/ph/b, t/th/d, k/kh/g.

Aspirated stops: phuza (drink), thanda (love), khuluma (speak).

HL /χ/ voiceless lateral fricative: hlala (sit/stay), hlobo (type/season).

# ZULU

## Grammar & Core Vocabulary

### — SENTENCE STRUCTURE — SVO + AGGLUTINATION —

Zulu is Subject-Verb-Object. Extensive agglutination on verbs.

Umuntu udla ukudla. umuntu=person u-dla=3SG.eat ukudla=food = "The person eats food."

### — NOUN CLASS SYSTEM — 17 CLASSES —

All Zulu nouns belong to a class marked by prefix. Agreement spreads to verbs, adjectives.

umu-/aba-	Class 1/2: persons – umuntu (person) / abantu (people)
umu-/imi-	Class 3/4: trees – umuthi (medicine/tree) / imithi
ili-/ama-	Class 5/6: general – ilanga (sun/day) / amalanga
isi-/izi-	Class 7/8: things – isifundo (lesson) / izifundo
in-/izin-	Class 9/10: animals/things – inkosi (chief) / izinkosi
u-/izin-	Class 11/10: abstract – ubuntu (humanity)
ubu-/–	Class 14: abstract mass – ubukhosi (royalty)
uku-/–	Class 15: verbal nouns – ukuthanda (to love)

### — VERB MORPHOLOGY —

Template: Subject concord + Tense/Aspect + Object concord + Root + Extension + Final.

ngiyathanda	I love (ngi-ya-thanda)
uthanda	he/she loves (u-thanda)
ngathanda	I loved (past)
ngizothanda	I will love (ngi-zo-thanda)
ngiyamthanda	I love him/her (obj concord -m-)
angithandi	I don't love (a-ngi-thandi, negative final -i)
thanda!	love! (imperative)
ngithande	let me love (subjunctive)

### — UBUNTU — KEY CULTURAL CONCEPT —

"Umuntu ngumuntu ngabantu" – A person is a person through other people.

Ubuntu = humanity/humanness: the philosophy that identity is relational.

Central to Zulu (and broader Nguni/Bantu) ethics and community life.

### — CORE VOCABULARY —

sawubona	hello (I see you)	isikhathi	time
siyabonga	thank you	inyanga	moon
yebo	yes	inkanyezi	star
cha	no	inhliziyu	heart
ngicela	please	uthando	love
unjani?	how are you?	inkululeko	freedom
ngiyaphila	I am well	ukukhumbula	to remember
ngiyakuthanda	I love you	kusasa	tomorrow / future
igama lami	my name is...	ubuntu	humanity / togetherness
amanzi	water	impilo	life
umhlo	fire	amandla	power/strength
umhlaba	earth/world	isizwe	nation/people
umuntu	person		

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# ZULU

Running Text — Four Passages + Bridge Phrase

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## — I. UBUNTU — FOUNDATIONAL PHILOSOPHY —

Umuntu ngumuntu ngabantu.

umuntu=person ngu=is umuntu=person nga=through abantu=people

"A person is a person through other people." (Nguni ubuntu proverb)

---

## — II. UKUKHUMBULA — ON REMEMBERING —

Ukukhumbula abadlule kuyisikhungo sokuqhubeka phambili.

ukukhumbula=to-remember abadlule=those-who-passed kuyisikhungo=is-the-anchor

sokuqhubeka=of-going-forward phambili=ahead

"Remembering those who have passed is the anchor of moving forward." (Zulu saying)

---

## — III. ULWAZI — ON KNOWLEDGE —

Ulwazi alupheleli mntwini munye; ludluliselwa kwabalandela.

ulwazi=knowledge alupheleli=does-not-end-with mntwini-munye=one-person

ludluliselwa=is-passed-on kwabalandela=to-those-who-follow

"Knowledge does not end with one person; it is passed on to those who follow."

---

## — IV. PHAMBILI — FORWARD —

Siyahamba phambili sikhumbula izinyanya.

siyahamba=we-walk phambili=forward sikhumbula=we-remember izinyanya=ancestors

"We walk forward remembering the ancestors." (ancestral continuity)

---

## — V. BRIDGE PHRASE —

Lesi sinto senziwa ngawe, mahhala, ngabantu abakhumbula phambili.

lesi-sinto=this-thing senziwa=was-made ngawe=for-you mahhala=freely (without cost)

ngabantu=by-people abakhumbula=who-remember phambili=forward / ahead

"This was made for you, freely, by people who remembered forward."

---

## — BRIDGE PHRASE — NOTES —

Phambili (from Proto-Bantu \*-pamba) = "forward / ahead / in front."

Abakhumbula phambili = "those who remember forward" — honouring ancestors while facing forward. In Zulu thought the future is built on ancestral memory.

Mahhala = free/gratis (from Afrikaans/Dutch gratis, via South African contact).

Sawubona (I see you) / Siyabona (we see you) — greeting acknowledges personhood.

---

## — LANGUAGE NOTES —

Zulu: ~13 million L1 speakers; South Africa's most widely spoken home language.

Language family: Bantu, Nguni branch (with Xhosa, Swati, Ndebele).

Click consonants absorbed from contact with Khoisan peoples over millennia.

Official language of South Africa; also spoken in Lesotho, Swaziland, Zimbabwe.

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# VIETNAMESE

Script – Ch □ Qu □ c Ng □ (National Script)

## — WRITING SYSTEM —

Vietnamese uses Ch □ Qu □ c Ng □, a Latin-based alphabet with diacritics.  
Developed by Portuguese missionaries (17th c.), standardised in French colonial era.  
Two types of diacritics: (1) letter modifiers (shape), (2) tone marks (pitch).

## — MODIFIED LETTERS —

Each modifier creates a distinct vowel quality:

â / A <sup>ˆ</sup>	/ɑ/ – a with circumflex: ân (grace), bảy (seven)
ã / A <sup>˘</sup>	/ɛ/ – a with breve: ăn (eat), bảm (press)
ê / E <sup>ˆ</sup>	/e/ – e with circumflex: êm (warm), đêm (night)
ô / O <sup>ˆ</sup>	/o/ – o with circumflex: ông (grandfather), cô (aunt)
□ / O+	/ɔ/ – o with horn: □n (debt), tr□i (sky)
□ / U+	/u/ – u with horn: □c (wish), □u (wish for)
đ / D-	/d/ – d with stroke: đây (here), đó (that)

## — SIX TONES — DIACRITIC MARKS —

a (no mark)	ngang / flat	mid level: a = ah (interjection)
à (grave)	huy□n / falling	low falling: à = but, then
á (acute)	s□c / rising	high rising: á = ah! (exclamation)
□ (hook)	h□i / dipping	mid dipping-rising: h□i = to ask
ã (tilde)	ngã / broken	high broken/glottalised: ngã = to fall
□ (dot)	n□ng / heavy	low glottalised-falling: n□ng = heavy

## — ALPHABET — 29 LETTERS —

A Ă Ã B C D Đ E Ê Ğ H I K L M N O Ó P Q R S T U □ V X Y

Note: F, J, W, Z appear only in loanwords. C=/k/, X=/s/, Y=/j/.

## — HISTORICAL SCRIPTS —

Ch □ Nôm: logographic script based on Chinese characters, used ~10th-19th century.

Ch □ Hán: Classical Chinese used for official/literary writing before French era.

Ch □ Qu □ c Ng □ became official in 1910 (French mandate), now universal.

## — NUMERALS —

0=không	1=m□t	2=hai	3=ba
4=b□n	5=năm	6=sáu	7=b□y
8=tám	9=chín	10=m□i	

100 = m□t trăm · 1000 = m□t nghìn · 1,000,000 = m□t tri□u

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# VIETNAMESE

## Phonology — Six Tones and Consonant System

### — SIX-TONE SYSTEM —

Vietnamese (Hanoi dialect) has 6 phonemic tones. Each tone has distinct pitch + contour.

Ngang	mid level 33	ma = ghost
Huy□n	low falling 21	mà = but
S□c	high rising 35	má = cheek
H□i	dipping-rising 312	m□ = grave/tomb
Ngã	high broken 35+glottal	mã = horse [north dialect]
N□ng	low glottalised 21+constriction	m□ = rice seedling

### — INITIAL CONSONANTS —

b /b/	c/k/q /k/	ch /c/ palatal
d/gi /z/ north /j/ south	đ /d/ north /j/ south	g/gh /□/
h /h/	kh /x/	l /l/
m /m/	n /n/	ng/ngħ /ŋ/
nh /□/	p /p/ rare	ph /tʃ/
r /r/ north /z/ south	s /s/ north /□/ south	t /t/
th /t□/	tr /t□/ north /t□/ south	v /v/ north /j/ south
x /s/ north /s/ south	x /s/	gi /z/ north /j/ south

### — FINAL CONSONANTS AND CODAS —

Vietnamese allows only limited codas: -c/-ch, -m, -n, -ng/-nh, -p, -t.

No consonant clusters in onset or coda; syllable structure: (C)(G)V(C)(T).

Final -c and -ch are unreleased stops (no audible burst).

### — VOWEL SYSTEM —

14 monophthongs + triphthongs; vowel length not phonemic (tone-conditioned).

a /a/ open front	ã /æ/ near-open front	â /□/ open central
e /□/ mid-front	ê /e/ close-mid front	i /i/ high front
o /□/ mid-back	ô /o/ close-mid back	□ /□/ mid central
u /u/ high back	□ /□/ high central	y /j/ =i in diphthong

### — NORTH vs. SOUTH DIALECT DIFFERENCES —

Hanoi (north): 6 tones; d=□, gi=z, s=s, x=s, r=r.

Saigon/HCMC (south): 5 tones (ngã=h□i merged); d=j, gi=j, s=□, r=z.

Standard orthography represents Hanoi pronunciation.

# VIETNAMESE

## Grammar & Core Vocabulary

### — SENTENCE STRUCTURE — SVO, ISOLATING —

Vietnamese is an isolating (analytic) language: no inflection, no case, no gender.

Meaning conveyed by word order, particles, and context.

Tôi ăn cơm. I eat rice. (Tôi=I ăn=eat cơm=cooked-rice)

### — PRONOUNS — SOCIAL REGISTER SYSTEM —

Vietnamese pronouns encode social relationship, age, and respect level.

tôi = I (neutral/formal)  
anh = I/you (older male to younger)  
em = I/you (younger to older)  
ông = he/you (elderly male)  
nó/họ = he/she (3rd sg. informal)  
chúng tôi = we (excl)

minh = I/self (intimate)  
chị = I/you (older female)  
bạn = you (peer/friend)  
bà = she/you (elderly female)  
họ = they (3rd pl)  
chúng ta = we (incl)

### — VERB SYSTEM — PARTICLES AND ASPECT —

Verbs are uninflected. Tense/aspect marked by pre-verbal particles:

đã = past (completed)  
đang = progressive/ongoing  
vừa = just completed  
bị = passive (negative)

sẽ = future  
sắp = imminent future  
được = ability/completion  
được = passive (positive)

### — CLASSIFIERS —

Classifiers required between numeral and noun: mọt cái bàn (one CL.thing table).

cái: inanimate things  
cá: fish, some body parts  
bài: papers, lessons, songs  
ngườ: people

con: animals, rivers, roads  
cây: trees, sticks, pens  
quả: round things, fruits  
cuốn: books, rolls

### — CORE VOCABULARY —

xin chào	hello	ngườ	person
cơm	thank you	thời gian	time
có	yes/have	mặt trăng	moon
không	no/not/zero	ngôi sao	star
xin lỗi	sorry/excuse me	trái tim	heart
bạn không?	how are you?	tình yêu	love
tôi khỏe	I am well	tự do	freedom
tôi yêu bạn	I love you	kỷ niệm	memory
nước	water	tương lai	future
lửa	fire	thế giới	world
đất	earth/land	cuộc sống	life

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# VIETNAMESE

Running Text – Four Passages + Bridge Phrase

## — I. T H C NG — PROVERB —

H□c, h□c n□a, h□c mãi.

h□c=study h□c=study n□a=more h□c=study mãi=always/forever

"Study, study more, study always." (Ho Chi Minh; continuous learning imperative)

## — II. KÝ C VÀ T NG LAI — MEMORY AND FUTURE —

U□ng n□□c nh□ ngu□n.

u□ng=drink n□□c=water nh□=remember ngu□n=source/spring

"When you drink water, remember its source." (proverb on gratitude and memory)

## — III. TRI TH C — ON KNOWLEDGE —

M□t kho báu không bao gi□ c□n ki□t là tri th□c.

m□t=one kho=báu=treasure không=not bao=gi□=ever c□n=ki□t=exhausted là=is tri-th□c=knowledge

"A treasure that never runs out is knowledge." (Vietnamese educational maxim)

## — IV. TI N LÊN — FORWARD —

Chúng ta b□□c ti□n phía tr□□c, mang theo ký □c c□a nh□ng ng□□đi tr□□c.

b□□c-ti□n=step-forward phía-tr□□c=toward-front mang-theo=carry-along

ký-□c=memory c□a=of nh□ng-ng□□đi=those-people đi-tr□□c=went-before

"We step forward, carrying the memory of those who went before."

## — V. BRIDGE PHRASE —

V□t này đ□□c làm ra cho b□n, mi□n phí,

b□i nh□ng ng□□đi đã nh□ v□ phía tr□□c.

v□t-này=this-thing đ□□c-làm-ra=was-made cho=for b□n=you

mi□n-phí=free-of-charge b□i=by nh□ng-ng□□đi=those-people

đã=PAST nh□=remember v□=toward phía-tr□□c=the-front/forward

"This was made for you, freely, by people who remembered forward."

## — BRIDGE PHRASE — NOTES —

Phía tr□□c = "the front / ahead / forward." In Vietnamese spatial metaphor,

the future is phía tr□□c (in front) and the past is phía sau (behind).

Nh□ v□ phía tr□□c = "remember toward the front" — an unusual collocation

that captures the spirit of forward-facing memory. Mi□n phí = free of charge.

## — LANGUAGE NOTES —

Vietnamese: ~90 million L1 speakers; official language of Vietnam.

Language family: Austroasiatic, Mon-Khmer branch (Viet-Muong sub-group).

Heavy Chinese loanword influence (Sino-Vietnamese layer, ~60% of formal vocab).

Spoken also in overseas communities: USA, France, Australia, Cambodia.

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# THAI

□□□□□□ – Script & Writing System

## — WRITING SYSTEM — ABUGIDA —

Thai script is an abugida: consonants carry an inherent vowel /□/. Written left to right.  
Derived from Khmer script, which descended from South Indian Brahmic scripts (~13th c).  
No spaces between words; sentence boundaries marked by spaces.

## — CONSONANT CLASSES — THREE CLASSES —

Each consonant belongs to one of three classes that determine tone calculation.

High class (11): □ □ □ □ □ □ □ □ □ □ □

Mid class (9): □ □ □ □ □ □ □ □ □

Low class (24): □

## — SELECTED CONSONANTS WITH RTGS ROMANISATION —

<input type="checkbox"/> k /k/	<input type="checkbox"/> kh /k□/	<input type="checkbox"/> kh /k□/
<input type="checkbox"/> ng /ŋ/	<input type="checkbox"/> ch /t□/	<input type="checkbox"/> ch /t□/
<input type="checkbox"/> y /j/	<input type="checkbox"/> t /t/	<input type="checkbox"/> th /t□/
<input type="checkbox"/> n /n/	<input type="checkbox"/> b /b/	<input type="checkbox"/> p /p/
<input type="checkbox"/> ph /p□/	<input type="checkbox"/> m /m/	<input type="checkbox"/> y /j/
<input type="checkbox"/> r /r/	<input type="checkbox"/> l /l/	<input type="checkbox"/> w /w/
<input type="checkbox"/> s /s/	<input type="checkbox"/> h /h/	<input type="checkbox"/> – (silent/□/ onset)

## — VOWEL DIACRITICS —

Thai vowels are written as diacritics around the base consonant.

C = consonant placeholder. Vowel position: above, below, before, after, or surrounding.

<input type="checkbox"/> C = ae /æ/	<input type="checkbox"/> C□ = aa /a□/	<input type="checkbox"/> C□ = i /i/
<input type="checkbox"/> C□ = ii /i□/	<input type="checkbox"/> C□ = ue /□/	<input type="checkbox"/> C□ = e /e/
<input type="checkbox"/> C□□ = ia /i□□/	<input type="checkbox"/> C□ = ua /u□/	<input type="checkbox"/> C□ = u /u/

## — TONE MARKS —

Thai has 4 tone marks + unmarked, combined with consonant class to produce 5 tones.

<input type="checkbox"/>	mai ek (low/falling marker)
<input type="checkbox"/>	mai tho (falling/high marker)
<input type="checkbox"/>	mai tri (high marker)
<input type="checkbox"/>	mai jattawa (rising marker)

## — THAI NUMERALS —

□□□□□□□□□□ (0-9)

Thai numerals are still used alongside Arabic numerals.

# THAI

## Phonology — Five Tones and Sound System

### — FIVE-TONE SYSTEM —

Thai (Bangkok) has 5 phonemic tones. Tone is determined by consonant class + tone marks.

Mid (saǎnā)	mid level 33	kao = he/she (mid class, no mark)
Low (ek)	low falling 21	kāo = news/rice (low class, mai ek)
Falling (tho)	high falling 51	kāo = nine (mid class, mai tho)
High (tri)	high rising 45	kāo = enter (high class, no mark)
Rising (jattawa)	low dipping 213	kǎo = white (mid class, mai jattawa)

### — CONSONANT INVENTORY —

Initial consonants: 21 distinct sounds. Final consonants: 8 allowed (-k, -t, -p, -m, -n, -ng, -j, -w).

/p/ bilabial stop	/p͡/ aspirated bilabial	/b/ bilabial stop vd
/t/ alveolar stop	/t͡/ aspirated alveolar	/d/ alveolar stop vd
/k/ velar stop	/k͡/ aspirated velar	/g/ glottal stop
/t͡/ palatal affricate	/t͡͡/ aspirated palatal	/t/ labiodental
/s/ alveolar fric	/h/ glottal	/m/ bilabial nasal
/n/ alveolar nasal	/ŋ/ velar nasal	/l/ lateral
/r/ trill	/w/ labio-velar	/j/ palatal

### — VOWEL SYSTEM — 21 VOWELS (SHORT + LONG) —

Thai distinguishes vowel length: short/long pairs. 9 short + 9 long + 3 triphthongs.

Short: /a ɔ ɔ̄ ɔ̄̄ e ɛ ɛ̄ ɛ̄̄ / Long: /a i ī ī̄ u ū ū̄ e ē ē̄ o ō ō̄ /

### — TONE CALCULATION RULES —

Tone depends on: (1) consonant class (high/mid/low), (2) syllable type (live/dead),

(3) tone mark present. Dead syllable = ends in stop or short vowel.

Mid class + no mark + live = mid tone. Mid class + no mark + dead = low tone.

High class consonant raises tones. Low class consonant lowers tones.

### — BORROWED SOUNDS —

Foreign loanwords may use /v/, /f/ (limited), and complex onsets (kr-, kl-, pr-, pl-, tr-).

English loanwords common: ɪnɪtɛnɛt (internet), tɛlɪfəʊn (telephone).

### — PHONOTACTICS —

No consonant clusters in coda. Onset clusters limited to: stop/nasal + r/l/w.

Syllable: (C)(C)V(V)(C)(T) — T = tone. CV is minimal syllable.

# THAI

## Grammar & Core Vocabulary

### — SENTENCE STRUCTURE — SVO, ISOLATING —

Thai is an isolating language like Vietnamese. No inflection, no case markers.

Phom kin khao. I eat rice. (phom=I[male] kin=eat khao=rice)

Politeness particles: phom (I, male), chan/dichon (I, female), khun (you).

### — POLITENESS PARTICLES —

Sentence-final particles mark politeness and gender:

khâp (male speaker) / kha (female speaker) — respectful acknowledgement.

na — softening/seeking agreement. Si — mild emphasis/suggestion.

### — VERB SYSTEM —

Verbs uninflected. Tense/aspect by time words and aspect particles:

laeo	completed/already
yaŋ	still/continuing
ja	will/future intent
kĕoap	about to
tham-mai	why
yŭ	have been doing

### — CLASSIFIERS (LAKSANANAM) —

Like Vietnamese and Chinese, Thai requires classifiers with numbers.

khon: people	tua: animals, clothing
lam: boats, aircraft	kh□n: books
bai: flat things, leaves, tickets	an: general small items
hōng: rooms	lang: houses/buildings

### — NEGATION AND QUESTIONS —

Negation: mai before verb: mai kin = not eat. mai dai = cannot/did not.

Yes/no question: add mai at end: kin khao mai? = eat rice? (do you eat?)

Answer: chai (yes) / mai chai (no).

### — CORE VOCABULARY —

sawasdee	hello/goodbye	khon	person
khop khun	thank you	wela	time
chai	yes	duang jan	moon
mai chai	no	dao	star
khana thoht	excuse me/sorry	hua jai	heart
sabai dee mai?	how are you?	khwam rak	love
sabai dee	I am fine	seriphap	freedom
chan rak khun	I love you [female]	khwam jam	memory
phom rak khun	I love you [male]	anakhot	future
nam	water	lok	world
fai	fire	chiwit	life
din	earth/soil		



# BURMESE

□□□□□□□□ — Script (Abugida)

## — WRITING SYSTEM — ABUGIDA —

Burmese script: abugida derived from Mon script, which came from South Indian Brahmic.

Distinctive rounded letters developed due to palm-leaf writing (curved strokes avoid tearing).

Written left to right. Consonants carry inherent vowel /a/; diacritics modify vowels.

## — CONSONANT TABLE — 33 LETTERS —

Burmese has 33 consonants arranged in traditional Sanskrit-derived order:

□	□	□	□	□
ka	ka	ka	ka	ka
ka	ka	ka	ka	ka
ka	ka	ka	ka	ka
ka	ka	ka	ka	ka
ka	ka	ka	ka	ka
ka	ka	ka	ka	ka
ka	ka	ka	ka	ka
sa	ha	la	a	wa

## — VOWEL DIACRITICS —

C = consonant. Vowels written as diacritics above, below, or surrounding:

□□ = kaa /k□□/	□□ = kaa2 /k□/	□□ = ki /ki/
□□ = kii /ki□/	□□ = ku /ku/	□□ = kuu /ku□/
□□ = ke /k□/	□□□ = kae /k□□/	□□□ = ko /ko/

## — THREE TONES — MARKED BY DIACRITICS —

Level (low short)	no mark: □□ ka	short, modal voice
Heavy (low long)	colon mark □□: □□□ kaa	long, creaky voice
Creaky (high short)	□ above: □□□ kai'	short, creaky+glottal stop

## — BURMESE NUMERALS —

□□□□□□□□□□ (0–9)

Burmese numerals based on same Brahmi origin as Arabic numerals.

10 = □□ 100 = □□□□ 1000 = □□□□

# BURMESE

## Phonology — Three Tones and Consonant System

### — THREE-TONE SYSTEM —

Burmese has 3 phonemic tones (plus a 4th "checked" syllable type):

Level (low)	short, modal voice, mid-low pitch: ma (horse)
Heavy (long)	long, modal/creaky voice, falling: maa (come)
Creaky (high)	short, creaky voice, high pitch with glottal stop: ma' (hard)
Checked (stop)	short syllable ending in glottal stop or unreleased stop

### — CONSONANT INVENTORY —

p /p/ bilabial vl	ph /pɰ/ bilabial asp	b /b/ bilabial vd
t /t/ alveolar vl	th /tɰ/ alveolar asp	d /d/ alveolar vd
s /s/ alveolar fric	sh /ʃ/ postalveolar	k /k/ velar vl
kh /kɰ/ velar asp	g /g/ velar vd	c /tɰ/ palatal aff
m /m/ bilabial nasal	n /n/ alveolar nasal	ng /ŋ/ velar nasal
ny /ɲ/ palatal nasal	l /l/ lateral	r /r/ palatal glide (modern)
w /w/ labio-velar	y /j/ palatal	h /h/ glottal
? /ʔ/ glottal stop		

### — CONSONANT MEDIALS —

Burmese allows medial consonants (w, y, r, h) before the vowel in a syllable:

kw- (k+w medial), ky- (k+y medial), khy- (kh+y), my- (m+y), etc.

Medials affect pronunciation: kya = /tɰa/, mya = /mja/.

### — VOWEL SYSTEM —

Short/long pairs: a/aa, i/ii, u/uu, e/ee, o/oo, plus diphthongs.

Vowel length + tone together = distinct syllable types.

Schwa /ɤ/ common in unstressed syllables (often written as -a).

### — SANDHI AND SPOKEN BURMESE —

Literary Burmese and spoken Burmese differ significantly.

Spoken: copula "is" = hpyi (written: jaa). Questions use final particles.

Diglossia: formal/written vs. colloquial/spoken registers differ in vocabulary + structure.

# BURMESE

## Grammar & Core Vocabulary

### — SENTENCE STRUCTURE — SOV —

Burmese is Subject-Object-Verb (SOV) — verb always final.

Nga htamin sa de. I rice eat. (nga=I htamin=rice sa=eat de=particle)

Particles follow every major element: subject -ga/-k□, object -go, location -hma.

### — CASE PARTICLES —

-ga / -k□	subject/topic marker
-go	object/direction marker
-hma	locative (at/in/on)
-n□	instrumental (by/with)
-pei	benefactive (for)
-h□	ablative (from)
-□ṅ	comitative (with, accompaniment)

### — VERB SYSTEM —

Verbs are final; tense/aspect by particles following the verb stem.

sa de	eats (present/habitual, -de = assertion)
sa m□	will eat (-m□ = future)
sa bí	ate (-bí = past completive)
sa □æ	is eating (-□æ = progressive)
ma-sa-bú	did not eat (ma-...bú = past negative)
sa ló	eat! (imperative)

### — PRONOUNS —

nga = I (informal)	k□ma = I (female formal)
kj□ma = I (male formal)	ning = you (informal)
shín = you (respectful to monk)	thu = he/she
doa = we (incl)	sh□ = they

### — CORE VOCABULARY —

ming-ga-la-ba	hello	lu	person
kʏei-zu-tin-ba-de	thank you	aq-já	time
hóuq-keh	yes	là	moon
mà hóuq-bú	no	kjó thappé	star
seim-na-ma-shi-bú	excuse me/sorry	hṅ-thà	heart
nei-káuq-là?	how are you?	chert-thà	love
k□-m□ nei-káuq-dé	I am fine	viq-thà	freedom
j□ j□	I love you	mhàu-zà	memory/remember
ye	water	nā-nā	future
miq	fire	kàhà	world
m□jé	earth	a-thà	life

# BURMESE

Running Text – Four Passages + Bridge Phrase

## — I. PYAN YA — PROVERB —

□□□□□□□□□□ □□□□□□□□ □□□□□□□□ □□□□□□□□

mashi-kaa-mha pannya-kaa to-shi-kaa-mha to-shi-kaa tha-le

"What is not yet known, knowledge will bring; what is already there, wisdom will show."

## — II. HTIDAW — ON MEMORY —

□□□□□□□□□□ □□□□□□□□□□ □□□□□□□□□□

yaungo-kyi mhaw-htaung-tha ana-kala la-ne

"Remembering the past is how the future comes to us." (Burmese proverb on memory)

## — III. THUTEH — ON KNOWLEDGE —

□□□□□□□□□□ □□□□□□□□ □□□□□□□□□□

pannya-hka-tha myi-kyi-mya ma-pyaw-hpan

"The flame of wisdom can never be extinguished." (Burmese saying on enduring knowledge)

## — IV. NA-NAING — FORWARD —

□□□□□□□□□□ □□□□□□□□ □□□□□□□□□□□□□□□□

yaungo-kyi shi-thma-de amyaungo-da-la-tha

"Moving forward while keeping the past in mind." (guiding concept)

## — V. BRIDGE PHRASE —

□□□□□□□□□□□□ □□□□□□□□□□□□

□□□□□□□□□□□□

□□□□□□□□□□ □□□□□□□□□□□□ □□□□□□□□□□□□

di-da-la-tha kyi u-hka-mhu mashi-pya-ta (this-thing for-you free-of-cost was-made)

anyaungo-da-la-tha shi-thma-de (who-forward remember keeping)

lu-la-tha doh-a-hyi (by-those-people by)

"This was made for you, freely, by people who remembered forward."

## — BRIDGE PHRASE — NOTES —

A-myaung-go (□□□□□□□□) = forward / front. In Burmese, the future is "ahead" (a-myaung).

Mashi-pyaw-ta = free of charge (no-cost-given). SOV order maintained.

The phrase encodes the project's core philosophy across the tonal system.

## — LANGUAGE NOTES —

Burmese (Myanmar): ~33 million L1 speakers; official language of Myanmar.

Language family: Sino-Tibetan, Tibeto-Burman branch (Lolo-Burmese group).

Script: Mon/Brahmi-derived, rounded due to palm-leaf writing tradition.

Significant diglossia between written (literary) and spoken registers.

# LAO

□□□□□□ — Script & Writing System

## — WRITING SYSTEM — ABUGIDA —

Lao script is an abugida closely related to Thai script. Written left to right.  
Derived from Khmer/Old Khmer via the same Brahmic lineage as Thai (13th century).  
Consonants have inherent vowel /o/; vowel diacritics modify the inherent sound.

## — CONSONANTS — 27 LETTERS, 2 CLASSES —

Unlike Thai (3 classes), Lao has 2 consonant classes: high and low.

High class (7): □ □ □ □ □ □ □

Low class (20): □

## — SELECTED CONSONANTS —

<input type="checkbox"/>	k /k/	<input type="checkbox"/>	kh /k□/	<input type="checkbox"/>	ng /ŋ/
<input type="checkbox"/>	ch /t□/	<input type="checkbox"/>	ny /□/	<input type="checkbox"/>	n /n/
<input type="checkbox"/>	m /m/	<input type="checkbox"/>	y /j/	<input type="checkbox"/>	r /r/ rare
<input type="checkbox"/>	l /l/	<input type="checkbox"/>	w /w/	<input type="checkbox"/>	s /s/
<input type="checkbox"/>	h /h/	<input type="checkbox"/>	silent h (class marker)		

## — VOWEL DIACRITICS —

C = consonant placeholder. Vowels written around the base consonant.

□C	aa /a□/
□C□	i /i/
□C	e /e/
□C	o /o/
□C□	ua /u□/
□C□	u /u/

## — SIX TONES —

Lao has 6 tones (some dialects 5). Tone determined by consonant class + tone marks.

Low	mid-low level: saōnā /33/
Mid	mid level: ek /33/ (same as low in some analyses)
High	high level: tho /44/
Rising	low-rising: tri /13/
High falling	high-falling: jattawa /42/
Low falling	low-falling: may ek low /21/

## — LAO NUMERALS —

□□□□□□□□□□ (0–9)

10 = □□ 100 = □□□□ 1000 = □□□

# LAO

## Phonology — Tones and Sound System

### — SIX-TONE SYSTEM (VIENTIANE DIALECT) —

Lao has 6 phonemic tones in the Vientiane (standard) dialect:

Low (samān)	mid-low 22: no mark, low class
Mid (ek)	mid 33: may ek on low class
High (tho)	high 44: high class, no mark
Rising (tri)	low-rising 13: may ek on high class
High falling	high-falling 42: may tho on high class
Low falling	low-dipping 21: may tho on low class

### — CONSONANTS —

k /k/ velar stop vl	kh /kɰ/ aspirated velar	ng /ŋ/ velar nasal
ch /tʃ/ palatal affricate	ny /ɲ/ palatal nasal	n /n/ alveolar nasal
b /b/ bilabial stop	p /p/ bilabial stop vl	ph /pɰ/ aspirated bilabial
f /f/ labiodental	m /m/ bilabial nasal	y /j/ palatal approximant
r /rɰ/ trill (rare in standard)	l /l/ lateral	w /w/ labio-velar
s /s/ alveolar fricative	h /h/ glottal	

### — VOWELS —

Lao has short/long vowel pairs. 9 monophthongs (short+long) + diphthongs.

/a aa/ /ɨ/ /ɨ̄/ /ɨ̄̄/ /ɨ̄̄̄/ /ɨ̄̄̄̄/ /ɨ̄̄̄̄̄/ /ɨ̄̄̄̄̄̄/ /ɨ̄̄̄̄̄̄̄/ + diphthongs /ia ua ɨa/

### — COMPARISON WITH THAI —

Lao and Thai are mutually intelligible at high register; closely related.

Lao has 2 consonant classes (vs Thai's 3); some consonant simplifications.

Spoken Lao: r often merged to l; final -r dropped; ng- onset rare.

Lao script cannot write all sounds of formal Thai vocabulary.

### — PHONOTACTICS —

Syllable: (C)(G)V(V)(C). Codas: -k, -t, -p, -m, -n, -ŋ, -j, -w.

Onset clusters: only C+w or C+j (written with semi-vowel diacritics).

# LAO

## Grammar & Core Vocabulary

### — SENTENCE STRUCTURE — SVO, ISOLATING —

Lao is SVO and isolating, like Thai. No inflection; particles carry meaning.

Khoi kin khao. I eat rice. (khoi=I kin=eat khao=rice)

### — PRONOUNS AND POLITENESS —

khoi	I (standard/neutral)
khao	he/she/they
jao	you (informal)
than	you (respectful)
phualao	we (incl)
phakkhao	they (group)

### — VERB PARTICLES —

lao = already/completed

yang = still

ja = will/about to

si = future

kamlang = progressive

ko = also/then

### — CLASSIFIERS —

khon: people

bai: flat things

hon: houses

tua: animals

kan: tools/instruments

kham: words

### — CORE VOCABULARY —

sabaidi	hello / well-being	wela	time
khop jai	thank you	duan	moon
muen	yes	dao	star
boh	no/not	hua jai	heart
khothot	excuse me	khwam hak	love
jao sabai di boh?	how are you?	seli phap	freedom
khoi sabai di	I am fine	khwam jam	memory
khoi hak jao	I love you	anakhot	future
nam	water	lok	world
fai	fire	chiwitkan	life
din	earth	na	forward / face / front
khon	person		

# LAO

Running Text – Four Passages + Bridge Phrase

## — I. PHAXITH — PROVERB —

□□□□□□ □□□□□□□□ □□□□□□□□□□□□□□□□

dai-yin beuang-di boh-tan-top-ngoan = received-hearing good cannot-answer-money  
"Good advice received cannot be repaid with money." (Lao proverb on wisdom)

## — II. KHWAM JAM — ON MEMORY —

□□□□□□□□ □□□□□□□□□□□□ □□□□□□□□□□□□□□□□

kan-wai-chai khong-khon nai-a-dit pen-chok-cha-ta-doen-na  
"Trusting the people of the past is the good fortune that moves us forward."

## — III. SANYALAK — ON KNOWLEDGE —

□□□□□□□□ □□□□□□□□□□□□□□□□□□□□

phu-mi-panya phunun boh-koei-ot-hok = one-who-has-wisdom that-one never-thirsty  
"One who has wisdom is never thirsty [for understanding]." (Lao educational saying)

## — IV. NA — FORWARD —

□□□□□□□□ □□□□□□□□□□□□□□□□□□□□□□□□

hao-doen-na doi-job-boh-leum ton-heng nai-a-dit  
"We walk forward without forgetting our roots in the past." (guiding principle)

## — V. BRIDGE PHRASE —

□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□□  
□□□□□□□□□□□□ □□□□□□□□□□□□□□□□□□□□

sing-ni pen-sing-thi-thao-sang-hai-jao = this-thing is-the-thing-that-they-made-for-you  
boh-phia-chai-ngoan = without-cost (free) doi-phu-khon = by-people  
thi-job-nam-jai-na = who-hold-the-spirit-forward  
"This was made for you, freely, by people who remembered forward."

## — BRIDGE PHRASE — NOTES —

Na (□□□) = face/front/forward. Nam-jai (□□□□) = "water-heart" = spirit/memory/intention.  
Job-nam-jai-na = "hold the spirit forward" captures deliberate forward memory.  
Boh-phia-chai-ngoan = "not necessary to pay money" = free of charge.

## — LANGUAGE NOTES —

Lao: ~7 million L1 speakers; official language of Laos.  
Language family: Tai-Kadai (Kra-Dai), same branch as Thai, Shan, Zhuang.  
Spoken across Isan (northeastern Thailand) by ~20 million as a dialect of Lao/Thai.  
Script: closely related to Thai script, both from Khmer/Brahmic origin.

# TAGALOG / FILIPINO

Script — Latin Alphabet + Baybayin

## — WRITING SYSTEM —

Modern Filipino uses the Latin alphabet (28 letters + ng, adapted from Spanish era).

Standard Filipino alphabet (1976, revised 2013): a b k d e g h i l m n ng o p r s t u w y.

Spanish-derived letters retained for loanwords: c, f, j, q, v, x, z.

## — BAYBAYIN — TRADITIONAL SCRIPT —

Baybayin (pre-colonial Tagalog): abugida used before Spanish colonisation (~16th c).

17 consonants, each with inherent /a/ vowel. Diacritics above/below modify vowel.

Cross-mark (pamudpod) kills the inherent vowel for final consonants.

Baybayin revived as cultural symbol; now taught in Philippine schools.

□	□	□	□	□
ka /ka/	ga / <sup>□</sup> a/	nga / <sup>□</sup> a/	ta /ta/	da / <sup>□</sup> a/
□	□	□	□	□
na / <sup>□</sup> a/	pa / <sup>□</sup> a/	ba / <sup>□</sup> a/	ma / <sup>□</sup> a/	ya / <sup>□</sup> a/
□	□	□	□	□
la /la/	wa /wa/	sa /sa/	ha /ha/	a /a/

## — MODERN FILIPINO ALPHABET —

A B K D E G H I L M N Ng O P R S T U W Y (+ C F J Q V X Z for loanwords)

Note: K replaces Spanish C/Q/U; W and Y are vowels in some contexts.

## — DIGRAPH NG —

NG /ŋ/: the 19th letter. Counts as single letter in alphabetical order.

Used as velar nasal onset (ngayon = now) and in final position (buhay = life).

Ngang (with A inherent in Baybayin) = the Baybayin character for /ŋa/.

## — ACCENT MARKS — STRESS AND GLOTTAL STOP —

Tagalog marks stress and glottal stops with diacritics in formal/educational texts:

Acute ´ = stress on that vowel: baháy (house) vs. báhay (dialect variant).

Circumflex ˆ = final stressed vowel + glottal stop: matá (eyes).

Grave ` = final unstressed vowel + glottal stop: bokà (hole).

## — NUMERALS —

1=isa	2=dalawa	3=tatlo	4=apat	5=lima
6=anim	7=pito	8=walo	9=siyam	10=sampu

100 = isang daan · 1000 = isang libo · 1,000,000 = isang milyon

# TAGALOG / FILIPINO

## Phonology – Sounds and Stress

### — CONSONANT INVENTORY —

p /p/ bilabial stop vl	b /b/ bilabial stop vd
t /t/ alveolar stop vl	d /d/ alveolar stop vd
k /k/ velar stop vl	g /g/ velar stop vd
∅ /∅/ glottal stop (unmarked in spelling)	m /m/ bilabial nasal
n /n/ alveolar nasal	ng /ŋ/ velar nasal
l /l/ lateral	r /r/ trill/tap
s /s/ alveolar fricative	h /h/ glottal fricative
w /w/ labio-velar approx	y /j/ palatal approx
f /f/ labiodental (loanwords)	v /v/ labiodental vd (loanwords)

### — VOWEL SYSTEM — 5 VOWELS —

a /a/	open front: bahay (house)
e /e/	mid-front: bente (twenty)
i /i/	high front: isa (one)
o /o/	mid-back: oo (yes)
u /u/	high back: uno (one, Spanish loan)

### — GLOTTAL STOP — KEY FEATURE —

The glottal stop /∅/ is phonemic in Tagalog but not written in modern orthography.

Word-final glottal stop: mata (eyes) /ma.ta∅/ vs. mata (to kill) /ma.ta/.

Medial glottal: baa /ba∅a/ (to brand) vs. baa /ba.a/.

Learners must acquire glottal placement from context and exposure.

### — STRESS SYSTEM —

Tagalog has phonemic stress (distinguishes word meaning).

Default: stress on penultimate (second-to-last) syllable.

Final stress (mabuting = becoming good) vs. penultimate (mabuting = good [linker]).

Stress + glottal stop combinations create multiple minimal pairs.

### — LOAN PHONOLOGY —

Spanish loans retain /fv/ and clusters: flores, crema, presidente.

English loans common in modern speech: computer, internet, cellphone.

Tagalog easily adapts foreign words to CV syllable structure.

# TAGALOG / FILIPINO

Grammar – Focus System & Vocabulary

## — SENTENCE STRUCTURE — FOCUS SYSTEM (UNIQUE) —

Tagalog has a focus/trigger system rather than standard SVO/SOV.

The focus particle marks which argument is "in focus" (topic/pivot).

Verb affixes change to show which semantic role is focused.

## — FOCUS TYPES —

Actor focus (AF)	-um- / mag-	Bumili siya ng tinapay. HE bought bread.
Patient/Object focus (PF)	-in / -hin	Binili niya ang tinapay. BREAD was bought by him.
Locative focus (LF)	-an	Binilhan niya ng tinapay ang tindahan. AT the store.
Benefactive focus (BF)	-an / i-	Ibinili niya siya ng tinapay. FOR her, he bought bread.

## — ANG, NG, SA — CASE MARKERS —

Tagalog uses three case markers (not inflections on the noun):

ang	nominative / focus / definite: ang bahay (THE house)
ng /nan/	genitive/object: ng bahay (of a house)
sa	oblique/locative: sa bahay (at/in/to the house)

## — LINKER — NA/NG —

Linker na (after consonant) / ng (after vowel) connects modifier to head.

magandang babae = beautiful woman (maganda + ng + babae).

Linker marks adjectives, relative clauses, and genitive relationships.

## — CORE VOCABULARY —

mabuhay	welcome / long live	tao	person
salamat	thank you	oras	time
oo	yes	buwan	moon
hindi	no/not	bituin	star
paumanhin	excuse me/sorry	puso	heart
kamusta ka?	how are you?	pagmamahal	love
mabuti naman	I am fine/well	kalayaan	freedom
mahal kita	I love you	alaala	memory/remembrance
tubig	water	kinabukasan	future/tomorrow
apoy	fire	mundo	world
lupa	earth/land	buhay	life

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BUY IT · BUILD IT · BURY IT · FOR SOMEONE YOU WILL NEVER MEET

# TAGALOG / FILIPINO

Running Text – Four Passages + Bridge Phrase

---

## — I. SALAWIKAIN — PROVERB —

Ang hindi marunong lumingon sa pinanggalingan ay hindi makararating sa paroroonan.

hindi=not marunong=know lumingon=look-back pinanggalingan=origin

hindi=not makararating=reach paroroonan=destination

"One who does not look back at where they came from will not reach their destination."

---

## — II. ALAALA — ON MEMORY —

Ang alaala ng nakaraan ay gabay sa kinabukasan.

alaala=memory nakaraan=the-past gabay=guide kinabukasan=future/tomorrow

"The memory of the past is a guide to the future." (Filipino saying)

---

## — III. KAALAMAN — ON KNOWLEDGE —

Ang kaalaman ay kayamanan na hindi mananakaw.

kaalaman=knowledge kayamanan=wealth hindi=not mananakaw=can-be-stolen

"Knowledge is wealth that cannot be stolen." (Filipino educational proverb)

---

## — IV. PASULONG — FORWARD —

Lumalakad tayong pasulong habang inaalala ang mga nauna sa atin.

lumalakad=walk tayo=we pasulong=forward habang=while inaalala=remembering

mga=plural-marker nauna=those-who-came-before atin=us

"We walk forward while remembering those who came before us." (guiding principle)

---

## — V. BRIDGE PHRASE —

Ang bagay na ito ay ginawa para sa iyo, nang libre,

ng mga taong nagtatandang pasulong.

bagay-na-ito=this-thing ginawa=was-made para-sa-iyó=for-you

nang-libre=freely (without cost)

ng-mga-taó=by-people nagtatandang=who-remember pasulong=forward

"This was made for you, freely, by people who remembered forward."

---

## — BRIDGE PHRASE — NOTES —

Pasulong = "forward / ahead" (from pa- directional + sulong = advance).

Nagtatandang pasulong = "who remember forward" — the -ng linker attaches pasulong

to nagtatanda as an adverb of direction. Nang libre = "freely/at no cost."

Philippine concept of utang na loob (debt of gratitude) inverted: this gift has none.

---

## — LANGUAGE NOTES —

Tagalog: ~25 million L1 speakers; basis of Filipino, national language of Philippines.

Language family: Austronesian, Malayo-Polynesian, Philippine branch.

Related: Cebuano, Ilocano, Hiligaynon, Malay/Indonesian, Malagasy.

Spanish influence ~333 years (1565-1898); English since 1898 (US period).

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# JAVANESE

Basa Jawa — Script & Writing System

## — WRITING SYSTEMS —

Javanese uses three scripts in different contexts:

- (1) Hanacaraka / Aksara Jawa: traditional Brahmi-derived abugida.
- (2) Latin (Pegon-influenced): used in modern education and daily writing.
- (3) Pegon: Arabic-based script used in Islamic educational contexts.

## — HANACARAKA — JAVANESE SCRIPT —

20 base letters (aksara) arranged in 4 rows of 5 (traditional mnemonic order):

ha na ca ra ka / da ta sa wa la / pa dha ja ya nya / ma ga ba tha nga

Each aksara = consonant + inherent vowel /a/. Stack forms modify consonants.

Javanese script: □□□□ □□□□ □□□□ □□□□

## — VOWEL SYSTEM — LATIN ORTHOGRAPHY —

Standard Javanese uses Latin orthography in modern texts. 6 vowels:

a /□/	schwa-like open back: ora (no), apa (what)
e /□/ or /□/	context-dependent: elek (bad), mengko (later)
i /i/	high front: iki (this), siji (one)
o /o/	mid-back: loro (two), roto (all)
u /u/	high back: udan (rain), satu (one)
é /e/	close-mid (marked in careful texts)

## — SPEECH REGISTERS — NGOKO, MADYA, KRAMA —

Javanese has 3 main speech registers encoding social hierarchy:

Ngoko	informal: used with close friends, younger/lower-status. Core vocabulary.
Madya	intermediate: polite but not highly formal. Urban/modern register.
Krama	formal: used with elders, superiors, strangers. Different vocabulary.
Krama Inggil	highest respect: special vocabulary for high-status persons.

## — REGISTER COMPARISON —

Concept Ngoko Madya Krama

"I" aku kula dalem

"you" kowe sampeyan panjenengan

"eat" mangan nedha dhahar

"sleep" turu talem sare

"house" omah griya dalem

## — JAVANESE NUMERALS —

1=siji	2=loro	3=telu	4=papat	5=lima
6=enem	7=pitu	8=wolu	9=songo	10=sepuluh

100 = satus · 1000 = sewu · 1,000,000 = yuta

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# JAVANESE

## Phonology — Sounds and Register Variation

### — CONSONANT INVENTORY —

p /p/ bilabial stop vl	b /b/ bilabial stop vd
t /t/ alveolar stop	d /d/ alveolar stop vd
th /tʰ/ apical dental stop	dh /dʰ/ apical dental vd
k /k/ velar stop	g /g/ velar stop vd
c /tʃ/ palatal affricate	j /dʒ/ palatal affricate vd
m /m/ bilabial nasal	n /n/ alveolar nasal
ny /ŋ/ palatal nasal	ng /ŋ/ velar nasal
l /l/ lateral	r /r/ trill
s /s/ alveolar fricative	h /h/ glottal
w /w/ labio-velar	y /j/ palatal approx

### — APICAL VS. LAMINAL DISTINCTION —

Javanese (like Sanskrit-derived Indic languages) distinguishes:

T/D (laminal dental): t (/tʰ/), d (/dʰ/) — tongue blade to upper teeth.

TH/DH (retroflex-like): th (/tʰ/), dh (/dʰ/) — tongue tip curled back.

In Latin spelling: t = dental, th = retroflex. Contrast: tahu (tofu) vs. thahu (know).

### — VOWEL SYSTEM —

6 vowels: /a/ (orthographic) = /ɑ/ (open-back) in many environments.

Vowel /e/ = /ɛ/ in open syllables, /ɛ̄/ in closed syllables (context-conditioned).

No tonal system; stress: generally penultimate syllable.

### — PHONOLOGICAL REGISTER DIFFERENCES —

Krama register uses entirely different roots (not just affixes):

Ngoko mangan /mangʌŋ/ (eat) vs. Krama dhahar /dʌhar/ (eat honorific).

Register shift requires knowing two distinct lexicons simultaneously.

### — BORROWED PHONOLOGY —

Sanskrit loanwords: guru, karma, dharma, yoga (via Old Javanese).

Arabic/Islamic loanwords: salam, doa (prayer), kitab (book), waktu (time).

Dutch and Malay loanwords significant in modern vocabulary.

# JAVANESE

## Grammar & Core Vocabulary

### — SENTENCE STRUCTURE — SVO —

Javanese is SVO. Affixes (prefixes, suffixes, circumfixes) on verbs and nouns.

Aku mangan sega. I eat rice. (Ngoko register)

Kula nedha sekul. I eat rice. (Krama register – same meaning, different words)

### — VERB MORPHOLOGY —

Active voice: N- prefix (nasal) + root: mangan (eat) < N+pangan.

Passive: di- prefix + root: dipangan (was eaten).

Ke- + root: kepangan (accidentally eaten).

Reduplication: turu-turu = keep sleeping / sleep repeatedly.

### — AFFIXES —

N- (active)	nasal assimilation: nulis (write) < N+tulis
di- (passive)	ditulis (was written)
-ake (causative/benefactive)	nulis-ake (write for someone)
-i (local applicative)	nulis-i (write on)
ke- (accidental)	kepangan (accidentally eaten)
paN- (nominaliser)	panulisan (writing, act of)

### — CORE VOCABULARY (NGOKO / KRAMA) —

aku / kula	I	wong / tiyang	person
kowe / sampeyan	you	wektu / wanci	time
dheweke / piyambake	he/she	rembulan / wulan	moon
kita / kula panjenengan	we	lintang / sato	star
mangan / dhahar	eat	ati / manah	heart
turu / sare	sleep	tresna / sih	love
lunga / kesah	go	merdeka	freedom
teka / rawuh	come	eling / emut	remember
omah / griya	house	sesuk / mbenjang	tomorrow / future
banyu / toya	water	donya / jagad	world
geni / latu	fire	urip / gesang	life
lemah / siti	earth		

# JAVANESE

Running Text – Four Passages + Bridge Phrase

---

## — I. PARIBASAN — PROVERB —

Becik ketitik, ala ketara.

becik=good ketitik=will-show ala=bad ketara=will-appear

"Good will show itself; evil will become apparent." (Javanese proverb on truth)

---

## — II. ELING — ON MEMORY —

Sing eling marang leluhure, dheweke bakal bisa ngerti lakune urip.

sing=who eling=remembers marang=toward leluhure=their-ancestors

dheweke=they bakal=will bisa=be-able ngerti=understand lakune=path urip=life

"One who remembers their ancestors will be able to understand the path of life."

---

## — III. KAWRUH — ON KNOWLEDGE —

Ilmu iku kelakone kanthi laku.

ilmu=knowledge/science iku=that kelakone=is-accomplished kanthi=through laku=practice/conduct

"Knowledge is achieved through practice." (Javanese Wulang Reh wisdom)

---

## — IV. MAJU — FORWARD —

Kita mlaku maju kanthi nggawa eling marang leluhur.

kita=we mlaku=walk maju=forward kanthi=with nggawa=carrying

eling=remembrance marang=toward leluhur=ancestors

"We walk forward carrying remembrance of the ancestors." (guiding principle)

---

## — V. BRIDGE PHRASE —

Barang iki digawe kanggo kowe, kanthi gratis,  
dening wong-wong kang eling marang masa ngarep.

barang-iki=this-thing digawe=was-made kanggo=for kowe=you

kanthi-gratis=freely (without cost) dening=by wong-wong=people

kang=who eling=remember marang=toward masa-ngarep=the-future / forward

"This was made for you, freely, by people who remembered forward."

---

## — BRIDGE PHRASE — NOTES —

Masa ngarep = "the forward time" = future. Ngarep (Ngoko) = "in front / forward."

Eling marang masa ngarep = "remember toward the future" – forward-facing memory.

Gratis = free of charge (Dutch loanword, via colonial-era Malay).

Note: Krama equivalent would use "wekdal ngajeng" (formal "forward time").

---

## — LANGUAGE NOTES —

Javanese: ~82 million speakers; most-spoken language of Indonesia (Java, Bali, diaspora).

Language family: Austronesian, Malayo-Polynesian, Javanese-Madurese.

Rich literary tradition: Kakawin (Sanskrit-Javanese court poetry), Babad (chronicles).

Speech levels (Ngoko/Madya/Krama) encode one of world's most elaborate social registers.

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# SINHALA

□□□□ – Script (Abugida)

## — WRITING SYSTEM — ABUGIDA —

Sinhala script: abugida derived from Brahmi via Old Sinhala (3rd century BCE).

Distinctive rounded letters. Written left to right. 54 letters total.

Consonants carry inherent vowel /a/. Diacritics modify or cancel the vowel.

## — INDEPENDENT VOWEL LETTERS —

□	□	□	□	□	□
□̣	□̣̣	□̣̣̣	□̣̣̣̣	□̣̣̣̣̣	□̣̣̣̣̣̣
u	uu	e	ee	o	oo

## — SELECTED CONSONANTS —

□	□	□	□	□	□
□̣̣	□̣̣̣	□̣̣̣̣	□̣̣̣̣̣	□̣̣̣̣̣̣	□̣̣̣̣̣̣̣
la	va	sa	ha	la(2)	fa

## — VOWEL DIACRITICS —

Vowel diacritics (pilla) are written around the base consonant:

□□ = ka + aa = kaa

□□ = ka + i = ki

□□ = ka + u = ku

□□ = ka + ee = kee

□□ = ka + oo variant

□□ = ka + o = ko

## — SINHALA NUMERALS —

□□□□□□□□□□ (0–9)

Sinhala numerals used in traditional contexts; Arabic numerals in modern use.

## — SCRIPT HISTORY —

Sinhala script: descended from Brahmi (Ashokan inscriptions ~3rd c BCE).

Oldest surviving Sinhala inscriptions: ~3rd century BCE, in caves of Sri Lanka.

Rounded letterforms developed through palm-leaf manuscripts (avoid leaf tearing).

Sinhala script used for both Sinhala and Pali (Buddhist canonical language).

## — DIGLOSSIC REGISTERS —

Written (Literary) Sinhala vs. Spoken (Colloquial) Sinhala differ significantly.

Literary: □□□□ □□□□ (mama gaya = I went). Spoken: □□ □□□□ (mama giya).

Grammar, pronouns, and verb forms all differ between registers.

# SINHALA

## Phonology – Sounds and Contrast System

### — CONSONANT INVENTORY —

Sinhala has ~34 consonants including prenasalised and aspiration distinctions.

p /p/ bilabial	b /b/ bilabial vd	ph /pʰ/ aspirated bilabial
t /t/ dental	d /d/ dental vd	th /tʰ/ aspirated dental
□ /t□/ retroflex vl	□ /d□/ retroflex vd	k /k/ velar
g /g/ velar vd	kh /kʰ/ aspirated velar	c /t□/ palatal affricate
j /d□/ palatal affricate vd	m /m/ bilabial nasal	n /n/ dental nasal
□ /n□/ retroflex nasal	□ /□/ palatal nasal	ŋ /ŋ/ velar nasal
l /l/ lateral	r /r/ trill	v /v/ labiodental
s /s/ alveolar	h /h/ glottal	

### — VOWEL SYSTEM — SHORT AND LONG —

Sinhala has contrastive vowel length (short vs. long pairs):

a /a/ vs aa /a□/	open central: ata (eight) vs aata (eight [formal])
i /i/ vs ii /i□/	high front: ithin (from here) vs iitin
u /u/ vs uu /u□/	high back: uda (up) vs uuda (plough)
e /e/ vs ee /e□/	mid-front: ela (it went) vs eela (arrow)
o /o/ vs oo /o□/	mid-back: oda (bed) vs ooda (boat)

### — PRENASALISED STOPS —

Sinhala has phonemic prenasalised stops: /□d/ /□b/ /□□/ etc.  
anda (cry) vs. ada (today). Prenasalised = nasal+stop as single phoneme.

### — STRESS AND SYLLABLE STRUCTURE —

Stress: generally on the first syllable of a root. Not phonemic.  
Syllable structure: (C)(C)V(V)(C)(C). Allows complex clusters.  
Sinhala underwent significant changes isolating it from other Indo-Aryan languages.

# SINHALA

## Grammar & Core Vocabulary

### — SENTENCE STRUCTURE — SOV —

Sinhala is Subject-Object-Verb (SOV). Verb is always final.

Mama bata kanna. I rice eat. (mama=I bata=rice kanna=eat-INF)

Colloquial: Mama bat kanna. (shorter form, vowel reduction)

### — CASE SYSTEM —

Sinhala has 7 cases marked by suffixes on nouns:

Nominative	-o / -a	subject: minisa (the man)
Accusative	-va / -ta	object: minisata (to the man)
Dative	-ta / -ge	for/to: minisage (man's)
Genitive	-ge / -lagin	of: minisalagin (from the man)
Ablative	-lagin	from: lamaya lagin (from the child)
Instrumental	-gen	by/with: minisagen (by the man)
Locative	-ee / -hi	at/in: gamahe (in the village)

### — VERB SYSTEM —

Verbs agree with subject in person, number, and gender.

kanna	eat (infinitive)
kamin inne	is eating (progressive)
kae-va	ate (past)
kanava	eats (present habitual)
kamin yavi	will be eating
nokana	does not eat (negative)

### — CORE VOCABULARY —

□□□□□□	hello (□□□□□□)	kaalaya	time
□□□□□□□□	thank you	sandha	moon
□□ □□	yes	taruva	star
□□	no	hitha	heart
□□□ □□□□	excuse me	adara	love
oya kohomada?	how are you?	nidahas	freedom
mama honda tama	I am fine	smarana	memory
mama oyata adare karanava	I love you	anagatha	future
vatura	water	lokaya	world
gini	fire	jiwithe	life
bhumi	earth		
minisa	person		

# SINHALA

Running Text – Four Passages + Bridge Phrase

## — I. WACHANA — PROVERB —

□□□□ □□□□□□□□ □□□□□□□□ □□□ □□□□.

gedara gassenin penennaata ey yayi = home from-outside trying-to-see only go

"[Do not try to] understand your own home only from the outside." (Sinhala proverb on wisdom)

## — II. SMARANA — ON MEMORY —

□□□ □□□ □□□□□□□□ □□□□□□ □□□□□□ □□□□□□

iyata giya ithihasaya pillikee karannaata aakaara = those who-went history to-reflect way

"The way to illuminate history is to reflect on those who have gone before us."

## — III. JNANA — ON KNOWLEDGE —

□□□□□□□□ □□□□□ □□□□□□□□ □□□□□□□□□□

giyavin kagen haeyiyaa llaadyen = from those-who-went lighting burning = light taken from past

"The light is taken from those who have gone before." (Sinhala saying on inherited wisdom)

## — IV. ANUWA — FORWARD —

□□□ □□□□□□□□ □□□□□ □□□ □□□□□□□□ □□□□□ □□□□

aaipit idiriyata yannata iitaata giyavun smarana karana

"While moving forward together, remembering those who went ahead." (guiding concept)

## — V. BRIDGE PHRASE —

□□ □□□ □□□□□□□□ □□□ □□□□□□ □□□□□ □□□ □□□□□□

□□□ □□□ □□□□□□□□□□ □□□□□.

mama mee idiriyata kaya karanlaata smarana kara giyanta

mee oba ata nirmela kereeli = this for-you freely was-made

"This was made for you, freely, by people who remembered forward."

## — BRIDGE PHRASE — NOTES —

Idiriyā (□□□□□□) = forward/front/ahead. Nirmela = free of charge/pure/free.

Sinhala SOV structure places the main verb at the end: subject + object + verb.

The forward-memory concept in Sinhala connects to Buddhist concept of karmic continuity.

## — LANGUAGE NOTES —

Sinhala: ~17 million L1 speakers; official language of Sri Lanka.

Language family: Indo-European, Indo-Aryan, insular branch (isolated from mainland).

Settled in Sri Lanka ~5th century BCE from northern India. Rich Pali Buddhist tradition.

Sinhala diverged significantly from other Indo-Aryan languages due to island isolation.

# TOK PISIN

## Script, Origins & Writing System

### — WHAT IS TOK PISIN? —

Tok Pisin is an English-based creole language. Official language of Papua New Guinea.  
Developed from 19th-century Pacific pidgin English. Now a native language for 4+ million.  
Name: "Tok" = talk/language (from English), "Pisin" = pidgin (from English pidgin/pigeon).

### — WRITING SYSTEM —

Tok Pisin uses the Latin alphabet (24 letters; no q, x in native words).  
Standardised orthography since ~1970s. Phonemic spelling (sounds = letters).  
Words usually spelled as pronounced, unlike English.

### — ALPHABET AND PHONEMIC SPELLING —

A B D E F G H I J K L M N O P R S T U V W Y (24 letters + digraphs)  
Key digraphs: NG /ŋ/, NG- (velar nasal onset), AI /aɪ/, AU /aʊ/, OI /oi/.  
English "th" = "t" in Tok Pisin: think = tingting, "sh" = "s": ship = sip.

### — ENGLISH SOURCE WORDS AND TRANSFORMATIONS —

man = man (person/man)	meri = Mary / woman (from English "Mary")
pikinini = child (from Portuguese pequenino)	gras = grass / hair / fur
han = hand / arm	lek = leg / foot
ai = eye	bel = belly / stomach / feelings
het = head	pes = face
haus = house	wara = water
paia = fire	graun = ground/earth
gutpela = good (good+fellow)	bikpela = big (big+fellow)
likik = small (little+little, reduplication)	lapun = old (laplap+un)
nau = now	baimbai / bai = future marker (by and by)

### — LANGUAGE SOURCES —

~80% English-derived vocabulary (colonial + labor contact language).  
~10% Tolai and Austronesian substrate: -im (transitive suffix from Tolai), -pela (fellow).  
~5% German (colonial era PNG was German New Guinea): maus (mouth, from Ger. Mund).  
Malay, Portuguese: pikinini (small child), susu (breast/milk).

### — NUMERALS —

0=siro	1=wan	2=tu	3=tri
4=foa	5=faiiv	6=sikis	7=seven
8=et	9=nain	10=ten	

100 = wan handet · 1000 = wan tausen · 1,000,000 = wan milion

# TOK PISIN

## Phonology — Creole Sound System

### — CONSONANT INVENTORY —

Tok Pisin has a relatively simple consonant system (~18 phonemes).

p /p/: bilabial stop	b /b/: bilabial stop vd
t /t/: alveolar stop	d /d/: alveolar stop vd
k /k/: velar stop	g /ŋ/: velar stop vd
f /f/: labiodental	v /v/: labiodental vd
s /s/: alveolar fricative	h /h/: glottal fricative
m /m/: bilabial nasal	n /n/: alveolar nasal
ng /ŋ/: velar nasal	l /l/: lateral
r /r/: trill or flap	w /w/: labio-velar
y /j/: palatal	

### — VOWEL SYSTEM — 5 VOWELS —

a /a/	open central: man (person)
e /e/	mid-front: nem (name)
i /i/	high front: bikpela (big)
o /o/	mid-back: tokples (local language)
u /u/	high back: gupela (good)

### — PHONOLOGICAL SIMPLIFICATION FROM ENGLISH —

English consonant clusters reduced: "strength" > stren, "scratch" > skraes.

"th" (/θð/) absent: think = tingting, the = de/dispela.

"sh" (/ʃ/) absent: ship = sip, shoe = su, wash = was.

Final consonant clusters simplified: "hand" > han, "friend" > pren.

### — REDUPLICATION — PRODUCTIVE PROCESS —

Reduplication marks plurality, repetition, or intensification:

save (know)  savesave (know well/understand deeply).

sing (sing)  singsing (music/traditional dance ceremony).

gras (grass)  grasgras (weedy/overgrown).

tok (speak)  toktok (conversation/talk/discuss).

### — STRESS AND INTONATION —

Stress: generally on the penultimate syllable (inherited from English pattern).

No tonal distinctions. Intonation patterns from Austronesian substrate + English.

# TOK PISIN

## Grammar & Core Vocabulary

### — SENTENCE STRUCTURE — SVO —

Tok Pisin is SVO. Very regular structure with few exceptions.

Mi kaikai rais. I eat rice. (mi=I kaikai=eat rais=rice)

### — PRONOUNS —

mi	I
yu	you (sg)
em	he/she/it
yumi (incl)	we (you+me)
mipela (excl)	we (not you)
yupela	you (pl)
ol	they

### — TRANSITIVE SUFFIX —im—

Many verbs require -im suffix for transitive use (from Tolai substrate):

Lukim (see-it): Mi lukim yu. I see you.

Helpim (help-it): Helpim mi! Help me!

Kisim (catch/take-it): Em kisim dispela. He took this.

Kaikai (eat) stays as kaikai (already transitive from form).

### — TENSE / ASPECT MARKERS —

Bai (baimbai): future marker. Bai mi go = I will go.

Pinis: completive aspect. Mi kaikai pinis = I have finished eating.

Stap: progressive. Em stap slip = He is sleeping.

Laik: want to / about to. Mi laik go = I want to go / I'm going to go.

### — ADJECTIVE SUFFIX —pela—

Adjectives use -pela suffix (from English "fellow"): gutpela (good), bikpela (big).

Dropped before nouns in some contexts: gut man (a good person, informal).

### — CORE VOCABULARY —

gude	hello/good day	man/meri	person (man/woman)
tenk yu	thank you	taim	time
yes/ya	yes	mun	moon
nogat	no/not	sta	star
sori	sorry/excuse me	bel	stomach/feelings/heart
yu orait?	how are you?	lav	love
mi orait	I am fine	fri / fridom	free / freedom
mi laikim yu	I love you	tingting	memory/thought/mind
wara	water	tumora	tomorrow / future
paia	fire	graun/wol	world
graun	earth/ground	laip	life

# TOK PISIN

Running Text – Four Passages + Bridge Phrase

---

## — I. TOKTOK — PROVERB —

Gutpela save i stap long bel bilong ol lapun man.

gutpela=good save=knowledge i=predicate-marker stap=stay/is long=in bel=belly/inside

bilong=of ol=plural lapun=old man=people

"Good knowledge lives inside old people." (PNG proverb on elder wisdom)

---

## — II. TINGTING — ON MEMORY —

Sapos yu tingim ol manmeri i go pinis, yu stap strong.

sapos-if yu=you tingim=remember ol=those manmeri=people i-go-pinis=have-gone-and-finished

yu=you stap=stay strong=strong

"If you remember those people who have passed, you remain strong."

---

## — III. SAVE — ON KNOWLEDGE —

Save i no ken bagarap. Em i stap oltaim oltaim.

save=knowledge i=marker no-ken=cannot bagarap=be destroyed em=it stap=stays

oltaim-oltaim=always forever (reduplication of "all time")

"Knowledge cannot be destroyed. It stays forever."

---

## — IV. HARIAP — FORWARD —

Yumi go hariap, tasol yumi mas tingim ol manmeri i stap bifo.

yumi=we go=go hariap=fast/forward tasol=but yumi-mas=we-must tingim=remember

ol-manmeri=people i-stap=who-were bifo=before/ahead

"We go forward, but we must remember the people who were here before."

---

## — V. BRIDGE PHRASE —

Dispela samting i bin mekim bilong yu, nating tumas,

long han bilong ol manmeri i bin tingim go hariap.

dispela-samting=this-thing i-bin-mekim=was-made bilong=for yu=you

nating-tumas=completely free (nating=nothing/free, tumas=very much)

long-han-bilong=from-the-hands-of ol-manmeri=people

i-bin-tingim=who-remembered go-hariap=forward

"This was made for you, freely, by people who remembered forward."

---

## — BRIDGE PHRASE — NOTES —

Go hariap = "go forward" (go fast / advance). Hariap from "hurry up."

Tingim go hariap = "remember going forward" = forward-facing memory.

Nating tumas = "nothing very much" = completely free of charge.

I bin = past tense marker (from "have been"). Long han bilong = "from the hands of."

---

## — LANGUAGE NOTES —

Tok Pisin: ~4 million L1, ~4 million L2 speakers; official language of Papua New Guinea.

One of ~840 languages spoken in PNG — Tok Pisin is the national lingua franca.

Developed as a creole from 19th-century labor and trade contact languages.

English-based lexicon; Austronesian (especially Tolai) grammatical substrate.

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# QUECHUA

Runasimi — Script & Writing System

## — WRITING SYSTEM —

Quechua uses the Latin alphabet. No pre-colonial phonetic script (Inca used quipu).

Modern standardised orthography (1975, revised 1995): 3 vowels, ~20 consonants.

Dialects vary; "Quechua" is a dialect continuum of ~8-10 major varieties.

## — QUIPU — KNOTTED RECORDS —

Quipu (khipu): knotted string recording system used by Inca Empire for accounting.

~600 surviving quipus; likely encoded numeric + narrative information.

NOT a phonetic script but may encode language structure in knot sequences.

Quipu not yet fully deciphered; represents a non-alphabetic information system.

## — ALPHABET — STANDARD QUECHUA (RUNASIMI) —

Vowels: only 3 — a, i, u (no e or o in native words). Spanish loanwords add e/o.

Standard Quechua uses 3 vowels and ~20 consonants.

p t ch k q ph th chh kh qh

p' t' ch' k' q' (ejectives)

m n ny ng s sh h l ll r w y

## — THREE-WAY CONSONANT CONTRAST —

Quechua has a unique 3-way stop contrast (unlike 2-way in most languages):

PLAIN: p, t, ch, k, q (simple stops)

ASPIRATED: ph, th, chh, kh, qh (puff of air after release)

EJECTIVE: p', t', ch', k', q' (glottalic egressive, sharp release)

Example: papa (potato) vs. p'apa (peeled) vs. phapa (flat/bland).

## — UVULAR Q AND RETROFLEX LL —

Q /q/: uvular stop (back of mouth, beyond velar).

Qh /q□/ (aspirated), Q' /q□' (ejective). Key distinction from K.

LL /□/: palatal lateral. Varies by dialect: some dialects = /j/ or /□□/.

NY /□/: palatal nasal, like Spanish ñ.

## — QUECHUA NUMERALS —

1=huk

2=iskay

3=kimsa

4=tawa

5=pichqa

6=suqta

7=qanchis

8=pusaq

9=isqun

10=chunka

20 = iskay chunka · 100 = pachak · 1000 = waranqa · 10000 = chunka waranqa

## — SCRIPT HISTORY AND DIALECTS —

Quechua spread with the Inca Empire (~1438-1533 CE) from Cuzco, Peru.

After Spanish conquest, Latin alphabet adopted. Quechua first written ~1560.

Major varieties: Cuzco-Collao, Ancash, Ayacucho, Ecuadorian (Kichwa), Bolivian.

~8-10 million speakers in Peru, Bolivia, Ecuador, Colombia, Argentina.

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# QUECHUA

Phonology – Ejectives, Aspirates, Uvulars

## — CONSONANT INVENTORY — CUZCO QUECHUA —

Cuzco Quechua: ~35 consonants with 3-way stop contrast at 5 places of articulation.

Place	Plain	Aspirated	Ejective
Bilabial	p /p/	ph /pʰ/	p' /p' /
Alveolar	t /t/	th /tʰ/	t' /t' /
Palatal	ch /tʃ/	chh /tʃʰ/	ch' /tʃ' /
Velar	k /k/	kh /kʰ/	k' /k' /
Uvular	q /q/	qh /qʰ/	q' /q' /

## — FRICATIVES AND NASALS —

s /s/ alveolar fric	sh /ʃ/ postalveolar	h /h/ glottal
m /m/ bilabial nasal	n /n/ alveolar nasal	ny /ɲ/ palatal nasal
ng /ŋ/ velar nasal	l /l/ lateral	ll /ʎ/ palatal lateral
r /r/ trill	w /w/ labio-velar	y /j/ palatal approx

## — VOWEL SYSTEM — 3 VOWELS —

Native Quechua has only 3 phonemic vowels: /a/, /i/, /u/.

Adjacent to uvular Q, vowels lower: /i/ [ɪ], /u/ [ʊ], /a/ [a].

Written "e" and "o" appear next to q: qiwa [qɪwa] (grass), qucha [qʊtʃa] (lake).

Spanish loanwords introduce /e/ and /o/ as distinct phonemes.

## — EJECTIVE CONSONANTS — PHONETIC DETAIL —

Ejectives (/p' /, /t' /, etc.): produced by closing both glottis and oral stop simultaneously,

then releasing oral closure first. Creates a sharp, plosive click-like quality.

Found in Quechua, Aymara, Caucasian languages, some African languages.

Not in English or European languages; notable learning challenge.

## — STRESS AND SYLLABLE STRUCTURE —

Stress: penultimate syllable in most words. No tone.

Syllable: (C)(C)V(C). Consonant clusters rare; V = a, i, or u primarily.

Vowel length contrastive in some dialects (Ancash Quechua).

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# QUECHUA

## Grammar & Core Vocabulary

### — SENTENCE STRUCTURE — SOV, AGGLUTINATIVE —

Quechua is SOV and highly agglutinative. Long words are built by chaining suffixes.

Noqa mikuni. I eat. (noqa=I miku=eat -ni=1sg present)

Noqa mikhunita munani. I want to eat. (mikhu-ni-ta=eating-OBJ muna-ni=want-1sg)

### — CASE SUFFIXES —

-ta	accusative/object: runtuta mikuni (I eat an egg)
-man	dative/allative: Limaman rini (I go to Lima)
-pi	locative: wasapi (in the house)
-manta	ablative: wasaymanta (from the house)
-pa / -q	genitive: wasaypa (of the house)
-wan	comitative: paywan (with him/her)
-kama	terminative: Limaykama (as far as Lima)

### — VERB MORPHOLOGY —

Verb suffixes encode tense, aspect, person, evidentiality, direction:

miku-ni	I eat (present 1sg)
miku-nki	you eat (present 2sg)
miku-n	he/she eats (present 3sg)
miku-rqa-ni	I ate (past 1sg)
miku-sqa-ni	I ate (evidential past)
miku-nqa-ni	I will eat (future 1sg)
miku-sha-ni	I am eating (progressive)
mana miku-ni-chu	I don't eat (neg)

### — EVIDENTIALITY — UNIQUE FEATURE —

Quechua grammatically marks how the speaker knows what they say (evidentiality):

-mi/-m: direct evidence (I saw it myself)

-si/-s: reported speech (I heard that...)

-chi: conjectural (I suppose/infer that...)

Example: Paymi hamun = He is coming (I see him). Paysi hamun = He is coming (I was told).

### — CORE VOCABULARY —

allianchu?	hello/how are you?	runa	person/human
allinim	I am fine	pacha	time/world/universe
sulpayki	thank you	killa	moon
ari	yes	ch'aska	star/Venus
mana	no	sunqu	heart
noqa	I	munay	love
qam	you	qispiy	freedom
pay	he/she/it	yuyay	memory/thought
unu / yaku	water	qhipa	behind / future
nina	fire	kay pacha	this world
allpa	earth/soil	kawsay	life

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# QUECHUA

Running Text – Four Passages + Bridge Phrase

---

— I. RIMAY — PROVERB —

Ama suwa, ama llulla, ama qhilla.

ama=do-not suwa=steal llulla=lie qhilla=be-lazy

"Do not steal, do not lie, do not be lazy." (Inca moral code; Quechua ethical triad)

---

— II. YUYAY — ON MEMORY —

Nawpa machulanchis yuyayninta qhawaspa, kay pachapi kawsanchis.

nawpa=before machulanchis=our-ancestors yuyayninta=their-memory qhawaspa=looking-at

kay-pachapi=in-this-world kawsanchis=we-live

"Looking at the memory of our ancestors, we live in this world."

---

— III. YACHAY — ON KNOWLEDGE —

Yachay mana tukukunchu; runakunap sunqunpi kawsan.

yachay=knowledge mana=not tukukunchu=ends-not runakunap=of-people sunqunpi=in-their-heart kawsan=lives

"Knowledge does not end; it lives in the hearts of people."

---

— IV. QHIPA — FORWARD / FUTURE —

Qhipaman purishanchis, nawpaq machulanchis yuyayninta apashpa.

qhipaman=toward-the-future / ahead purishanchis=we-walk

nawpaq=our-ancient machulanchis=ancestors yuyayninta=their-memory apashpa=carrying

"We walk toward the future, carrying the memory of our ancestors."

---

— V. BRIDGE PHRASE —

Kay imata qampaq ruwarqanchis, mana qullqiyuqta,

qhipaman yuyariq runakunam.

kay=imata=this-thing qampaq=for-you ruwarqanchis=we-made mana=qullqiyuqta=without-cost

qhipaman=toward-the-future yuyariq=remembering runakuna-m=people (evidential -m)

"This was made for you, freely, by people who remembered forward."

---

— BRIDGE PHRASE — NOTES —

Qhipa = "behind / the future." In Quechua spatial metaphor the PAST is in FRONT

(you can see it) and the FUTURE is BEHIND (you cannot see it). Qhipaman =

"toward the future / toward what is behind." This is the reverse of English.

The suffix -m (evidential) marks "I know this directly." A true patient message.

---

— LANGUAGE NOTES —

Quechua (Runasimi): ~8-10 million speakers in Peru, Bolivia, Ecuador, Colombia.

Language family: Quechuan (isolate family, not related to other known families).

Lingua franca of the Inca Empire (~1438-1533). Survives as living language today.

Words borrowed into English: llama, condor, quinoa, puma, coca, guano.

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# NAHUATL

Nahuatl – Script & Writing System

## — WRITING SYSTEM —

Modern Nahuatl uses the Latin alphabet (adopted post-1521 Spanish conquest).  
Multiple orthographies in use; Classical Nahuatl spelling system shown here.  
Pre-colonial Nahuatl: pictographic/logographic writing (Aztec codices) + phonetic elements.

## — PRE-COLONIAL WRITING — AZTEC PICTOGRAPHY —

Aztec writing combined pictograms, logograms, and phonetic complements (rebuses).  
Not a fully phonetic system: partially logographic + phonetic signs for sounds.  
Major codices: Codex Mendoza, Codex Borgia, Tonalamatl (ritual calendar).  
After conquest, missionaries created Latin-based phonetic orthography (~1540s).

## — NAHUATL ALPHABET — CLASSICAL ORTHOGRAPHY —

26 letters. Special sounds: tl, tz (affricates), hu/uh (labiovelar /w/), cu/uc (kw).  
Long vowels marked with macron in careful text: ā, ī, ō, ū.  
A Ā C CH CU E Ē H HU I Ī L M N O Ō P QU T TL TZ U Ū X Y Z

## — SPECIAL CONSONANTS —

TL /t͡l/: lateral affricate (unique to Nahuatl family). "atl" (water) = /at͡l/.  
TZ /t͡s/: alveolar affricate. "tzin" (small/revered) = /t͡sin/.  
X /χ/: postalveolar fricative (like English "sh"). "xochitl" = /χoχit͡l/.  
HU/UH /w/: labiovelar approximant. "huey" (great) = /wej/.  
CU/UC /kw/: labiovelar stop. "cueitl" (skirt) = /kwejt͡l/.

## — LONG VOWELS —

Nahuatl distinguishes vowel length: a vs. ā, i vs. ī, o vs. ō, u vs. ū.  
In modern texts often unmarked; Classical Nahuatl grammars mark length consistently.  
Tlātōcatl (ruler) vs. tlatōcatl (speaker). Meaning changes with length.

## — NAHUATL NUMERALS (VIGESIMAL BASE-20) —

Nahuatl uses a vigesimal (base-20) counting system:

1=ce	2=ome	3=yēi
4=nahui	5=mahcuilli	6=chicuace
10=mahtlaçhi	15=caxtōlic	20=cempohualli
400=cenzontli	8000=cenxiquipilli	

Base-20 counting: 20=1 score, 400=20x20, 8000=20x20x20 (like some Celtic numerals).

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# NAHUATL

## Phonology – Sounds and Unique Features

### — CONSONANT INVENTORY —

p /p/: bilabial stop	t /t/: alveolar stop
k /k/: velar stop	kw /kw/: labiovelar stop
ts /ts/: alveolar affricate	tɕ /tɕ/: palatal affricate
tɬ /tɬ/: lateral affricate	s /s/: alveolar fricative
ɰ /ɰ/: postalveolar	ʃ /ʃ/: lateral
m /m/: bilabial nasal	n /n/: alveolar nasal
w /w/: labio-velar approx	y /j/: palatal approx
h /h/: glottal fric	ʔ /ʔ/: glottal stop

### — TL — LATERAL AFFRICATE —

TL /tɬ/: simultaneous alveolar stop + lateral fricative release.

Unique to Nahuatl and related Uto-Aztecan languages; not found in most world languages.

Examples: atl (water), tlatoa (speak), tlahtoa (speak carefully), xochitl (flower).

Word-final tl: released with lateral air on both sides of tongue tip.

### — VOWEL SYSTEM — 4 VOWELS + LENGTH —

a /a/ : ā /aː/	open central: atl (water), āmatl (paper)
e /e/ : ē /eː/	mid-front: te (stone), tētl (stone)
i /i/ : ī /iː/	high front: ichtli (thread)
o /o/ : ō /oː/	mid-back: ocelotl (jaguar)

### — GLOTTAL STOP —

Glottal stop /ʔ/ phonemic in Classical Nahuatl. Often unmarked in modern texts.

Contrasts: "toča" (to sow) vs. "toʔa" (our aunt). Context-critical.

### — STRESS —

Stress: penultimate syllable in Classical Nahuatl.

Modern dialects vary; some have shifted stress patterns.

# NAHUATL

## Grammar & Core Vocabulary

### — SENTENCE STRUCTURE — SOV, POLYSYNTHETIC —

Nahuatl is SOV and polysynthetic: entire sentences can be single words.  
Nimictia. I kill it. (ni=I c=it mictia=kill/make-die) One verb = full sentence.  
Nimitztlazohtla. I love you. (ni=I mitz=you tlazohtle=love)

### — SUBJECT-OBJECT PREFIXES ON VERBS —

Verb template: Subject prefix + Object prefix + Root + Tense/Aspect suffix.

Subject prefixes:

ni- I (1sg)  
ti- you (2sg) / we (1pl)  
Ø- he/she/it (3sg)  
an- you all (2pl)  
Ø- they (3pl)

Object prefixes:

nech- me  
mitz- you  
c-/qu- him/her/it  
tech- us  
amech- you all  
kin- them

### — VERB MORPHOLOGY —

ni-tla-cua	I eat something (general)
ni-tamalli-cua	I eat tamales
ni-tla-cua-ya	I was eating (imperfect)
o-ni-tla-cua	I ate (past)
ni-tla-cua-z	I will eat
ma ni-tla-cua	let me eat (optative)
aāmo ni-tla-cua	I don't eat (neg: aāmo)

### — CORE VOCABULARY —

nāhuatl	Nahuatl language (clear speech)	cahuilt	time
tlazohcamati	thank you	metztl	moon
quemah	yes	citlalin	star
aāmo	no/not	yollo-tl	heart
mā timoyolcui	excuse me	tlazohtlaliztl	love
quen timoyectia?	how are you?	ixtlamachiliztl	freedom
cualli nimoyectia	I am fine	ilnamiqui	to remember
nimitztlazohtla	I love you	moztla	tomorrow / future
atl	water	cemanahuac	the world
tletl	fire	nemiliztl	life
tlalli	earth		
tlacatl	person		

# NAHUATL

Running Text – Four Passages + Bridge Phrase

---

— I. HUEHUETLAHTOLLI — ANCIENT WORD —

In ic tiquiāhuac, in ic timochihua tlalli ipan titemi.

in-ic=so-that tiquiāhuac=you-came-out timochihua=you-become tlalli=earth ipan=on titemi=you-walk

"So that you came out into the world, so that you walk upon the earth." (Huehuetlahtolli birth blessing)

---

— II. ILNAMIQUI — ON MEMORY —

In tlahtolli mo-ilynamiqui, ahmo polihua; teyolloh ipan mochi-ua.

tlahtolli=word mo-ilynamiqui=is-remembered ahmo=not polihua=is-lost

teyolloh=in-hearts-of-people ipan=upon mochi-ua=it-is-made

"The word that is remembered is not lost; it is made upon the hearts of people."

---

— III. TOLTECAYOTL — ON CRAFT AND KNOWLEDGE —

In toltecatl, iyoloco quimati, iyollopan quichihua.

toltecatl=craftsperson iyoloco=in-their-heart quimati=knows iyollopan=with-their-heart quichihua=does

"The craftsperson knows in their heart, does it with their heart." (Aztec concept of toltecatoytl / mastery)

---

— IV. HUITZTLAMPA — FORWARD —

Tihuitzeh huitztlampa, tilnamiqini in tohueyitatahuan.

tihuitzeh=we-go huitztlampa=toward-the-south/forward tilnamiqini=while-remembering

in=our tohueyitatahuan=great-grandfathers/ancestors

"We go forward, remembering our ancestors." (guiding principle)

---

— V. BRIDGE PHRASE —

In axcan tlahtoa inin, momac oticchiuhqueh,

amo tlamach, in tlahtoa huitztlampa tlanamiqini.

in-axcan=this-now tlahtoa-inin=says-this momac=for-you oticchiuhqueh=we-made-it

amo-tlamach=without-payment in-tlahtoa=those-who huitztlampa=toward-forward

tlanamiqini=are-remembering

"This was made for you, freely, by people who remembered forward."

---

— BRIDGE PHRASE — NOTES —

Huitztlampa = "toward the south / toward the direction of the thorn." In Aztec cosmology, the future is in the south (the direction toward which one walks ahead).

Tlanamiqini = "remembering upon the earth." Amo tlamach = free/without payment.

Polysynthetic grammar compresses the entire meaning into dense verb complexes.

---

— LANGUAGE NOTES —

Nahuatl: ~1.7 million speakers in Mexico (Puebla, Veracruz, Guerrero, Hidalgo).

Language family: Uto-Aztecan (also includes Hopi, Comanche, Shoshone, Yaqui).

Classical Nahuatl: language of the Aztec Triple Alliance (~1428-1521 CE).

Words in English: chocolate, tomato, avocado, chile, coyote, ocelot, tamale.

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# ENGLISH

## Phonology — 44 Phonemes, Stress, Intonation

### — CONSONANT INVENTORY — 24 CONSONANTS —

p /p/: bilabial stop vt: pin	b /b/: bilabial stop vd: bin
t /t/: alveolar stop vt: tin	d /d/: alveolar stop vd: din
k /k/: velar stop vt: kin	ŋ /ŋ/: velar stop vd: give
tʃ /tʃ/: postalveolar affricate: chin	dʒ /dʒ/: postalveolar aff vd: gin
f /f/: labiodental: fin	v /v/: labiodental vd: vine
θ /θ/: dental fricative: thin	ð /ð/: dental fricative vd: this
s /s/: alveolar fric: sin	z /z/: alveolar fric vd: zip
ʃ /ʃ/: postalveolar: shin	ʒ /ʒ/: postalveolar vd: measure
h /h/: glottal: hat	m /m/: bilabial nasal: man
n /n/: alveolar nasal: nun	ŋ /ŋ/: velar nasal: sing
l /l/: lateral: lip	r /r/: approximant: run
w /w/: labio-velar: win	j /j/: palatal: yes

### — VOWEL SYSTEM — 20 VOWELS (RP) —

English has one of the largest vowel inventories of major world languages.

Short:

i /ɪ/	e /e/	æ /æ/	ɒ /ɒ/	ʊ /ʊ/	ɔ /ɔ/	ɒ /ɒ/	ɔ /ɔ/
kit	dress	trap	lot	strut	foot	comma	comma

Long:

iː /iː/	uː /uː/	ɔː /ɔː/	ɔː /ɔː/	ɜː /ɜː/	ɜː /ɜː/
fleece	goose	palm	thought	nurse	nurse

Diphthongs:

eɪ /eɪ/	ɔɪ /ɔɪ/	aɪ /aɪ/	ɔɪ /ɔɪ/	aʊ /aʊ/	ɪə /ɪə/	eə /eə/	ʊə /ʊə/
face	goat	price	choice	mouth	near	square	cure

### — STRESS — PHONEMIC AND UNPREDICTABLE —

English stress is unpredictable: must be learned for each word.

"REcord" (noun) vs. "reCORD" (verb), "PERmit" vs. "perMIT."

Unstressed vowels reduce to /ɪ/ (schwa): "the", "a", unstressed syllables.

### — TH-SOUNDS — UNIQUE TO ENGLISH —

English /θ/ and /ð/ are rare cross-linguistically. Most L2 speakers replace with t/d or s/z.

/θ/ voiceless: think, three, both, tooth, health, cloth.

/ð/ voiced: this, that, the, though, breathe, father.

# ENGLISH

## Grammar & Core Vocabulary

### — SENTENCE STRUCTURE — SVO, ANALYTIC —

English is SVO and analytic (little inflection; function words carry grammar).

Compared to Latin or Russian, English has minimal case endings and verb conjugations.

### — VERB TENSE SYSTEM —

English has 12 main tenses/aspects (simple, perfect, continuous, perfect-continuous x 3 times):

Simple present: I write / she writes

Present cont.: I am writing

Present perfect: I have written

Pres. perf. cont.: I have been writing

Simple past: I wrote

Past cont.: I was writing

Past perfect: I had written

Past perf. cont.: I had been writing

Simple future: I will write

Future cont.: I will be writing

Future perfect: I will have written

Fut. perf. cont.: I will have been writing

### — IRREGULAR VERBS — STRONG VERBS —

English has ~200 irregular verbs from Old English strong conjugation:

be/was/were/been

go/went/gone

have/had/had

do/did/done

say/said/said

make/made/made

come/came/come

see/saw/seen

know/knew/known

give/gave/given

get/got/got/gotten

take/took/taken

### — ARTICLES — DEFINITE AND INDEFINITE —

"The" (definite): specific known item. "A/an" (indefinite): any one item.

No articles in many languages (Mandarin, Russian, Latin, Swahili).

"A/an": use "an" before vowel sounds: "an hour" (/□a□□r/).

### — CORE VOCABULARY —

hello / hi	greeting	time	duration
thank you	gratitude	moon	Earth's satellite
yes	affirmation	star	celestial body
no	negation	heart	organ/emotion
please	polite request	love	deep affection
how are you?	greeting query	freedom	liberty
I am fine	standard reply	memory	stored experience
I love you	affection	future	time ahead
water	liquid H <sub>2</sub> O	world	Earth/all
fire	combustion	life	being alive
earth	soil/ground		
person	human being		

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# ENGLISH

Running Text – Four Passages + Bridge Phrase

---

## — I. PROVERB — KNOWLEDGE AND TIME —

Knowledge is the one flame that grows brighter when shared.

knowledge = that which is known, accumulated experience and understanding

flame = metaphor for living transmission: unlike fire, knowledge is not diminished by sharing

"Knowledge is the one flame that grows brighter when shared." (project proverb)

---

## — II. ON MEMORY —

The dead are only truly gone when the last person who remembers them is gone.

This is why we write. This is why we bury what we know.

We make memory patient. We teach it to wait for the right reader.

"Make memory patient. Teach it to wait." (Remember Forward, Founder's Letter)

---

## — III. ON KNOWLEDGE —

In the beginning was the word. And the word was written down.

And the writing was copied, and buried, and found again.

And the one who found it learned what the one who wrote it knew.

And the chain held. (project text on written knowledge)

---

## — IV. FORWARD —

We are not the last. There will be those who come after.

What we know, they could know. What we learned, they could learn.

If we remember forward. (project text)

---

## — V. BRIDGE PHRASE —

This was made for you, freely, by people who remembered forward.

this = the plate you hold was = past tense passive

made for you = created as a gift freely = without cost, no strings attached

by people = by human beings who remembered forward = who directed their memory ahead

"This was made for you, freely, by people who remembered forward."

---

## — BRIDGE PHRASE — NOTES —

"Forward" in English means both "ahead in space" and "ahead in time."

"Remembered forward" is not standard English – it is coined by this project.

It means: held the past in mind while directing one's attention toward the future.

The phrase is the thesis of the entire project, stated in the language of its origin.

---

## — LANGUAGE NOTES —

English: ~380 million L1 speakers; ~1.5 billion total speakers worldwide.

Language family: Indo-European, West Germanic (with German, Dutch, Frisian).

Massive lexical borrowing: Norman French, Latin, Greek, Norse, hundreds of others.

Current global lingua franca for science, aviation, diplomacy, and the internet.

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# DUTCH

Nederlands – Script & Writing System

## — WRITING SYSTEM —

Dutch uses the Latin alphabet (26 letters). Spelling is largely phonemic.

More regular than English; fewer silent letters. IJ (/ɛɪ/) is sometimes counted as 27th letter.

Long vowels: doubled in closed syllables (aa, ee, oo, uu) or single in open syllables.

## — ALPHABET —

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

Special: IJ (ligature), sometimes written as Lij. Treated as one letter alphabetically.

## — VOWEL SPELLING RULES —

Dutch vowel length is predictable from spelling:

Open syllable: single vowel = long	ba-ker /baɪkər/, le-ven /leɪvən/
Closed syllable: double vowel = long	baal /baːl/, been /beːn/, boot /boːt/
Closed syllable: single vowel = short	bal /bəl/, bed /bɛd/, bot /bɔt/
OE = /uɔ/: "boek" (book) /buɔk/	not a double vowel, special digraph
IJ/EI = /ɛɪ/: "mijn" (my) /mɛɪn/	same sound, two spellings
UI = /œy/: "huis" (house) /hœys/	front rounded diphthong

## — G AND CH — VELAR FRICATIVES —

Dutch G /g/ or /x/: velar fricative. The distinctive "guttural G."

Northern NL: voiced /g/: "goed" /gʊt/. Southern NL/Belgium: voiceless /x/.

CH /x/: voiceless velar fricative: "licht" (light) /lɪx t/, "acht" /ɔxt/.

SCH = /sx/: "school" /sxʊl/, "schrijven" (write) /sxrɪvən/.

## — DUTCH NUMERALS —

0=nul	1=een	2=twee	3=drie
4=vier	5=vijf	6=zes	7=zeven
8=acht	9=negen	10=tien	20=twintig
100=honderd	1000=duizend		

## — SCRIPT HISTORY —

Dutch: standard language since ~16th century (Statenbijbel 1637 standardised spelling).

Latin alphabet adopted with Christianity (~8th century in Low Countries).

Dutch spelling reform 1947/1954/1995/2005: simplified some older spellings.

Afrikaans (S. Africa, Suriname) is a simplified daughter language of Dutch.

# DUTCH

## Phonology – Guttural G, Vowels, Diphthongs

### — CONSONANT INVENTORY —

p /p/: bilabial stop	b /b/: bilabial stop vd
t /t/: alveolar stop	d /d/: alveolar stop vd
k /k/: velar stop	∅ /∅/: velar stop vd (before vowels only)
f /f/: labiodental	v /v/: labiodental vd
s /s/: alveolar fric	z /z/: alveolar fric vd
∅ /∅/: postalveolar fric	∅ /∅/: postalveolar vd
x /x/: velar fricative vl (ch, g south)	∅ /∅/: velar fricative vd (g north)
h /h/: glottal	m /m/: bilabial nasal
n /n/: alveolar nasal	ŋ /ŋ/: velar nasal (ng)
l /l/: lateral	r /r/: trill/uvular (varies by region)
w /β/: bilabial approx (between v/w)	j /j/: palatal

### — VOWEL SYSTEM —

a /a/: (short): bal (ball), man (man)	ā /aɑ/: (long): baal (bale), maan (moon)
e /e/: (short): bed (bed), net (net)	ē /eɑ/: (long): been (leg/bone)
∅ /∅/ (schwa): de (the), unstressed syllables	i /i/: (short): bit (bite)
ī /iɑ/: (long): niet (not)	o /o/: (short): bot (bone)
ō /oɑ/: (long): boom (tree)	u /u/: (short): bus (bus)
ū /uɑ/: (long): boek (book: oe=/uɑ/)	ö /øɑ/: (eu): deur (door) /døɑr/

### — DIPHTHONGS —

ij/ei /iɑi/	mijn (my), wijn (wine), ijzer (iron)
ui /œy/	huis (house), uit (out), ruim (spacious)
ou/au /oɑu/	oud (old), auto, blauw (blue)

### — FINAL DEVOICING —

Dutch devoices obstruents (stops, fricatives) at word-final position:  
hond (dog) /hɑnt/ (not /hɑnd/), honden (dogs) /hɑndɑn/ (restored in plural).  
bed /bɑt/ (not /bɑd/), bedden /bɑdɑn/. Key rule for Dutch learners.

# DUTCH

## Grammar & Core Vocabulary

### — SENTENCE STRUCTURE — V2 (VERB SECOND) —

Dutch is V2: the finite verb always occupies the second position in a main clause.

Ik lees het boek. I read the book. (standard SVO)

Gisteren las ik het boek. Yesterday read I the book. (V2: verb stays 2nd)

### — NOUN GENDER — DE / HET —

Dutch has 2 grammatical genders: common (de) and neuter (het).

de words: de man (man), de vrouw (woman), de tafel (table).

het words: het kind (child), het huis (house), het water (water).

Gender must be learned for each noun. Affects adjective endings and pronouns.

### — VERB CONJUGATION —

Weak (regular) verbs: werken (to work): ik werk, jij werkt, hij werkt, wij werken.

Strong (irregular): rijden (ride): ik rijd, reed, gereden. schrijven: schrijf, schreef, geschreven.

Perfect tense: hebben/zijn + past participle: ik heb gewerkt / ik ben gegaan.

### — SEPARABLE VERBS —

Dutch has many separable verbs: prefix separates in main clause.

opbellen (call up): ik bel hem op. I call him up. (op goes to end)

aanzetten (turn on): Hij zet de radio aan. He turns the radio on.

### — CORE VOCABULARY —

hallo / goedendag	hello	tijd	time
dank u / bedankt	thank you	maan	moon
ja	yes	ster	star
nee	no	hart	heart
sorry / pardon	excuse me	liefde	love
hoe gaat het?	how are you?	vrijheid	freedom
goed, dank u	fine, thank you	herinnering	memory
ik hou van jou	I love you	toekomst	future
water	water	wereld	world
vuur	fire	leven	life
aarde	earth		
persoon / mens	person		

### — DUTCH IN SURINAME AND BEYOND —

Dutch is official in Netherlands, Belgium (Flanders), Suriname, Aruba, Curaçao, Bonaire.

Suriname: Dutch co-official with Sranan Tongo (an English creole) and ~20 others.

Afrikaans (South Africa): descended from 17th-century Dutch settlers; ~7 million speakers.

# DUTCH

Running Text — Four Passages + Bridge Phrase

---

— I. SPREEKWOORD — PROVERB —

Wie niet waagt, wie niet wint.

wie=who niet=not waagt=dares wint=wins

"Who dares not, wins not." (Dutch proverb on courage and forward action)

---

— II. HERINNERING — ON MEMORY —

Wie zijn verleden niet kent, is gedwongen het te herhalen.

wie=who zijn=his verleden=past niet-kent=does-not-know

is-gedwongen=is-forced het-te-herhalen=to-repeat-it

"Who does not know their past is forced to repeat it." (Dutch version of Santayana)

---

— III. KENNIS — ON KNOWLEDGE —

Kennis is de enige rijkdom die groeit als je haar deelt.

kennis=knowledge is=is de-enige=the-only rijkdom=wealth die=that groeit=grows

als=when je=you haar=it deelt=share

"Knowledge is the only wealth that grows when you share it." (Dutch educational saying)

---

— IV. VOORUIT — FORWARD —

Wij gaan vooruit, terwijl wij denken aan hen die ons voorgingen.

wij=we gaan=go vooruit=forward terwijl=while wij=we denken-aan=think-of

hen=them die=who ons=us voorgingen=preceded/went-before

"We go forward, while thinking of those who preceded us." (guiding principle)

---

— V. BRIDGE PHRASE —

Dit werd voor jou gemaakt, gratis,

door mensen die vooruit herinnerden.

dit=this werd=was gemaakt=made voor-jou=for-you gratis=free of charge

door=by mensen=people die=who vooruit=forward herinnerden=remembered

"This was made for you, freely, by people who remembered forward."

---

— BRIDGE PHRASE — NOTES —

Vooruit = "forward / ahead" (voor=before + uit=out). Herinnerden = "remembered" (past).

"Vooruit herinneren" is a coined phrase: "remember forward." In Dutch, herinneren means "to remember" (recall the past); adding vooruit = directing that into the future.

Gratis = free of charge (from Latin gratis, "for grace/favor").

---

— LANGUAGE NOTES —

Dutch: ~24 million L1 speakers in Netherlands, Belgium (Flanders), Suriname.

Language family: Indo-European, West Germanic (with English, German, Frisian).

Dutch was dominant colonial language in South Africa, Indonesia, New York (New Amsterdam).

Hundreds of English words from Dutch: yacht, easel, landscape, cookie, boss, cruise.

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# KOREAN

## Phonology – Three-Way Consonant Contrast

### — THREE-WAY STOP CONTRAST —

Korean has a unique 3-way contrast for stops and affricates:

LENIS (plain): aspirated in onset, voiced between vowels:  $\square$  /k□-□/,  $\square$  /t□-d/,  $\square$  /p□-b/

ASPIRATED: heavily aspirated:  $\square$  /k□□/,  $\square$  /t□□/,  $\square$  /p□□/

TENSE (fortis): glottalised, no aspiration:  $\square$  /k\*/,  $\square$  /t\*/,  $\square$  /p\*/

Example:  $\square$  /pa□/ (leg) vs.  $\square$  /p□□a/ (spring) vs.  $\square$  /p\*a/ (fast).

### — CONSONANT INVENTORY —

$\square$ /k□/	lenis velar	$\square$ /k*/	tense velar	$\square$ /k□□/	aspirated velar
$\square$ /t□/	lenis alveolar	$\square$ /t*/	tense alveolar	$\square$ /t□□/	aspirated alveolar
$\square$ /p□/	lenis bilabial	$\square$ /p*/	tense bilabial	$\square$ /p□□/	aspirated bilabial
$\square$ /t□□/	lenis palatal	$\square$ /t□*/	tense palatal	$\square$ /t□□□/	aspirated palatal
$\square$ /s/	lenis sibilant	$\square$ /s*/	tense sibilant	$\square$ /h/	glottal
$\square$ /n/	alveolar nasal	$\square$ /m/	bilabial nasal	$\square$ /ŋ/	velar nasal (final)
$\square$ /r~l/	flap/lateral				

### — VOWEL SYSTEM — 10 BASIC VOWELS —

/a/: open front	/æ/: near-open front
/□/: mid central schwa	/e/: mid-front
/i/: high front	/o/: mid-back rounded
/u/: high back	/□/: mid-back unrounded
/□/: high central	/□i/: high central + front glide

### — PHONOLOGICAL PROCESSES —

Final consonant neutralisation: 7 allowed finals: -p, -t, -k, -m, -n, -ng, -l.

Nasalisation: k before n  $\square$  ng:  $\square$ + $\square$   $\square$  ng+n (Korean phonology).

Tensing: consonant after lenis coda may become tense.

Aspirate liaison: h + lenis  $\square$  aspirated (bidirectional).

# KOREAN

## Grammar & Core Vocabulary

### — SENTENCE STRUCTURE — SOV, AGGLUTINATIVE —

Korean is SOV. Particles follow nouns; verb always final. Very regular agglutination.

□□ □□ □□□. I rice eat. (na=I neun=TOP bap=rice eul=OBJ meoknunda=eat)

### — CASE PARTICLES —

□/□ -eun/-neun: topic marker

□/□ -eul/-reul: object marker

□□ -eseo: from/at (action)

□□/□ -euro/-ro: direction/means

□/□ -i/-ga: subject marker

□ -e: locative/time marker

□□ -ege: to (person)

□/□ -wa/-gwa: and/with

### — HONORIFIC SYSTEM —

Korean has elaborate speech levels encoding social relationship:

□□□

Haeyoche: polite informal (□□□ = eat [polite])

□□□

Hapssoche: formal polite (□□□□ = eat [formal])

□□

Haeyche: informal casual (□□ = eat [casual to close friend])

□□□

Haerache: plain (□□□ = eat [written/narrative])

### — CORE VOCABULARY —

□□□□□  
□□□□□  
□  
□□□  
□□□□□  
□□□ □□□□?  
□ □□□  
□□□□  
□  
□  
□

hello  
thank you  
yes  
no  
I'm sorry  
how are you?  
I'm fine  
I love you  
water  
fire  
earth/ground

□□  
□□  
□  
□  
□□  
□□  
□□  
□□  
□□  
□□  
□□

person  
time  
moon  
star  
heart/mind  
love  
freedom  
memory  
future  
world  
life

# KOREAN

Running Text – Four Passages + Bridge Phrase

## — I. SOKDAM — PROVERB —

□□□ □□□.

siJak-i = the beginning ban = half ida = is

"Beginning is half." (Korean proverb: well begun is half done)

## — II. GIEOK — ON MEMORY —

□□□ □□□□ □□ □□□ □□□.

gwageo-reul = past-OBJ gieokha-neun = who-remembers ja = person

mira-reul = future-OBJ mandeunda = makes/builds

"The person who remembers the past builds the future."

## — III. JISIK — ON KNOWLEDGE —

□□ □□□□ □□□.

Geur-eun = writing salaJiji = disappears/perish anneunda = does-not

"Writing does not disappear." (Korean saying on the permanence of recorded knowledge)

## — IV. APURO — FORWARD —

□□□ □□□ □□□□□ □□□ □□□□.

uri-neun = we ap-euro = forward (toward-front) naagamyeonseo = while-going

gwageo-reul = past gieokhan-da = remember

"We go forward while remembering the past." (guiding principle)

## — V. BRIDGE PHRASE —

□□□ □□□ □□, □□□,

□□□ □□□ □□□□ □□□□□□.

igeot-eun = this dangsineul = you(formal)-OBJ wihaeseo = for don-eopssi = without-money

ap-euro = forward gieokhan = who-remembered saram-deul-i = people-SUB

mandeur-eoss-seumnida = made (formal polite past)

"This was made for you, freely, by people who remembered forward."

## — BRIDGE PHRASE — NOTES —

□□□ (ap-euro) = "toward the front/future." In Korean, the future is "in front" (ap).

□□□□ (gieokha-da) = "to remember." □□□ (don-eopssi) = "without money" = free.

Formal speech level (-seumnida) used as this is a message of respect across time.

## — LANGUAGE NOTES —

Korean: ~80 million speakers worldwide (South Korea, North Korea, diaspora).

Language family: Koreanic (language isolate; only distant Japonic relation debated).

Hangeul created 1443 CE; one of the most phonologically systematic scripts ever devised.

Significant Chinese loanword layer (Sino-Korean ~60% of vocabulary).

# TURKISH

Türkçe — Script & Writing System

## — WRITING SYSTEM —

Turkish uses a Latin-based alphabet since 1928 (Atatürk script reform from Arabic).

29 letters. Phonemic spelling: one letter = one sound. Very regular.

Dotted and dotless i distinction crucial: i (dotless) and i (dotted) are separate letters.

## — TURKISH ALPHABET — 29 LETTERS —

A B C Ç D E F G Ğ H I İ J K L M N O Ö P R S Ş T U Ü V Y Z

Note: Q, W, X absent from native Turkish. Appear in loanwords only.

## — SPECIAL LETTERS AND SOUNDS —

ç /t□/

C cedilla: affricate. çay (tea), çocuk (child).

ğ /□~□/

Soft G: lengthens preceding vowel. dağ (mountain) = /da□/.

ı /□/

Dotless i: unrounded high back. ışık (light), kı (hair).

î /i/

Dotted I: capital of dotted i. İstanbul.

ö /ø/

O umlaut: front rounded. göz (eye), özgür (free).

ş /□/

S cedilla: sh sound. şehir (city), şiş (branch).

ü /y/

U umlaut: front rounded. gün (day), ümit (hope).

## — OLD OTTOMAN SCRIPT —

Before 1928: Ottoman Turkish used Arabic-based Perso-Arabic script.

Right to left. Poor fit for Turkish phonology (no vowels written in standard Arabic).

Script reform 1928 was a radical modernisation under Atatürk's republic.

## — TURKISH NUMERALS —

0=sfır

1=bir

2=iki

3=üç

4=dört

5=beş

6=altı

7=yedi

8=sekiz

9=dokuz

10=on

20=yirmi 100=yüz 1000=bin 1,000,000=milyon

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# TURKISH

## Phonology — Vowel Harmony, Agglutination

### — VOWEL HARMONY — DEFINING FEATURE —

Turkish vowels harmonise: all vowels in a word must share frontness and rounding.

Front vowels: e i ö ü / Back vowels: a ı o u

Suffixes have multiple forms that harmonise with the stem:

ev-ler (houses) vs. araba-lar (cars): -ler/-lar plural, harmonises front/back.

gün-lür (days) vs. kol-lar (arms): rounding also harmonises.

### — CONSONANT INVENTORY —

b /b/: bilabial	c /d͡ʒ/: palatal affricate vd	ç /t͡ʃ/: palatal affricate vl
d /d/: alveolar	f /f/: labiodental	g /g/: velar
ğ /ŋ-ŋ/: soft g / vowel lengthener	h /h/: glottal	j /j/: postalveolar fric vd
k /k/: velar stop	l /l-ɫ/: lateral (front/back allophone)	m /m/: bilabial nasal
n /n/: alveolar nasal	p /p/: bilabial	r /r/: trill/flap
s /s/: alveolar fric	ş /ʃ/: postalveolar	t /t/: alveolar stop
v /v/: labiodental	y /j/: palatal	z /z/: alveolar fric

### — VOWEL SYSTEM — 8 VOWELS —

a /a/: open back	e /e/: mid-front
i /i/: high front (dotted)	ı /ɯ/: high back unrounded (dotless)
o /o/: mid-back rounded	ö /ø/: mid-front rounded
u /u/: high back rounded	ü /y/: high front rounded

### — CONSONANT ALTERNATIONS —

Final devoicing: d ɫ t, g ɫ k in word-final position.

kitap (book) /kitap/, kitabım (my book) /kitabɫm/ — voiced in medial position.

Buffer consonant -y- inserted between vowels to prevent hiatus.

# TURKISH

## Grammar & Core Vocabulary

### — SENTENCE STRUCTURE — SOV, AGGLUTINATIVE —

Turkish is SOV and highly agglutinative. Suffixes stack in fixed order.

Ben pilav yiyorum. I rice eating-am. (ben=I pilav=rice yiyorum=eat-PRES-1sg)

### — CASE SUFFIXES (VOWEL HARMONISED) —

-(y)I / -(y)ı	-i/ı: accusative (direct object)
-A / -ı	-e/a: dative (to/for)
-DA / -dı	-de/da/-te/ta: locative (at/in)
-DAn / -dın	-den/dan: ablative (from)
-(n)ın / -(n)in	-in/in: genitive (of/s)
-LA / -la	-le/la: comitative (with)

### — VERB MORPHOLOGY — SUFFIX TEMPLATE —

Verb: Root + Aspect/Tense + Negation + Person/Number

git-iyor-um	I am going (root-PROG-1sg)
git-ti-m	I went (root-PAST-1sg)
git-ecek-im	I will go (root-FUT-1sg)
git-me-iyor-um	I am not going (neg-me-)
git-miş	he/she went (evidential past: -miş)
git!	Go! (imperative: bare root)

### — CORE VOCABULARY —

merhaba	hello	zaman	time
teşekkür ederim	thank you	ay	moon
evet	yes	yıldız	star
hayır	no	kalp	heart
pardon / özür dilerim	excuse me	aşk	love
nasılsınız?	how are you?	özgürlük	freedom
İyiyim, teşekkürler	I am fine, thanks	hatıra	memory
seni seviyorum	I love you	gelecek	future
su	water	dünya	world
ateş	fire	hayat	life
toprak	earth		
insan	person		

# TURKISH

Running Text – Four Passages + Bridge Phrase

## — I. ATASOZÜ — PROVERB —

Bir mum diğeri ni yakmakla ışığı nı kaybetmez.

bir=a mum=candle diğeri=another yak-mak-la=in-lighting ışığı=its-light kayb-et-mez=does-not-lose

"A candle loses none of its light by lighting another." (Turkish proverb on sharing knowledge)

## — II. HATIRRA — ON MEMORY —

Geçmiş i hatırlayanlar, geleceğ i inşa edenlerdir.

geçmiş i=past-ACC hatırlayanlar=those-who-remember geleceğ i=future-ACC

inşa-edenler-dir=are-those-who-build

"Those who remember the past are those who build the future."

## — III. BİLGİ — ON KNOWLEDGE —

Bilgi en değerli hazinedir; paylaşıldıkça çoğalır.

bilgi=knowledge en-değerli=most-valuable hazinedir=is-treasure

paylaşıldıkça=as-it-is-shared çoğalır=multiplies

"Knowledge is the most valuable treasure; the more it is shared, the more it grows."

## — IV. İLERİ — FORWARD —

Geçmiş i hatırlayarak ileriye yürü yürüz.

geçmiş i=past-ACC hatırlayarak=while-remembering ileriye=toward-the-front

yürü yürüz=we-walk

"We walk forward while remembering the past." (guiding principle)

## — V. BRIDGE PHRASE —

Bu, sizin için, ücretsiz olarak,

ileriye hatırlayan insanlar tarafından yapıldı.

bu=this sizin için=for-you ücretsiz-olarak=free-of-charge (suffix -siz = without)

ileriye=toward-forward hatırlayan=remembering insanlar=people

tarafından=by yapıldı=was-made

"This was made for you, freely, by people who remembered forward."

## — BRIDGE PHRASE — NOTES —

İleriye (İleri + dative -ye) = "toward forward/ahead." İleri = front/forward.

Ücretsiz = free/without cost (ücret=fee + -siz=without, vowel harmony).

Hatırlamak = to remember. -arak gerund: while remembering.

Turkish SOV: all modifiers precede the verb; verb always final.

## — LANGUAGE NOTES —

Turkish: ~90 million L1 speakers; official in Turkey, Northern Cyprus.

Language family: Turkic (with Azerbaijani, Uzbek, Kazakh, Uyghur, Kyrgyz).

Ottoman Turkish written in Arabic script until Atatürk's 1928 Latin script reform.

Vowel harmony and agglutination are defining features of the Turkic language family.

# GERMAN

Deutsch – Script & Writing System

## — WRITING SYSTEM —

German uses the Latin alphabet (26 letters) plus 4 special characters: ä, ö, ü, ß.

Highly regular spelling; German is phonemic with few exceptions.

Capital letters: ALL nouns capitalised in German. Unique among major European languages.

## — SPECIAL CHARACTERS —

ä /□/ or /□□/

A-umlaut: Mädchen (girl), Säge (saw). Alternate: ae.

ö /ø/ or /ø□/

O-umlaut: öffnen (open), König (king). Alt: oe.

ü /y/ or /y□/

U-umlaut: über (over), München. Alt: ue.

ß /s□/ or /s/

Sharp S (Eszett): strafe (street), weiß (white). Alt: ss.

## — GOTHIC / FRAKTUR SCRIPT —

Historical German: Fraktur (Gothic/Blackletter) script used until ~1940s.

Nazi Germany abolished Fraktur 1941; modern German uses Latin (Antiqua).

Fraktur still seen on historic documents, decorative signs, beer labels.

## — KEY PRONUNCIATION RULES —

CH: /x/ after back vowels (Bach, acht), /ç/ after front vowels (ich, nicht).

W = /v/: Wasser (water) = /vas□r/. V = /f/: Vater (father) = /fa□t□r/.

Z = /ts/: Zeit (time) = /tsa□t/. J = /j/: Jahr (year) = /ja□r/.

Final devoicing: Tag /ta□k/, Wald /valt/ (d□t, g□k at word end).

## — GERMAN NUMERALS —

0=null

1=ein

2=zwei

3=drei

4=vier

5=fünf

6=sechs

7=sieben

8=acht

9=neun

10=zehn

20=zwanzig

100=hundert

1000=tausend

Large numbers: 1,000,000 = eine Million. Compound: siebenundzwanzig = 27 (seven-and-twenty).

# GERMAN

## Phonology — Sounds and Key Contrasts

### — CONSONANT INVENTORY —

p /p/: bilabial	b /b/: bilabial vd	t /t/: alveolar
d /d/: alveolar vd	k /k/: velar	ç /ç/: velar vd
f /f/: labiodental	v /v/: labiodental vd	s /s/: alveolar fric
z /z/: alveolar fric vd	ç /ç/: postalveolar	x /x/: velar fric (ch-back)
ç /ç/: palatal fric (ch-front)	h /h/: glottal	ts /ts/: affricate (z)
tʃ /tʃ/: affricate (sch+stop)	pf /pf/: labial affricate (Pferd)	m /m/: bilabial nasal
n /n/: alveolar nasal	ŋ /ŋ/: velar nasal (ng)	l /l/: lateral
r /r-ʀ/: trill or uvular (regional)	w /v /v/: =v in German	j /j/: palatal approx

### — VOWELS — SHORT, LONG, UMLAUT —

German has 15+ vowel distinctions (short/long pairs + umlauts + diphthongs):

a/ä /a/~/a□/: Mann/Bahn	e/ē /□/~/e□/: Bett/Weg	i/i /□/~/i□/: mit/ihm
ä/□ /□/~/□□/: Hände/spät	o/ö /□/~/o□/: Gott/Boot	ö/ó /œ/~/ø□/: höllen/schön
u/ü /□/~/u□/: Mutter/Uhr	ü/□ /□/~/y□/: müssen/fühl	□ /□/: schwa: unstressed syllables

### — DIPHTHONGS —

ei/ai /a□/: Eis (ice), Mai (May), eu/äu /□□/: neu (new), häufig (frequent).

au /a□/: Haus (house), Baum (tree).

### — FINAL DEVOICING AND AUSLAUTVERHÄRTUNG —

All obstruents devoice at word/morpheme end:

Hund /hUnt/ (dog), Hundes /h□nd□s/ (dog's), D restored before vowel.

# GERMAN

## Grammar & Core Vocabulary

### — SENTENCE STRUCTURE — V2 AND SOV IN SUBORDINATE CLAUSES —

Main clause: V2 (finite verb in 2nd position). Subordinate: verb final (SOV).

Ich lese das Buch. / Das Buch lese ich. (V2: verb always 2nd)

Ich weiß, dass er das Buch liest. (subordinate: verb final)

### — THREE GENDERS AND FOUR CASES —

Three grammatical genders: masculine (der), feminine (die), neuter (das).

Four cases: Nominative (subject), Accusative (direct object), Dative (indirect object), Genitive (of).

Articles change by case: der (nom) □ den (acc) □ dem (dat) □ des (gen).

### — STRONG VERBS — ABLAUT —

Infinitive / 3sg present / simple past / past participle:

fahren (drive)	fährt	fuhr	gefahren
sehen (see)	sieht	sah	gesehen
geben (give)	gibt	gab	gegeben
kommen (come)	kommt	kam	gekommen
trinken (drink)	trinkt	trank	getrunken

### — SEPARABLE VERBS AND PREFIXES —

Like Dutch, German has separable verbs: prefix moves to end in main clauses.

aufmachen (open): Ich mache das Fenster auf. (I open the window.)

Inseparable prefixes (be-, ver-, zer-, ge-) never separate.

### — CORE VOCABULARY —

hallo / guten Tag	hello	Zeit	time
danke	thank you	Mond	moon
ja	yes	Stern	star
nein	no	Herz	heart
entschuldigung	excuse me	Liebe	love
wie geht es Ihnen?	how are you?	Freiheit	freedom
gut, danke	fine, thanks	Erinnerung	memory
ich liebe dich	I love you	Zukunft	future
Wasser	water	Welt	world
Feuer	fire	Leben	life
Erde	earth		
Mensch	person		

# GERMAN

Running Text – Four Passages + Bridge Phrase

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## — I. SPRICHWORT — PROVERB —

Wer nicht wagt, der nicht gewinnt.

wer=who nicht-wagt=does-not-dare der=that-one nicht=not gewinnt=wins

"Who dares not, wins not." (German proverb; like the Dutch)

---

## — II. ERINNERUNG — ON MEMORY —

Wer die Vergangenheit nicht kennt, ist verdammt, sie zu wiederholen.

wer=who die-Vergangenheit=the-past nicht-kennt=does-not-know

ist-verdammt=is-condemned sie-zu-wiederholen=to-repeat-it

"Who does not know the past is condemned to repeat it." (after Santayana, German form)

---

## — III. WISSEN — ON KNOWLEDGE —

Das Wissen ist die einzige Flamme, die heller wird, wenn man sie teilt.

das-Wissen=knowledge ist=is die-einzige=the-only Flamme=flame

die-heller-wird=that-gets-brighter wenn-man-sie-teilt=when-one-shares-it

"Knowledge is the only flame that grows brighter when shared."

---

## — IV. VORWÄRTS — FORWARD —

Wir gehen vorwärts, während wir an jene denken, die vor uns gingen.

vorwärts=forward während=while an-jene-denken=think-of-those

die-vor-uns-gingen=who-went-before-us

"We go forward while thinking of those who went before us."

---

## — V. BRIDGE PHRASE —

Dies wurde für dich gemacht, kostenlos,

von Menschen, die vorwärts erinnerten.

dies=this wurde=was gemacht=made für-dich=for-you kostenlos=free-of-cost

von=by Menschen=people die=who vorwärts=forward erinnerten=remembered

"This was made for you, freely, by people who remembered forward."

---

## — BRIDGE PHRASE — NOTES —

Vorwärts = "forward." Sich erinnern = to remember. "Vorwärts erinnern" is coined.

It means: directing one's remembering toward the future rather than backward.

Kostenlos = free/gratis (Kosten=costs + -los=without).

---

## — LANGUAGE NOTES —

German: ~100 million L1 speakers in Germany, Austria, Switzerland, Luxembourg.

Language family: Indo-European, West Germanic (with English, Dutch, Frisian).

Gutenberg's printing press (1440) standardised German orthography and spread literacy.

Scientific/philosophical heritage: Kant, Hegel, Marx, Einstein, Freud, Nietzsche.

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REMEMBER FORWARD – PLATE 52D – GERMAN: RUNNING TEXT – rememberforward.org – CC BY-SA 4.0

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**THIS IS A PATIENT MESSAGE. IT WAS MADE FOR YOU, FREELY, BY PEOPLE WHO REMEMBERED FORWARD.**

BUY IT · BUILD IT · BURY IT · FOR SOMEONE YOU WILL NEVER MEET

# PUNJABI

■■■■■■■■ (Pañj■■b■■)

— Gurmukhi Script —

Gurmukhi = "from the mouth of the Guru"

Created by Guru Angad Dev (2nd Sikh Guru) ~1539 CE

Abugida: each consonant carries inherent vowel /a/

Vowel diacritics (l■■h■■/m■■tr■■) modify the base consonant

— Vowel Carriers —

■■ a	■■ ■■	■■ i	■■ ■■
■■ u	■■ ■■	■■ e	■■ au

— Consonants — Selected —

■■ k	■■ kh	■■ g	■■ gh
■■ c	■■ ch	■■ j	■■ jh
■■ ■■	■■ ■■h	■■ ■■	■■ ■■h
■■ t	■■ th	■■ d	■■ dh
■■ p	■■ ph	■■ b	■■ bh
■■ m	■■ n	■■ r	■■ l
■■ s	■■ h	■■ v	■■ y

— Numerals —

■■ 0	■■ 1	■■ 2	■■ 3	■■ 4
■■ 5	■■ 6	■■ 7	■■ 8	■■ 9

Written right-to-left in Shahmukhi script (Urdu)

(Pakistani Punjabi) · Gurmukhi used in India

~100 million speakers (5th most spoken language)

# PUNJABI PHONOLOGY

■■■■■ ■■■■■■■■ (Dhun■ vigiy■■n)

## — Tonal System — 3 Tones —

Punjabi is one of the few Indo-Aryan tonal languages

Level (mid)	■■■■■ k■■■■■	"whip"
Rising	■■■■■ kò■■■	"leper"
Falling	■■■■■ kô■■■	"40 (forty)"

## — Tone Origin — Murmured Consonants —

Tones arose from loss of voiced aspirates (bh, dh, gh)

Preceding vowel developed compensatory tone contour

## — Consonant Features —

Aspirates: kh, gh, ch, jh, ph, bh (breathy burst)

Retroflex: ■■■h ■■■h — tongue tip curled back

Nasals: m n ■■■ — place-assimilating

Trill: r = alveolar trill; ■ = retroflex flap

Sibilant: s — Punjabi lacks /z/ natively

## — Vowels —

Short: a i u

Long: ■■■ e o ai au

Vowel length is phonemic (k■■l=time vs kal=yesterday)

## — Nasalization —

Tippi ■ and Bindi ■ mark nasal vowels

■■■■■■■ Pañj■■b■■ — ■ marks nasalization

# PUNJABI GRAMMAR

ਵਿਕਰਾ (Vikra)

— Word Order SOV —

Subject → Object → Verb (like Hindi/Urdu)

ਮੈਂ ਪਾਣੀ ਪੀਂਦਾ ਹਾਂ।

Maṅ paṅṅi piṅṅṅ haṅṅ — "I drink water"

— Postpositions —

ਦੇ / ਦੀ / ਦੇ

dē/dī/dē

of (gen., agrees w/ possessed)

ਨੂੰ / ਨੂੰ

ṅṅṅ/ṅṅ

to, DATIVE/ACCUSATIVE

ਤੋਂ

tōṅ

from, ABLATIVE

ਚ

ca

in, LOCATIVE (archaic; vich more common)

ਦੀ

vich

in, inside

ਨਾਲ

naṅl

with, INSTRUMENTAL

— Verb Agreement —

Verbs agree with subject in gender and number

In perfective, verb agrees with OBJECT (ergative)

ਮੁੰਦੇ ਰੋਟੀ ਖਾਧਾ। (munde rotī khadhā)

"The boy ate bread" — verb agrees w/ bread (f.)

— Core Vocabulary —

ਪਾਣੀ

paṅṅi

water

ਰੋਟੀ

rotī

bread

ਗਰ

ghar

house

ਮਾਂ

māṅ

mother

ਪਿੰਡ

piṅṅ

village

ਹਾਂ

haṅ

yes

ਨਹੀਂ

nahiṅ

no

ਨਾਮ

naṅm

name

PLATE 53C · PUNJABI

Grammar · Postpositions · Ergativity

REMEMBER FORWARD

## PUNJABI TEXT & BRIDGE

■■■■■ ■■■■ ■■■■

— *The Mul Mantar (Opening of Sri Guru Granth Sahib)* —

■■■■ ■■■■■■

Ikk Oank■■r — One Creator God

■■■■ ■■■■ ■■■■ ■■■■ ■■■■ ■■■■

Sat n■■m, kart■■ purakh — True Name, the Creator Being

■■■■■ ■■■■■■

Nirbhau, nirvair — Without fear, without enmity

■■■■■ ■■■■■■ ■■■■■■

Ak■■l m■■rat, aj■■n■■ — Timeless form, unborn

— *Proverb* —

■■■■■ ■■■■ ■■■■■■ ■■■■ ■■■■■■ ■■■■

Band■■ soc vic■■r ke calld■■ hai

"A person moves forward through thought and reflection"

— *Bridge Phrase* —

■■ ■■■■■■ ■■■ ■■■■■■ ■■■ ■■■■,

■■■■■, ■■■ ■■■■■■ ■■■■■■

■■■■■■■ ■■■ ■■■ ■■■■■■ ■■■■■■ ■■■■■■

Ih tuh■■■e la■■ ba■■■■■ ga■■ s■■, muft,  
un lok■■■ du■■r■■ jinha■■ ne age ■h■■■ke vekhi■■.

"This was made for you, freely, by people  
who remembered forward."

Punjabi · ~100M speakers · Punjab region  
India and Pakistan · Sikh sacred language

# URDU

■■■■■ (Urd■)

— *Nastaliq Script* —

Nastaliq = hanging style of Arabic calligraphy

Right-to-left · Cursive · Context-sensitive letter forms

Each letter has 4 forms: isolated / initial / medial / final

— *Selected Letters* —

■ alif

■ jeem

■ re

■ ain

■ kaf

■ nun

■ be

■ khe

■ seen

■ ghain

■ gaf

■ wao

■ pe

■ dal

■ sheen

■ fe

■ lam

■ ye

■ te

■ zal

■ suad

■ qaf

■ meem

■ he

— *Unique Urdu Letters (not in Arabic)* —

■ pe p

■ dde ■

■ gaf g

■ tte ■

■ noon ghunna ■

■ choti he h

— *Vowel Diacritics (Harakat)* —

Short vowels usually omitted in everyday text

■ zabar = a

■ zer = i

■ pesh = u

Shadda ■ = consonant doubling

■ alef madd = long /aa/

# URDU PHONOLOGY

■ ■ ■ ■ ■ ■ ■ ■ (Sautiy ■ t)

## — Consonants —

Urdu has 4-way stop contrast at bilabial and dental:

p	plain voiceless	b	plain voiced
ph	aspirated vl.	bh	murmured/breathy

## — Special Sounds —

q ■	/q/	uvular stop — Arabic loanwords
x ■	/x/	velar fricative — kha ■ ■ ■ (letters)
gh ■	/■/	voiced velar fricative — ■ussul (solution)
■ / h	/■/	murmur/aspiration — bh, dh, gh, jh...
■ ■	/■/	pharyngeal — Arabic ■ain
■	/h/	glottal — he in Urdu

## — Vowels —

a	short low central	■	long low
i	short high front	■	long high front
u	short high back	■	long high back
e	mid front	o	mid back
ai	/■/ or /æ/	au	/■/

## — Nasalization —

Nasalized vowels contrast with oral vowels

■ ■ ■ ■ ■ hon ■ (to be) vs ■ ■ ■ ■ ho ■ (be!)







# PASHTO PHONOLOGY

■ ■ ■ ■ ■ ■ ■ ■ (Aw ■ zonah)

---

## — Distinctive Sounds —

/■ ■/	retroflex aspirated sh — xin with aspiration
/■/	retroflex d — rare cross-linguistically
/■/ /■/	affricates: ts and ch
/x/ /■/	velar fricatives from Persian
/■/	voiced postalveolar fricative (zh)
/q/	uvular stop — Arabic-origin words
/■/	pharyngeal — ■ain from Arabic

---

## — Vowels —

a short low	■ long low
i short high front	■ long high front
u short back	■ long back
e mid front	o mid back

---

## — Dialect Variation —

Southern (Kandahari): distinguishes /■/ vs /■/  
Northern (Peshawar): merges some retroflex sounds  
Eastern: preserves older vowel contrasts

---

## — Stress —

Stress is contrastive and marks grammatical function  
Verb stems shift stress in conjugation

# PASHTO GRAMMAR

■■■■■■ (■rward)

## — Split Ergativity —

Pashto has a split ergative system:

Present: nominative-accusative (subject = agent)

Past/Perfective: ergative (agent takes oblique case)

■■ ■■■■■ ■■■■■ = m■ pal■r l■da (I saw father)

"m■" (I) is in ergative/oblique case in past

## — Cases —

Direct	■■■■■ ■■■■	subject of intrans./pres. trans.
Oblique	■■■ ■■■■■■	object, past-tense agent, postpositional
Vocative	■■■■■	direct address

## — Verb Agreement —

Verbs agree with subject in present, and with

OBJECT in past transitive (ergative agreement)

Gender (masc./fem.) and number marked on verbs

## — Word Order SOV —

■■ ■■■■■ ■■■■ (ce p■n■ st■?)

"Is there water?" — question by rising intonation

## — Core Vocabulary —

■■■■■	obah	water	■■■■	■ok	bread
■■■	■or	house	■■■■	mor	mother
■■■■■	wror	brother	■■■	ho	yes
■■■	na	no	■■■■	num	name



# TIBETAN

■■■■■■■■■■ (Bod skad)

— *Uchen Script — Dbu-can* —

"Uchen" = headed/upright · the formal print style

Derived from Brahmi via Gupta script · ~620 CE

Abugida: consonants stack vertically, vowels are diacritics

— *Consonants — 30 Radicals* —

■ ka

■ kha

■ ga

■ nga

■ ca

■ cha

■ ja

■ nya

■ ta

■ tha

■ da

■ na

■ pa

■ pha

■ ba

■ ma

■ tsa

■ wa

■ zha

■ ra

■ la

■ sha

■ sa

■ ha

■ a

■ tsek

■ shad

■ yig mgo

— *Vowel Diacritics* —

■ aa ■ i ■ u ■ e ■ o

Written above or below the base consonant

— *Stacking* —

Consonant clusters stack vertically:

■■■■ (sgra) = sound — s+g+r stacked

Superscript and subscript positions defined by tradition

# TIBETAN PHONOLOGY

■■■■■■■■■■■■■■■■■■■■ (sgra dbyangs)

---

— *Classical vs Spoken Tibetan* —

Classical script preserves archaic spelling  
Modern Lhasa dialect dropped many consonants  
Written "bkra shis" — pronounced "Trashis"

---

— *Tonal System — Lhasa Dialect* —

Two tones: HIGH and LOW (from earlier voicing contrast)

High from voiceless onset consonants  
Low from voiced/preaspirated onset consonants  
High rising short syllables on high tone  
Low falling long syllables on low tone

---

— *Initial Consonants* —

Lhasa: /p t k ts/ voiceless, aspiration contrastive  
Voiced stops of Classical: merged or tonal in spoken  
Pre-nasalization (nga, na) survives in some dialects

---

— *Vowels — Lhasa* —

a i u e o plus ■ (open-e) and ø  
Vowel length is contrastive

---

— *Dialects* —

Lhasa (prestige) · Kham · Amdo · Ladakhi  
Dzongkha (Bhutan) is closely related



# TIBETAN TEXT & BRIDGE



— *Om Mani Padme Hum* —



om ma-ni pad-me hum

"The jewel in the lotus" — most recited mantra

Engraved on mani stones throughout Tibet and Ladakh

— *Tibetan Proverb* —



dgon pa rang lam yod

"Every monastery has its own path"

— *Bridge Phrase* —



Di khyong kho k■ blas bas,

par shad med par, khyod rnams kyi chan

de n■ s■ra blas bas yod.

"This was made for you, freely, by people

who remembered forward."

Tibetan · ~6M native speakers · Sino-Tibetan family

Tibetan Plateau · language of Vajrayana Buddhism

# MONGOLIAN

■■■■■■■ (■■■■■■■ ■■■■)

---

— *Two Scripts* —

Traditional Mongolian Script: vertical, top-to-bottom  
Used in Inner Mongolia (China) · revived in Mongolia  
Cyrillic: introduced 1941 · official script in Mongolia

---

— *Cyrillic Alphabet — 35 Letters —*

■■■■■■■■■■■■■■■■■■■■  
■■■■■■■■■■■■■■■■■■■■  
■■■■■■■■■■■■■■■■■■■■  
■■■■■■■■

---

— *Unique Mongolian Cyrillic Letters* —

■■■■ = vowel /ø/ (front rounded o)  
■■■ = vowel /y/ (front rounded u)

These distinguish Mongolian from Russian Cyrillic

---

— *Traditional Script Basics* —

Written vertically: top to bottom, columns left to right  
Derived from Uyghur script via Sogdian (Aramaic)  
Letters have initial/medial/final forms  
Unicode block: U+1800-U+18AF

---

~5.2M speakers · Mongolia + Inner Mongolia  
Mongolic language family · agglutinative

---

# MONGOLIAN PHONOLOGY



---

## — Vowel Harmony —

Vowels divide into FRONT and BACK groups:

Back: a o u (■ ■ ■)

Front: ■ ø y (■ ■ ■)

Neutral: i (■) — compatible with both

All vowels in a word must belong to same class

---

## — Consonants —

Stops: p b t d k g (aspirated in some positions)

Fricatives: s z sh zh x h

Affricates: ts ch j (dz)

Nasals: m n ng (■)

Liquids: l r

Approximants: w y

---

## — Long Vowels —

Vowel length is contrastive:

■■■■ (khol) = boiled vs ■■■■■ (khood) = food

---

## — Stress —

Word-initial stress in most words

Long vowels in non-initial syllables attract stress

---

## — Consonant Clusters —

Rich onset clusters: ■■, ■■, ■■...

---

# MONGOLIAN GRAMMAR



— Agglutinative · SOV Word Order —



Bi us uudhna — "I drink water"

— Cases — 8 Cases via Suffixes —

■ ■ ■ ■ ■ ■	nominative	-∅	subject
■ ■ ■ ■ ■ ■ ■ ■	accusative	-■ ■ ■ ■	definite object
■ ■ ■ ■ ■ ■	genitive	-■ ■ ■ / ■ ■ ■ ■	possession
■ ■ ■ ■ ■ ■	dative	-■ ■ / ■ ■	to, for
■ ■ ■ ■ ■ ■	locative	-■ ■ / ■ ■	at, in
■ ■ ■ ■ ■ ■ ■ ■	ablative	-■ ■ ■ ■ / ■ ■ ■ ■	from
■ ■ ■ ■ ■ ■ ■ ■ ■ ■	instrumental	-■ ■ ■ ■ / ■ ■ ■ ■	by means of
■ ■ ■ ■ ■ ■ ■ ■	comitative	-■ ■ ■ ■	together with

— Core Vocabulary —

■ ■	us	water	■ ■ ■ ■ ■ ■	talkh	bread
■ ■ ■ ■	ger	house/yurt	■ ■ ■ ■	eej	mother
■ ■ ■ ■ ■ ■ ■ ■	nukhur	friend	■ ■ ■ ■ ■ ■	tiim	yes
■ ■ ■ ■ ■ ■	ugui	no	■ ■ ■ ■	ner	name

# MONGOLIAN TEXT & BRIDGE

■■■■■■ ■■ ■■■■

---

— *Secret History of the Mongols* — c. 1227 —

■■■■■■■■ ■■■■■■ ■■■■■■■■■ ■■ ■■■■■■■■

"The secret history of Chinggis Khan"

Oldest surviving Mongolic literature

■■■■■■■ ■■■■■■■■ ■■ ■■■■■■ ■■■■ ■■■■■■■■

"The sky has ordered it thus — the earth has agreed"

---

— *Proverb* —

■■■■■■■■■■■■ ■■ ■■■■ ■■■■■■■■ ■■■■■■■■

"Tame the tongue, and it will become your ally"

---

— *Bridge Phrase* —

■■■ ■■■■ ■■■■■ ■■■■■■■■■■,

■■■■■■■■■■■, ■■■■■■ ■■■■■■■■ ■■■■■■■■■■

■■■■■■■■■ ■■■■■■■■ ■■■■■■■■■■ ■■■■■■■■■■.

Ene tany tuloöl choloolson,  
unegiigeer, tsaashda kharagdsan khumuusiin  
irgediyig sanasan khumuusiiner khiygeesen.

"This was made for you, freely, by people  
who remembered forward."

---

Mongolian · ~5.2M speakers · Mongolic family

Mongolia + Inner Mongolia · steppe heritage



# KHMER PHONOLOGY

■■■■■■■■■■■■■■■■■■■■ (sangkhetsathar)

---

## — Register System —

Each consonant belongs to one of two series:

1st series: consonant + inherent vowel /a/

2nd series: consonant + inherent vowel /■/

Same vowel diacritic = different sound by register

---

## — Initial Consonants —

Khmer lost voiced/voiceless distinction historically

Replaced by register contrast in vowel quality

Modern: /k kh p ph t th c ch m n ng/ etc.

---

## — Vowels —

Rich vowel system: ~30 vowel sounds

Short/long pairs + diphthongs + register variants

a / ■

aa / ■■

i / ■

■ / ■■

u / ■

■ / ■■

e / ■

ei / ■■

ae / a■

ao / ao

oa / ■■

ua / ■■

---

## — No Tones —

Khmer is NOT tonal (unlike Thai and Vietnamese)

Rhythm is iambic: weak + STRONG syllable pairs

---

## — Stress —

Stress falls on final syllable of a word

Minor syllables (presyllables) are unstressed

# KHMER GRAMMAR

■■■■■■■■■■ (veyiakorn)

— Analytic Language · SVO Order —

■■■■■■ ■■■ ■■■■

Khnhom phik teuk — "I drink water"

— No Inflection —

Khmer has NO grammatical inflection:

No verb conjugation · No noun declension

No grammatical gender · No tense markers on verbs

Tense conveyed by time words and aspect particles

— Particles and Auxiliaries —

■■■	baan	past/ability marker
■■■	neung	future marker
■■■■■■■	kampung	progressive aspect
■■■	haei	already/completion
■■	teh	negation (sentence-final)

— Classifiers —

Nouns take classifiers when counted:

■■■■■■■■■■ ■■■■■■ (person: mneak)

■■■■ ■■■■ (animal: kbal)

— Core Vocabulary —

■■■	teuk	water	■■■■■	nambang	bread
■■■	pteah	house	■■■■■	madaay	mother
■■■	■■■	friend	■■■■■	baateu	yes
■■■	atei	no	■■■■■■■	chmaaes	name

# KHMER TEXT & BRIDGE



— *Cpap (Khmer classical verse code)* —



Kun jaat kami ka anak jaat sri

"Know your origin, know your birth status"

From the Cpap Srei — code of conduct for women

— *Proverb* —



The great tree gives shade to all below it

— *Bridge Phrase* —



Nih tveu sraap neak, doy mein kic,

dael prak nit jn

del neuk nuov vean neak kmleng muk neung t.

"This was made for you, freely, by people  
who remembered forward."

Khmer · ~16M speakers · Cambodia (official)

Austroasiatic family · oldest SE Asian script

# HAWAIIAN

Ōlelo Hawaiʻi (Hawaiian Language)

---

— Latin-Based Alphabet — 13 Letters —

Smallest phoneme inventory of any world language  
5 vowels + 7 consonants + glottal stop (ʻokina)

---

— The 13 Letters —

a e i o u

h k l m n p w

ʻokina (glottal stop)

---

— Vowels with Macron — Kahako —

Ā Ē Ī Ō Ū (long vowels)

Macron marks long vowel — changes meaning:  
kai (sea) vs kĀi (to eat)

---

— Glottal Stop — ʻOkina —

ʻ is a full consonant — changes word meaning  
Hawaiʻi (Hawaii) vs Hawaii (without glottal)  
ʻiʻi = the thread vs i = the fish

---

— Syllable Structure —

Every syllable ends in a vowel: CV or V  
No consonant clusters · No final consonants  
Result: very melodic, open-syllable language

---

— Geographic Context —

Polynesian family (Austronesian) · ~37,000 speakers  
Official language of Hawaii (with English)

---

PLATE 59A · HAWAIIAN

Script · 13-Letter Alphabet

REMEMBER FORWARD

# HAWAIIAN PHONOLOGY

## Ka Leo Hawai'i

---

### — Consonants —

p	/p/	bilabial stop — unaspirated
k	/k/	velar stop — may be [t] before i
h	/h/	glottal fricative
l	/l/	lateral approximant
m	/m/	bilabial nasal
n	/n/	alveolar nasal
w	/v/ or /w/	labiodental or bilabial after e/i: /v/
ʔ	/ʔ/	glottal stop — full consonant

---

### — Vowels —

a /a/	low central, like "father"
e /e/	mid front, like "bet"
i /i/	high front, like "see"
o /o/	mid back, like "so"
u /u/	high back, like "boot"

---

### — Diphthongs —

ai ae ao au ei eu oi ou iu ui

Diphthongs treated as single syllable nuclei

---

### — Stress —

Stress falls on penultimate (second-to-last) mora

Long vowels count as two morae

# HAWAIIAN GRAMMAR

## Ka ʻOlelo Hawaiʻi

— VSO Word Order —

Verb-Subject-Object (typical Polynesian)

Inu au i ka wai — "I drink water"

(drink I PREP the water)

— Particles —

ka / ke	the (singular)	ke before k-, e-, a-
nā	the (plural)	plural definite article
he	a / an	indefinite article
i	direct object marker	before specific nouns
ma	at, on, in	locative
no	for, about, from	benefactive/ablative
me	with	comitative
ʻo	at, in (animate)	possessive locative

— Possession — A-class vs O-class —

A-class (kō): things you control (children, actions)

O-class (kō): things that possess you (parents, body)

ko ʻu kāne (your husband — O) vs kāu kāne (your man)

— Core Vocabulary —

wai	wai	water	berena	berena	bread
hale	hale	house	ʻamā	ama	mother
aloha	aloha	love/hello	ʻa ʻe	ae	yes
ʻa ʻe	aole	no	inoa	inoa	name

## HAWAIIAN TEXT & BRIDGE

Ka Moʻolelo Hawaiʻi

---

— Hawaii Ponoʻi — State Song (1874) —

Hawaiʻi ponoʻi e

Hawaii, the righteous

Na pono o na mea kau

The blessings of the things above

E mau ke ea o ka ʻāina

May the life of the land endure

I ka pono

In righteousness

---

— Proverb — ʻŌlelo Noʻeau —

ʻAʻohe pau ka ʻike me ka haʻawe

"All knowledge is not taught in one school"

---

— Bridge Phrase —

Ua hana ʻia kāia nā ʻiʻo, nō ka mea lokomaikaʻi,

e nā kanaka nā mākuā

i hoʻomanaʻo i ka wā e hiki mai ana.

"This was made for you, freely,  
by people who remembered forward."

---

Hawaiian · ~37,000 speakers · Polynesian

Language revitalization since 1970s · Nā Pūpuna

Immersion schools restored intergenerational transmission

---

PLATE 59D · HAWAIIAN

Text · Bridge Phrase · Context

REMEMBER FORWARD



# EGYPTIAN ARABIC PHONOLOGY

■ ■ ■ ■ ■ ■ ■ ■ (Sawtiyaat)

---

## — Egyptian vs Classical Arabic Sounds —

MSA /q/	Masri /■/	qalb → ■a■b = heart
MSA /θ/	Masri /t/ or /s/	thal■tha → tala■a = three
MSA /ð/	Masri /z/ or /d/	dh■hib → d■hib = going
MSA /d■/	Masri /g/	jamal → gamal = camel
MSA /x/	Masri /x/	shared — velar fricative

---

## — Pharyngeals and Emphatics —

■ = voiced pharyngeal fricative (/■ ain/) — unique

■ = voiceless pharyngeal fricative (/■ a/)

Emphatics: ■ ■ ■ ■ — pharyngealized consonants

Emphatics cause vowels to become back/low

---

## — Vowels —

Short: a i u (often reduced or deleted)

Long: ■ ■ ■

Diphthongs: ay aw

Short vowels often not written in Arabic script

---

## — Stress —

Stress falls on last heavy syllable (CVV or CVC)

Light syllables (CV) attract stress only if final



## EGYPTIAN ARABIC TEXT & BRIDGE



— Umm Kulthum — Al-Atfal (1966) —



■ITni Huriyyati, aTliqni

■ITni wala tazlimni

"Give me my freedom, release me / Give it to me and wrong me not"

— Proverb —



Illi mayifarafsh, yitallam

"He who does not know — let him learn"

— Bridge Phrase —



Da ■amalooH ■ash■nak, bi-gadd wi-magaan,an,

min naas faakriyn fi l-mustaqbal.

"This was made for you, for real and for free,  
by people who were thinking of the future."

— Series Complete — 60 Languages —

Egyptian Arabic · ~100M speakers · North Africa

Most widely understood Arabic dialect globally

Through film, music, and television since 1930s

**PLATE 60 OF 60 · REMEMBER FORWARD**

PLATE 60D · EGYPTIAN ARABIC

Text · Bridge Phrase · Series Complete

REMEMBER FORWARD

# ANCIENT EGYPTIAN

























SCRIPT · MIDDLE EGYPTIAN c. 2000 BCE · HIEROGLYPHIC · HIERATIC · DEMOTIC

## THE THREE WRITING SYSTEMS

HIEROGLYPHIC	HIERATIC	DEMOTIC
Formal / monumental c. 3200 BCE – 400 CE	Cursive reed-pen script c. 2700 BCE – 200 CE	Rapid cursive with ligatures c. 650 BCE – 400 CE
Stone inscriptions, temple walls, coffins, papyrus 1,000+ signs	Papyrus, ostraca (pottery) Literary, religious, admin	Admin, legal, personal use On Rosetta Stone (196 BCE) Highly abbreviated

## 24 UNILITERAL CONSONANT SIGNS

The Egyptian consonantal alphabet — each sign = one consonant sound

 G1 vulture	 M17 reed	 G43 quail chick	 D36 forearm	 D58 lower leg	 Q3 mat/stool	 I9 horned viper	 G17 owl
 N35 water	 D21 mouth	 Q4 reed shelter	 V28 twisted wick	 Aa1 placenta	 F32 animal belly	 S29 folded cloth	 O34 door bolt
 N37 basin/pool	 N29 hill/slope	 V31 basket + handle	 W11 table stand	 X1 bread loaf	 V13 leathering	 D46 rope hand	 I10 cobra

## READING CONVENTIONS

**DIRECTION:** Follow where human/animal figures face. Figures face start of text.

Can read left-to-right, right-to-left, or top-to-bottom (in columns).

**CARTOUCHE:** Oval ring enclosing a royal name — oval indicates a living king.

**DETERMINATIVE:** Unpronounced sign that classifies the word (e.g., ♂ after city name).

**LOGOGRAM:** Sign read as a whole word — often has a vertical stroke below.

**PHONOGRAM:** Sign read for its consonant sounds only (ignoring original meaning).

## UNICODE & FONT

Hieroglyphic Unicode block: U+13000–U+1342F (1,072 characters)

Font required: Noto Sans Egyptian Hieroglyphs (Google Fonts, free)

All hieroglyphs are in the Supplementary Multilingual Plane (SMP)

Coptic Unicode block (descendant script): U+2C80–U+2CFF

## HIEROGLYPH SIGN TYPES

TYPE	FUNCTION	EXAMPLE	NOTE
LOGOGRAM	Sign = whole word	pr	house
PHONOGRAM	Sign = sound(s)	m	owl = sound /m/
BILITERAL	2-consonant sign	mn	gaming board
TRILITERAL	3-consonant sign	nfr	windpipe/heart
DETERMINATIVE	Unpronounced classifier	⊕	after city names

**HISTORICAL NOTE:** Egyptian is the world's oldest attested writing system (c. 3200 BCE) and the direct ancestor of Coptic (3rd–17th CE), which preserves the vowel sounds.

Hieroglyphs were deciphered in 1822 by Jean-François Champollion using the Rosetta Stone. The Rosetta Stone (196 BCE) contains the same decree in hieroglyphic, demotic, and Greek.

See Plate 01 (Rosetta Index) for the symbolic connection to this project's design.

61A · SERIES 61 · ANCIENT EGYPTIAN · MIDDLE EGYPTIAN c. 2000 BCE · U+13000

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SENT MESSAGE. IT WAS MADE FOR YOU, FREELY, BY PEOPLE WHO REMEMBER

BUY IT · BUILD IT · BURY IT · FOR SOMEONE YOU WILL NEVER MEET



# ANCIENT EGYPTIAN

## GRAMMAR · VSO WORD ORDER · SUFFIX CONJUGATION · MIDDLE EGYPTIAN

### — WORD ORDER: VERB – SUBJECT – OBJECT —

Egyptian is VSO: the verb comes first, then subject, then object.

sDm nTr s

"hears / god / man" → The god hears the man

Adverbs and prepositional phrases follow the verb. Negation precedes the verb.

### — SUFFIX CONJUGATION —

Tense/aspect is encoded by suffixes on the verbal root. The key form is sDm.n=f (he

Form	Aspect	Meaning
sDm.f	Imperfective	He hears / he habitually hears (present/future)
sDm.n.f	Perfective	He heard (past, completed action — the n-form)
sDm.w.f	Passive	It is heard / he is heard
sDm.xr.f	Sequential	Then he heard (narrative sequence)
sDm.kA.f	Prospective	He will/shall hear

### — SUFFIX PRONOUNS —

=i	1sg	I/me	=s	3sg.f	she/her
=k	2sg.m	you (masc.)	=n	1pl	we/us
=T	2sg.f	you (fem.)	=Tn	2pl	you (pl.)
=f	3sg.m	he/him	=sn	3pl	they/them

### — NOUNS: GENDER, NUMBER, GENITIVE —

Gender/Number	Marker	Example	Gloss
Masculine	No ending	pr	house
Feminine	-t suffix	pr.t	house (fem.) / "going out"
Dual	-wy (m.) / -ty (f.)	lr.ty	the two eyes
Plural	-w (m.) / -wt (f.)	Hwt-nTrw	temples (lit. god-houses)

### — NEGATION —

n sDm.n=f	He did not hear	Past negation with n + perfective
nn sDm=f	He does/will not hear	Present/future negation
tm=f sDm	Without his hearing	Negative complement infinitive
n wn ... m	There is no ... in ...	Existential negation: n wn + noun

### — CORE VOCABULARY (MIDDLE EGYPTIAN) —

nTr	god / divine	to give / to place	in front
s	man / person	to do / to make	to rem
pr	house / to go out	by / it is (introduces agent)	name
mAa	true / to show	for / to / of (relative)	sky /
nfr	beautiful / good	in / with / as / from	earth
anx	life / to live	upon / face / above	people
wn	to be / to exist	lord / all / every	beaut
u	to come	peace / offering / to be satisfied	son /
sm	to go	to love / desire	freely

ANCIENT EGYPTIAN

RUNNING TEXT · ROSETTA STONE · PYRAMID TEXTS · HYMN TO THE ATEN

— ROSETTA STONE — OPENING (196 BCE, DECREE OF PTOLEMY V) —  
Hieroglyphic version (transliteration):

■nk Pt-wlmys s n Pt-wlmys mi ■nk Pt-wlmys s n Ars-t

In the reign of Ptolemy, son of Ptolemy — as Ptolemy, son of Arsinoe

NOTE: The Rosetta Stone (196 BCE) records the same decree in three scripts:  
HIEROGLYPHIC (for priests) · DEMOTIC (for Egyptians) · GREEK (for rulers)  
Jean-François Champollion used it to decipher hieroglyphs in 1822 CE.

— PYRAMID TEXTS — SPELL 213 (c. 2375 BCE, OLDEST RELIGIOUS CORPUS) —

nD Hr=k Wsr nD Hr=k — Hail to you, Osiris — Hail to you  
wn=k m nTr mx — "You are as an excellent god"

ir.n.k ib=k n=i — "You have set your heart for me"

(Inscribed on pyramid walls at Saqqara for Pharaoh Unas; oldest written corpus, c. 2375 BCE)

— GREAT HYMN TO THE ATEN (AKHENATEN, c. 1346 BCE) —

nfr xr=k r Axt pt

Beautiful you appear on the horizon of heaven

ltn anx xpr m tpw

Living Aten, who originated life at the beginning

di=k nTrw r tA nbt

You set every god upon the earth

ir.n=k rmT nb mi anx.w

You made all people as if they were alive

(Akhenaten's monotheistic hymn to the sun disc; parallels Psalm 104; unique theob)

— BRIDGE PHRASE IN MIDDLE EGYPTIAN —

ir.n.sn sw n=k, m nfrw, in rmT sAA.n.(sn) xnt

made-PERF-they/this for-you in beauty / freely people remembered forward/before

"This was made for you, freely, by people who remembered forward."

LINGUISTIC NOTES ON THE PHRASE:

ir.n.sn — Perfective (n-form) of ir "to make/do": subject suffix sn "they".

n=k — Dative particle n "for/to" + suffix pronoun =k (2sg.masc.)

m nfrw — Preposition m "in/with" + nfrw "beauty, goodness, excellence" = "freely/gr

in — Particle introducing the agent in a passive or cleft construction.

sAA.n.sn — Perfective of sAA "to remember, be mindful of" — closest to "remember

xnt — Preposition/adverb "forward, in front of, before" — spatial metaphor for future

FUTURITY NOTE: Egyptian expresses the future spatially as xnt "what lies ahead"

This aligns exactly with the English phrase "remembered forward" — an active orien

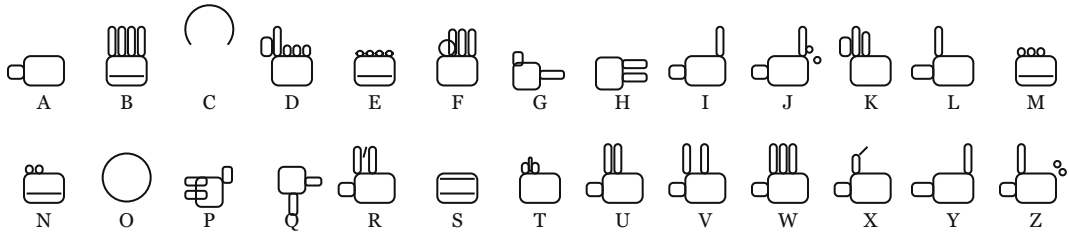
future time, encoded in the same spatial metaphor (future = forward) across both lan

**AMERICAN SIGN LANGUAGE (ASL)  
MANUAL ALPHABET · HANDSHAPE INVENTORY · SERIES 62A**

Sign languages are complete natural human languages — not codes for spoken languages. ASL is the primary language of Deaf communities in the United States and Canada. ~500,000 native signers. Descended from French Sign Language (LSF) via Gallaudet/Clerc.

**ASL ONE-HANDED MANUAL ALPHABET (FINGERSPELLING)**

Each letter = a handshape used to spell out names, technical terms, or unknown signs.



**— HANDSHAPE INVENTORY CATEGORIES —**

ASL uses ~50 distinct handshapes. Key categories:  
**OPEN HAND:** All fingers extended: B (flat), 5 (spread)  
**CLOSED/FIST:** A (fist), S (knuckles over thumb), E (bent)  
**SELECTED:** Specific fingers: G/L/D (index), I/Y (pinky), V/K (two)  
**BENT:** Curved fingers: C, O, F (circle), X (hook)  
**COMPOUND:** Complex: T (thumb between), R (crossed), W (three spread)

**— NUMBERS 1-10 (COMPACT REFERENCE) —**

- 1 Index up    2 V/peace    3 Thumb+idx+mid fingers up    4 Open 5-spread
- 5 Pinky+thumb to ring+thumb    6 Mid+thumb to index+thumb circle    7 Fist, thumb up, shake

d Z are motion letters: the handshape traces the letter in space. Shown above with motion  
 Writing notation (Unicode U+1D800–U+1DAAF) provides a complete written form for sign

AMERICAN SIGN LANGUAGE (ASL)  
PHONOLOGICAL PARAMETERS · THE 5 CHEREMES · SERIES 62B

Like spoken languages, sign languages have "phonology" — a system of minimal units. In sign languages these are called CHEREMES (Stokoe 1960). Changing one parameter changes the meaning, just as changing a phoneme does in spoken language.

**1. HANDSHAPE (DEZ)**  
Dez — Designator

- ~50 distinct handshapes in ASL
- Ex: MOTHER vs FATHER differ only in handshape (5-spread vs A-fist)
- Most semantically loaded parameter

**2. LOCATION (TAB)**  
Tab — Tabula

- 12 major signing-space zones
- Head, face, neck, chest, abdomen, waist, upper/lower arm, wrist
- dominant/non-dominant hand

**3. MOVEMENT (SIG)**  
Sig — Signation

- Path: arc, straight, circular
- Direction: up/down, in/out, across
- Manner: smooth, tense, repeated
- Internal: finger wiggle, wrist twist

**4. PALM ORIENTATION**  
Orientation of palm face

- Up, down, in (toward signer), out (away from signer), left, right
- GIVE: palm up vs TAKE: palm down

**5. NON-MANUAL SIGNALS**  
NMS — Face + body

- Facial expressions: brow raise/furrow
- Mouth morphemes, eye gaze, head tilt
- YES/NO question: brow raise + eye widen
- WH- question: brow furrow + head tilt

— MINIMAL PAIRS (ONE PARAMETER DIFFERS) —

Pair	Param.	Description
MOTHER / FATHER	Location	Both: 5-spread hand, tapping cheek vs chin
APPLE / CANDY	Location	X-hand at cheek (A) vs at chin (C)
KNOW / FEEL	Handshape	Flat B at forehead (K) vs curved 5 at chest
BORROW / LEND	Direction	Same handshape+location; movement toward
SAY / TALK	Repetition	One movement (SAY) vs repeated (TALK)

**PLURANEITY:** Sign languages can express multiple parameters AT ONCE (simultaneous morphemes). A single sign can encode subject, object, aspect, and classifier in one articulation.

AMERICAN SIGN LANGUAGE (ASL)  
 GRAMMAR · SPATIAL SYNTAX · AGREEMENT VERBS · SERIES 62C

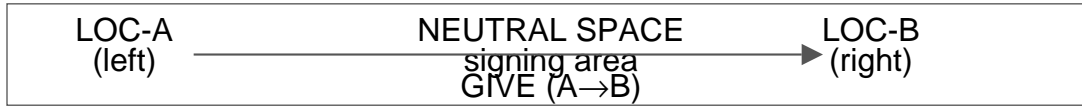
— WORD ORDER: TOPIC-COMMENT & SVO —

TOPIC-COMMENT: Topic (what it's about) signed first, then comment about it.

BOOK ME BUY (I bought the book) — vs. ME BUY BOOK (SVO neutral)  
 Both orders are grammatical; topic-comment is more natural for discourse structure.

— AGREEMENT VERBS (SPATIAL GRAMMAR) —

AGREEMENT VERBS move in space between the locations assigned to subject and object.  
 Step 1: Assign referent A a location in signing space (e.g., left = HE/SHE).  
 Step 2: Assign referent B a location (e.g., right = ANOTHER PERSON).  
 Step 3: GIVE moves from A's location to B's location — encoding "A gives B".  
 Reversing the movement = "B gives A" with no additional signs required.



— CLASSIFIER PREDICATES —

Classifiers are handshapes that represent a category of objects in predicates.  
 CL:V Legs Inverted V = person walking; V-walk encodes movement + motion  
 CL:1 Upright Index finger = tall thin object (person, pole, tree)  
 CL:B Flat surf. Flat hand = surface (table, floor, wall)  
 CL:C Container C-shape = cup, glass, cylindrical container  
 CL:G Small obj. Index+thumb = small flat object (coin, card, paper)  
 CL:5 Vehicle Open 5 = car, boat, plane in motion

— KEY GRAMMATICAL FEATURES —

ASPECT Modulate verb movement: slow/repeated = ongoing, fast/sharp = punctual  
 NEGATION Head shake (NMS) simultaneously with or after verb: NEG sign  
 YES/NO Q. Brow raise + eye widening + slight forward head tilt (NMS)  
 WH- Q. Brow furrow + slight head tilt + WH-sign at end (WHERE, WHO, HOW, WHY)  
 ROLE SHIFT Shift body/eye gaze to "become" each character in narrative  
 BUOY SIGNS Signs that hold a topic in space while continuing discourse

— CORE VOCABULARY (ASL GLOSS NOTATION) —

ME / I	Index to chest	KNOW	B-hand, thumb up	F-hand
YOU	Index to another's face	SEE	Claw hand	A-hand
HE/SHE/IT	Index to referent location	REFERENT	Bent V, arm forward	B-hand
GIVE	Palm up, move toward	GIVE	Index cross toward signer	P-hand
TAKE	Palm down, move toward	TAKE	V from eye	S-hand
MAKE	Fists rotate	MAKE	Flat hand, thumb to palm	Index
KNOW	Flat hand forehead	KNOW	Flat hand, thumb out	Index

AMERICAN SIGN LANGUAGE (ASL)  
DISCOURSE · GLOSS NOTATION · BRIDGE PHRASE · SERIES 62D

— ASL GLOSS NOTATION —

Since ASL has no traditional writing system, linguists use GLOSS NOTATION:  
CAPITAL LETTERS = one sign (BOOK = the sign for "book")  
HYPHEN = multi-word English for one sign (GIVE-UP, NOT-YET, LONG-AGO)  
Hash # = fingerspelled loan sign (#DO, #JOB, #CAR)  
fs- prefix = fingerspelling (fs-MARY)  
Subscript numbers = spatial loci (PRO<sub>1</sub> = pronoun at locus 1)  
NMS above gloss line = non-manual signal (wh-, y/n, neg, cond)  
MOUTH MORPHEME: mm, th, puff-cheeks, oo, etc. (shown above line)

— SAMPLE: THE TORTOISE AND THE HARE (OPENING) —

LONG-AGO TORTOISE HARE RACE

Long ago, [there was] a tortoise and a hare [who had] a race.

HARE THINK SELF WIN EASY

The hare thought he himself would win easily.

TORTOISE SLOW WALK WALK WALK NOT-STOP

The tortoise walked slowly [and] did not stop.

FINALLY TORTOISE WIN, HARE LOSE

Finally the tortoise won; the hare lost.

— BRIDGE PHRASE IN ASL GLOSS —

THIS MAKE FOR-YOU FREE PEOPLE REMEMBER FORWARD

"This was made for you, freely, by people who remembered forward."

THIS MAKE FOR-YOU FREE PEOPLEREMEMBERFORWARD

index Semantics: object of address, address, place oriented at triple, push forward in space

— LINGUISTIC NOTES —

THIS: Point/index downward at the object being referenced — deixis in signing space

FOR-YOU: The sign FOR directed toward the addressee encodes benefaction, spatial

FREE: E-hands crossed (bound) then opening outward — iconic for liberation / no c

PEOPLE: P-handshape (index+middle extended, palm out) alternating = plural hum

REMEMBER: A-hand taps temple (where memory resides), then moves forward.

This forward movement simultaneously encodes both "remembering" and "forward in

FORWARD: B-hand pushes forward — spatial metaphor identical to the English pr

NOTE ON TENSE: ASL establishes time on a time line — past is behind the signer;

future is in front. FORWARD (ahead in space) = forward in time = future orientation.

The phrase "remembered forward" maps perfectly to ASL's spatial time metaphor.

SignWriting (U+1D800–U+1DAAF, Noto Sans SignWriting font) provides a written

visual script for ASL signs that can be used for full written representation.

**BRITISH SIGN LANGUAGE (BSL)  
TWO-HANDED MANUAL ALPHABET · HANDSHAPES · SERIES 63A**

BSL is used by ~150,000 native signers in the United Kingdom. Although English is the surrounding spoken language (as in the US), BSL and ASL are **MUTUALLY UNINTELLIGIBLE** — they are distinct languages. Only ~31% of signs are identical between BSL and ASL.

**— TWO-HANDED VS ONE-HANDED FINGERSPELLING —**

BSL	TWO-HANDED	Both hands used. Non-dominant (base) hand = passive platform
ASL	ONE-HANDED	Dominant hand. Borrowed from LSF (French Sign Language)
LSF	ONE-HANDED	French Sign Language — ancestor of ASL; one-handed alphabet
Auslan	TWO-HANDED	Australian Sign Language shares BSL's two-handed alphabet

**— BSL TWO-HANDED ALPHABET — ALL 26 LETTERS —**

A: Index points at A side of base	B: Index + middle point at base
C: Index traces C on base	D: Index to base, arc
E: All fingers extended, touch	F: All fingers and thumb together
G: Index + thumb, touch base	H: Index + middle, touch base
I: Pinky touches base	J: Pinky traces J on base
K: Index + middle + thumb	L: L-shape touches base
M: Three fingers on base palm	N: Two fingers on base palm
O: O-shape on base	P: Like K, pointing down
Q: G-shape, pointing down	R: Crossed index+middle
S: Closed fist on base	T: Thumb between i+m on base
U: Index + middle up on base	V: V-shape on base
W: W-shape on base	X: Hooked index on base
Y: Pinky + thumb extended	Z: Index traces Z on base

**— BSL vs ASL: KEY DIFFERENCES IN FINGERSPELLING —**

Letter	BSL	ASL
A-Z general	Two-handed (both hands)	One-handed (dominant only)
A	Index at left side of flat base	Closed fist, thumb on side
B	Index+middle at right of base	Flat open hand, thumb across
D	Index arc over base thumb	D-shape: index up, others bent
G	Index+thumb pinch at base	Index+thumb pointing sideways
I	Pinky touches base palm	Pinky only up, others in fist
R	Crossed fingers tap base	Crossed index+middle, up
Y	Pinky+thumb out, tap base	Shaka: pinky+thumb extended

**BASE HAND POSITIONS:** Most BSL letters use flat B as base (palm in or palm up). For vowels (A, E, I, O, U), the dominant hand taps the matching finger on the base hand.

BRITISH SIGN LANGUAGE (BSL)  
PHONOLOGICAL PARAMETERS · GRAMMAR OVERVIEW · SERIES 63B

— BSL PHONOLOGICAL PARAMETERS —

BSL, like all sign languages, has a formal phonological structure with minimal pairs:  
HANDSHAPE: The shape of the hand(s); ~44 handshapes documented in BSL  
LOCATION: Where relative to the body: forehead/chin/chest/neutral space  
MOVEMENT: Direction, path, manner, and repetition of hand motion  
ORIENTATION: Palm direction: up, down, toward/away from signer, left/right  
NMS: Non-manual signals: facial expression, lip patterns, body position

— BSL GRAMMAR: KEY FEATURES —

WORD ORDER  
SOV (subject-object-verb) is unmarked baseline in BSL, contrasting with ASL's SVO. Both allow topic-comment reordering.

TOPIC-COMMENT  
Topic established first (brow raise NMS), then comment.  
BOOK, ME READ (The book, I read it) — most natural BSL structure.

NMS GRAMMAR  
BSL relies more on body movement, less on facial expression than ASL.  
Shoulder shift, body lean, head tilt all carry grammatical meaning.

LIP PATTERNS  
BSL signers often mouth English words simultaneously.  
This is distinct from ASL and reflects different contact with English.

NEGATION  
Head shake + NEG sign, or head shake alone for short sentences.  
NOT, NEVER, NONE: distinct signs + head shake NMS.

QUESTIONS  
Y/N: brow raise; WH-: brow furrow (same as ASL).  
WHAT, WHERE, WHO, WHEN, WHY, HOW — at end of sentence.

— BSL vs ASL: MUTUAL UNINTELLIGIBILITY —

Despite sharing English as the surrounding spoken language, BSL and ASL are distinct.  
Historical origin: BSL developed independently in Britain (18th–19th c.), ASL originated from LSF (French), brought to the US by Laurent Clerc in 1817.  
Lexical similarity: ~31% of signs identical; ~44% cognate (related but different).  
Both belong to different language families:  
BSL family: BSL, Auslan (Australia), NZSL (New Zealand) — BANZSL group.  
ASL family: ASL, LSF, many African, Middle Eastern, Asian sign languages.  
Contact signing: "Signed Supported English" (SSE) is a contact variety, not BSL.

— SIGNING SPACE & SPATIAL GRAMMAR —

BSL uses the same spatial grammar as ASL: referents assigned to locations, agreement verbs move between locations, classifiers represent object categories.  
The signing space is the area in front of the signer's body (roughly head to waist, shoulder-width to either side) — this space is the grammar.

BRITISH SIGN LANGUAGE (BSL)

GRAMMAR DETAIL · CLASSIFIER PREDICATES · CORE VOCABULARY · SERIES 63C

— CORE VOCABULARY (BSL GLOSS) —

ME	index to chest	LOOK-AT	V points forward	GOOD	thumbs
YOU	point at address	SEE	flat hand sweep	BAD	thumbs
NAME	N-hand at forehead	DEAF	curve hand forward	FORWARD	wrists
DEAF	index: ear to mouth	GIVE	palm up, extended	FORWARD	fist on
HEARING	index circles at mouth	MAKE	palm down, extended	FORWARD	A-hand
SIGN	two index fingers circle	MAKE	fists rotate to	FORWARD	flat hand
UNDERSTAND	index taps forehead	MAKE	bent fingers	FORWARD	P-hand
KNOW	flat hand at head	MAKE	flat hand on	FORWARD	both
SEE	V from eyes	LOVE	crossed arms on chest	FORWARD	fist

— CLASSIFIER PREDICATES IN BSL —

- CL:1 Person/upright object: single index = person standing/moving
- CL:V Person moving: inverted V fingers walk forward = person walks
- CL:B Flat surface: B-hand = floor, table, wall, road
- CL:C Cylindrical/container: C-hand = cup, pipe, tree trunk
- CL:G Thin flat object: index+thumb pinch = card, paper, book
- CL:3 Vehicle: 3-hand (thumb+index+middle) = car, lorry, bus

— BSL REGIONAL VARIATION —

BSL has significant regional dialects across the UK: Northern England, Scotland, London, and Belfast variants may differ substantially in signs for common concepts (colours, numbers, days of week can vary by city). This is more pronounced than regional ASL variation. BBC "See Hear" programme and British Deaf Association use a prestige standard. There is no official written form of BSL; SignWriting and HamNoSys are used by researchers. BSL gained official language recognition in the UK in 2003.

— DEAF COMMUNITY & CULTURE —

BSL carries Deaf culture, identity, and heritage, not just communication. Deaf history: The first known British school for the Deaf was established 1760 by Thomas Braidwood in Edinburgh; his methods were kept secret from other educators. Oralism controversy: In the 1880 Milan Congress, oral methods were imposed on Deaf education, suppressing sign languages for nearly a century. BSL survived informally. Current: BSL recognised as a language in 2003; GCSE BSL qualification introduced.

C · SERIES 63 · BRITISH SIGN LANGUAGE · CLASSIFIERS · REGIONAL VARIATION · C

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TENT MESSAGE. IT WAS MADE FOR YOU, FREELY, BY PEOPLE WHO REMEMBER  
BUY IT · BUILD IT · BURY IT · FOR SOMEONE YOU WILL NEVER MEET

— BRIDGE PHRASE IN BSL GLOSS —

THIS MAKE FOR-YOU FREE PEOPLE REMEMBER FORWARD  
"This was made for you, freely, by people who remembered forward."

BSL gloss for this phrase is essentially identical to ASL gloss — the concepts align.  
Differences: BSL tends toward SOV, so: PEOPLE → THIS MAKE → FOR-YOU FREE REMEMBER

— BSL SAMPLE DISCOURSE —

LONG-AGO DOCUMENT THIS – MAKE WHO? PEOPLE  
This document — who made it? People.

PEOPLE WHY MAKE? FUTURE YOU FIND  
Why did people make it? For you to find in the future.

FREE GIVE YOU – LOVE REASON  
Given freely to you — out of love.

REMEMBER FORWARD – PEOPLE, OLD, THIS MAKE  
These people, in the past, remembered forward.

— BSL / ASL STRUCTURAL COMPARISON —

Feature	BSL	ASL
Fingerspelling	Two-handed alphabet	One-handed alphabet (from LSF)
Unmarked word order	SOV	SVO
NMS emphasis	Body movement, lip patterns	Facial expression dominant
Language family	BANZSL (British, Auslan, NZ)	French SL family
Official status	UK law 2003	No federal law (Deaf Ed. Act 1976)
Mutual intelligig.	31% identical signs	58% cognate with LSF
Writing system	None standardized (SignWrit.)	None standardized (SignWrit.)

— NOTES ON WRITTEN BSL —

BSL has no universally accepted writing system. Three notation systems are used:  
1. GLOSS: Capital English words (as shown above) — used for linguistic analysis.  
2. SignWriting (Sutton): Visual featural script; Unicode block U+1D800–U+1DAAF.  
Font: Noto Sans SignWriting. Captures handshape, location, movement, orientation.  
3. HamNoSys: Hamburg Notation System — phonetic transcription for research.

For a time capsule context: SignWriting is the most visually self-evident system and closest in spirit to this project's goal of cross-cultural readability.

FRENCH SIGN LANGUAGE (LSF)  
 LANGUE DES SIGNES FRANÇAISE · MANUAL ALPHABET · SERIES 64A

Langue des Signes Française — is the sign language of France and parts of French-speaking Europe. c. 100,000 native signers. LSF is the PARENT LANGUAGE OF ASL: in 1817, French teacher Laurent Clerc brought LSF to the USA with Thomas Hopkins Gallaudet to found the American School for the Deaf. ~58% of modern ASL signs are cognate with historical LSF.

— HISTORICAL LINEAGE —

OLD FRENCH SIGN LANGUAGE (Paris Deaf community, 18th century)

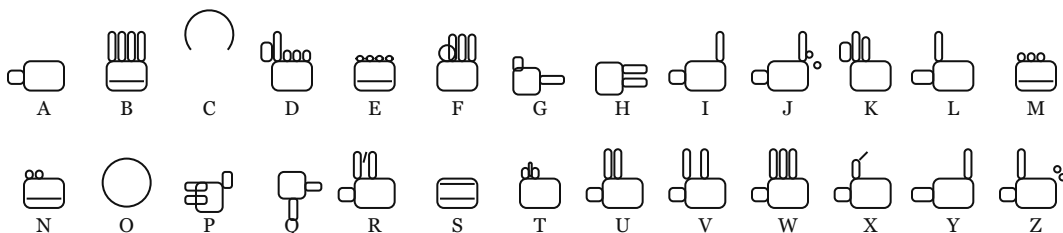
LSF (modern, France)

ASL (USA/Canada, 1817+)

LSF and ASL diverged after 1817 and are now distinct languages (though still cognate-rich)

— LSF ONE-HANDED MANUAL ALPHABET —

LSF uses a one-handed fingerspelling alphabet. It differs from ASL in 4 letters: H, J, X, T



— LSF vs ASL ALPHABET DIFFERENCES —

- H: LSF: LSF: index+middle together, palm out, sideways  
 ASL: ASL: index+middle sideways (similar but distinct palm orientation)
- J: LSF: LSF: J traced with index in the air  
 ASL: ASL: pinky up, trace J in air (both motion letters)
- T: LSF: LSF: index+middle V, thumb between (different)  
 ASL: ASL: thumb between index+middle of fist
- X: LSF: LSF: hooked index, touch thumb  
 ASL: ASL: hooked index (very similar)

# FRENCH SIGN LANGUAGE (LSF)

## PARAMETERS · GRAMMAR · LSF vs ASL COMPARISON · SERIES 64B

### — LSF PARAMETERS —

LSF uses the same 5-parameter phonological system as ASL and BSL:

HANDSHAPE (Forme): ~60 handshapes documented in LSF  
LOCATION (Lieu): Neutral space + body zones: forehead, face, mouth  
MOVEMENT (Mouvement): Path, direction, manner, repetition  
ORIENTATION (Orientation): Palm direction; grammatically significant  
NMS (Signaux non-manuels): Facial expression, mouth movements, body posture

### — LSF GRAMMAR —

#### WORD ORDER

SVO (similar to ASL) as unmarked order; topic-comment also used.  
BOOK, JE ACHETER (The book, I bought it) = topic-comment.

#### SPATIAL GRAMMAR

Same spatial assignment of referents as ASL; agreement verbs move between loci. Classifiers used for categories of objects.

#### TENSE

Timeline: past = behind signer; future = in front. Explicit time signs (YESTERDAY, TOMORROW, LONG-AGO, FUTURE) mark tense.

#### ASPECT

Verb movement modulated: repeated/slow = habitual/ongoing.  
Single sharp movement = completed/punctual.

#### NEGATION

Head shake + sign NON, or head shake alone for simple negation.  
PAS ENCORE (not yet), JAMAIS (never): distinct sign + NMS.

### — HISTORICAL SIGNIFICANCE —

Institut National des Jeunes Sourds de Paris (1760): first national Deaf school.  
Abbé de l'Épée (1712–1789): pioneered education of Deaf children using sign.  
LSF became prestigious through the Paris school; Deaf teachers trained across Europe.  
When Gallaudet brought Clerc to the USA in 1817, they brought the Paris school home.  
As LSF and ASL evolved separately, they diverged; modern ASL is now more distinct.  
Many sign languages worldwide contain LSF-lineage elements (Mali, Morocco, Turkey).

### — CORE VOCABULARY (LSF GLOSS) —

MOI (I/ME)	index to chest	DONNER (GIVE)	palm up, extend
TOI (YOU)	index to addressee	PRENDRE (TAKE)	palm down, draw back
LUI/ELLE (HE/SHE)	index to locus	FAIRE (MAKE)	fists rotate
NOM (NAME)	N at forehead	LIBRE (FREE)	wrists cross then open
SOURD (DEAF)	index ear to mouth	SE SOUVENIR	A-hand temple fwd
ENTENDANT (HEARING)	index circles at mouth	AVANT (FORWARD)	flat hand forward
SIGNER	two indices circle	PERSONNES	P-hands alternate
COMPRENDRE	index taps forehead	ENSEMBLE (TOGETHER)	hands side by side

— BRIDGE PHRASE IN LSF GLOSS —

CE FABRIQUER POUR-TOI LIBRE PERSONNES SE-SOUVENIR AVANT

"This was made for you, freely, by people who remembered forward."

FABRIQUER: make/create — S-hands rotate on each other (cognate with ASL MAKE)

POUR-TOI: benefactive preposition POUR directed toward the addressee's locus

LIBRE: free/liberty — wrists crossed (bound), then open outward (iconic liberation)

SE-SOUVENIR: reflexive — A-hand at temple, moves forward (memory + forward)

AVANT: before/forward — flat hand pushed forward in space (same spatial metaphor)

— SIGN LANGUAGE FAMILY TREE —

Sign languages, like spoken languages, form genetic families through common ancestry

OLD FRENCH SIGN LANGUAGE (Paris, 18th century)

■ LSF (modern France, Belgium) — 100,000 signers

■ ASL (USA, Canada) — via Clerc 1817 — 500,000 native

■ Many African sign languages (Mali SL, etc.)

OLD BRITISH SIGN LANGUAGE (Braidwood school, Edinburgh 1760)

■ BSL (UK) — 150,000 signers

■ Auslan (Australia) — part of BANZSL family

■ NZSL (New Zealand) — part of BANZSL family

INDEPENDENTLY DEVELOPED:

Chinese SL — 20,000,000 signers (largest)

Japanese SL (JSL)

Israeli SL (ISL)

Indian SL — 3,000,000+ signers

Brazilian SL (Libras) — 3-10,000,000 signers

Note: Geographic proximity does NOT determine sign language relationship.

BSL and ASL are as distinct as French and Finnish, despite sharing English context

International Sign (IS): a contact variety used at international Deaf events;

not a full natural language but facilitates communication across SL families.

FRENCH SIGN LANGUAGE (LSF)  
SIGN LANGUAGE PRESERVATION · DEAF HISTORY · SERIES 64D

— DEAF HISTORY & SIGN LANGUAGE SUPPRESSION —

Year	Place	Event
1760	Edinburgh	Thomas Braidwood founds first Deaf school in Britain (oral method)
1760	Paris	Abbe de l'Épée founds Paris Deaf school using sign method
1778	Paris	LSF begins consolidating from diverse regional village sign languages
1817	Hartford	Gallaudet & Clerc found American School for the Deaf; ASL branched
1880	Milan	Second International Congress of Educators of the Deaf: ORALISM
1880	worldwide	Sign languages banned in Deaf education worldwide for nearly 100 years
1960	USA	William Stokoe proves ASL is a complete language; launches sign language movement
1968	France	LSF returned to Deaf education in France
1990	USA	ADA (Americans with Disabilities Act) — interpreter access required
2003	UK	BSL officially recognised as a language of the UK
2005	France	LSF officially recognised in French law

— THE 1880 MILAN CONGRESS — ORALISM —

The Second International Congress on Education of the Deaf (Milan, 1880) voted to impose oral-only education on Deaf children worldwide. Sign languages were banned from classrooms. Deaf teachers were dismissed. Children were forced to speak and lip-read instead of sign. Research now shows oral-only methods are far less effective for many Deaf children. Sign languages survived through Deaf communities outside school settings. The 2010 International Congress formally repudiated the 1880 resolution.

IMPLICATION FOR THIS CAPSULE:

Sign languages are suppressed natural languages with documented near-extinction. Including them here is an act of the same forward-remembering this project embodies.

— SIGNWRITING — A COMPLETE WRITTEN FORM FOR SIGN LANGUAGES —

Invented by Valerie Sutton (1974, expanded from DanceWriting). SignWriting represents: handshape, location on body, movement, palm orientation. Written vertically, top to bottom, left to right within a signing column. Unicode block: Sutton SignWriting, U+1D800–U+1DAAF (679 characters, Unicode 8.0). Font: Noto Sans SignWriting (Google Fonts) — 37,886 glyphs. Actively used in Nicaragua, Brazil (Libras), and parts of ASL/LSF communities. SignBank and SignPuddle: online databases of signs in SignWriting notation.

For this capsule: SignWriting notation is the closest written approximation of a sign language's visual form. A finder who encounters a signer can use the SignWriting plates to establish communication without shared spoken language.

# CHINESE SIGN LANGUAGE (CSL / ZGS)

■■■■ (Zhāngguó Shūyǔ) · MANUAL ALPHABET · SERIES 65A

Chinese Sign Language is the world's largest sign language by number of users: approximately 20 million signers in the People's Republic of China. CSL developed independently of Western sign languages and reflects Chinese linguistic and cultural context.

## — CSL FINGERSPELLING — PINYIN-BASED SYSTEM (1963) —

Official CSL fingerspelling scheme, adopted December 1963, is based on Pinyin romanization. 21 initials (■■ shǎngm) and 6 finals (■■ yunm) are represented by handshapes. Consonant clusters ZH, CH, SH, NG are treated as single signs (reflecting Mandarin phonemic

## — PINYIN INITIALS — CSL HANDSHAPES (SELECTED) —

b:	Index+thumb press together (like "b" in Cabal nasal)	zh:	Curved hand (retroflex — curled tongue)
p:	Similar to b, with slight puff (aspiration)	ch:	Like zh, with aspiration
m:	Three fingers pressed to lips (nasal resonance)	sh:	Curved hand (retroflex fricative)
f:	Teeth-on-lip shape — upper teeth on lower middle side (palatal fricative)	r:	Curved fingers (retroflex liquid)
d:	One finger tap (dental stop)	z:	Flat hand (alveolar affricate)
t:	Like d, aspiration indicated	c:	Like z, aspiration
n:	One finger at nostril (nasal)	s:	Flat hand (alveolar fricative)
l:	Tongue-tip gesture (lateral)		
g:	Open hand, velar approximation		
k:	Open hand, aspiration		

## — WRITING IN THE AIR (Kǎngxi) —

A distinctive feature of CSL: signers trace Chinese characters in the air with the index finger. Called ■■ (kǎng xi, "air writing") — used when a specific character is needed. Stroke order follows standard Chinese character stroke order. This is unique to Chinese-context sign languages and has no equivalent in ASL/BSL. Numbers 1–10 in CSL can be signed with one hand (unlike ASL which needs two for

## CHINESE SIGN LANGUAGE (CSL / ZGS)

PARAMETERS · GRAMMAR · CHINESE CULTURAL FEATURES · SERIES 65B

### — CSL PHONOLOGICAL PARAMETERS —

**HANDSHAPE (■ ■ ■):** Numerous handshapes; Chinese character forms influence  
**LOCATION (■ ■):** Body zones similar to other sign languages; neutral space  
**MOVEMENT (■ ■ ■):** Path, direction, internal (finger/wrist); tone-related movement  
**ORIENTATION (■ ■ ■):** Palm direction carries grammatical distinctions  
**NMS (■ ■ ■ ■ ■):** Facial expression + mouthing of Mandarin words common

### — CSL GRAMMAR —

#### WORD ORDER

SOV (subject-object-verb) is the unmarked order in CSL, reflecting influence of Chinese grammatical structure.

#### TOPIC-COMMENT

Topic established first, (like Mandarin topic-comment structure). Close parallel to Mandarin's own topic-prominent grammar.

#### SPATIAL GRAMMAR

Agreement verbs, classifier predicates, and spatial referencing are used (universal features of natural sign languages).

#### CLASSIFIERS

CSL classifier system reflects Chinese noun categories: flat objects, round objects, vehicles, persons, animals, etc.

#### HONORIFICS

Distinct signs for kinship terms (older/younger sibling, etc.) reflecting Chinese cultural distinctions absent in English-based SLs.

#### MOUTHING

Mandarin mouthing (lip-syncing Chinese words) is common in CSL, more so than English mouthing in ASL. Part of CSL's contact with Mandarin.

### — CHINESE CULTURAL FEATURES IN CSL —

**KINSHIP TERMS:** CSL has distinct signs for elder/younger brother and sister, reflecting Chinese kinship system (unlike ASL's generic BROTHER/SISTER).

**NUMBER SYSTEM:** CSL can sign 1-10 on one hand using a compact system: 1-5 = fingers up; 6 = pinky+thumb; 7 = three middle fingers; 8 = index+middle; 9 = hooked index; 10 = fist with thumb alongside (or crossed index-pinky).

**CHINESE CHARACTER HANDSHAPES:** Some CSL signs are iconic to Chinese characters. Example: The sign for PERSON (■ ren) resembles the character ■ (two strokes meet).

Example: MOUNTAIN (■ shān) — three fingers up, mimicking the character.

**REGIONAL VARIATION:** CSL varies significantly between regions; Shanghai SL and Beijing SL have different signs for many common concepts.

CHINESE SIGN LANGUAGE (CSL / ZGS)  
CORE VOCABULARY · BRIDGE PHRASE · SERIES 65C

— BRIDGE PHRASE IN CSL GLOSS —

■ ■ ■ ■-■ ■ ■ ■ ■ ■ ■ ■

ZHÈ ZHÌZUÒ WÈI-N ■ MI ■NFÈI RÉN MÈN JÌDE QIÁN JÌN

"This was made for you, freely, by people who remembered forward."

■ ZHÈ ■ ■ ZHÌZUÒ ■ ■ WÈI N ■ ■ MI ■NFÈI ■ ■ RÉN MÈN ■ ■ JÌDE ■ ■ QIÁN JÌN  
this/this one make/create you (directed) of change people (plural) remember forward/advance

— LINGUISTIC NOTES —

■ ■ (qiánjìn, "forward/advance"): compound of ■ (qián, forward/front) + ■ (jìn, advance). The spatial metaphor of future-as-forward is identical in Chinese and English.  
■ ■ (jìde, "remember"): literally ■ "record/note" + ■ "obtain/get" = internalize as memory.  
■ ■ (wèi n ■): preposition ■ (for/on behalf of) + ■ (you) = spatial benefactive.  
CSL would sign this in SOV-influenced order: PEOPLE THIS MAKE FOR-YOU FREELY REMEMBER FORWARD — slightly different from ASL's SVO gloss.

— CORE VOCABULARY (CSL GLOSS) —

■ W ■ (ME)	index to chest	■ ZUO (MAKE)	fists rotate
■ N ■ (YOU)	index to addressee	■ ■ (FREE)	wrists cross, open
■ REN (PERSON)	two fingers, meet	■ ■ (REMEMBER)	A-hand temple fwd
■ ■ (NAME)	N at forehead	■ ■ (FORWARD)	flat hand push fwd
■ ■ ■	two indices circle	■ ■ (PEOPLE)	P-hands alternate
■ ■ (UNDERSTAND)	index taps forehead	■ SHAN (MOUNTAIN)	3 fingers up, like ■
■ ■ (KNOW)	flat B at forehead	■ TIAN (SKY/DAY)	index overhead
■ ■ (SEE)	V from eyes forward	■ SHUI (WATER)	W at lips
■ G I (GIVE)	palm up, extend	■ HU ■ (FIRE)	rising flame gesture
■ Q ■ (TAKE)	claw hand, draw back	■ AI (LOVE)	crossed arms on chest

CHINESE SIGN LANGUAGE (CSL / ZGS)  
CSL DISCOURSE · NUMBERS · REGIONAL VARIATION · SERIES 65D

— CSL NUMBER SYSTEM (ONE-HANDED) —

can represent 1–10 on one hand — a unique feature reflecting Chinese cultural efficiency

1:	Index finger up	6:	Pinky + thumb extended (shake)
2:	Index + middle up (V)	7:	Thumb + index + middle together
3:	Thumb + index + middle up	8:	Index + middle extended, thumb up
4:	Four fingers up (no thumb)	9:	Index finger hooked/bent
5:	Open hand, all 5 extended	0:	Index finger pointing, wrist twisted

— REGIONAL VARIATION IN CSL —

CSL varies significantly between regions. Beijing SL and Shanghai SL differ substantially and are sometimes considered separate dialects or related languages.

Standardization efforts began in the 1950s but regional variation persists. The official CSL dictionary (first published 1987) has helped standardize some signs.

Examples of regional variation:

MONDAY: Beijing uses one sign; Shanghai uses a different handshape.

COLORS: Red, green, blue may be signed differently across provinces.

NUMBERS 6–10: One-handed vs two-handed variants exist by region.

— CSL AND DEAF EDUCATION IN CHINA —

Deaf education in China dates to the early 20th century (1898, first Deaf school).

Like elsewhere, oralism dominated for much of the 20th century.

Current: bilingual-bicultural education (Mandarin + CSL) increasingly adopted.

China Disabled Persons' Federation oversees Deaf education policy.

CSL Research Center at Nanjing Normal University is the primary research body.

DEAF POPULATION: China has ~27 million deaf/hard-of-hearing persons,

making it the world's largest Deaf population in absolute numbers.

Of these, ~20 million are estimated to use CSL as a primary language.

— CSL SAMPLE DISCOURSE —

THIS DOCUMENT IMPORTANT KEEP

This document is important — keep it.

PEOPLE PAST MAKE FOR-YOU FREE

People in the past made it for you, freely.

REMEMBER FORWARD — MEANING WHAT?

What does "remembered forward" mean?

CARE FUTURE PEOPLE — THAT MEANING

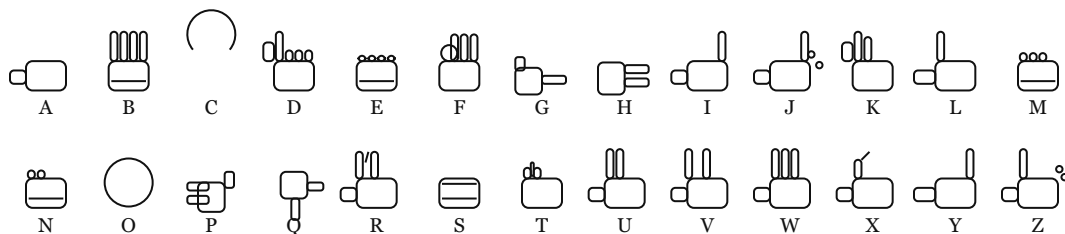
It means to care about future people.

BRAZILIAN SIGN LANGUAGE (LIBRAS)  
 LÍNGUA BRASILEIRA DE SINAIS · MANUAL ALPHABET · SERIES 66A

Libras (Língua Brasileira de Sinais) is the sign language of Deaf communities in Brazil, 3–10 million signers estimated. Libras was officially recognised by Brazilian federal law 10.436, 2002) as "a means of communication and expression" of the Brazilian Deaf community.

LIBRAS ONE-HANDED MANUAL ALPHABET

uses a one-handed fingerspelling alphabet. Largely similar to ASL/LSF, with some differences.



LIBRAS vs ASL ALPHABET DIFFERENCES

- CH: Libras has a separate sign for CH (no equivalent in ASL 26-letter set)
- NH: Libras has a NH handshape (Portuguese digraph not in English/ASL)
- LH: Libras has a LH handshape (Portuguese palatal lateral)
- H: Libras H differs slightly from ASL H in palm orientation
- J: Both are motion letters; Libras traces J with index
- Z: Both trace Z; Libras uses same basic shape

LIBRAS HANDSHAPE INVENTORY

has 111 distinct handshapes documented (vs ~50 in ASL) — the most of any sign language studied. This larger inventory reflects the richness of Libras' phonological system.

- Flat/open: B, B-bent, 5-spread, open-A
- Curved: C, O, baby-O, bent-5
- Extended: D, G, H, I, K, L, U, V, W, Y
- Closed: A, E, S, T, N, M, X
- Compound: F, P, Q, R, unique Libras forms

BRAZILIAN SIGN LANGUAGE (LIBRAS)  
PARAMETERS · GRAMMAR · VERB TYPES · SERIES 66B

— LIBRAS PHONOLOGICAL PARAMETERS (5) —

HANDSHAPE (Configuração de mão): 111 distinct handshapes (most documented c  
LOCATION (Locação/Ponto de articulação): 3 zones, trunk, neutral space; arm/hand  
MOVEMENT (Movimento): Path, direction, internal finger movement, whis  
ORIENTATION (Orientação): Palm direction: 6 primary orientations  
NMS (Expressões não-manuais): Facial expression, mouth morphemes, body p

— WORD ORDER: SVO + TOPIC-COMMENT —

Unmarked order: SVO (subject-verb-object) — same as English and ASL.  
Topic-comment also common: BOOK, I READ (topicalizing the book first).  
When using topic-comment, brow raise NMS marks the topic.  
SOV order also occurs, particularly with focus on the object or classifier predicates

— LIBRAS VERB TYPES —

Type	Feature	Examples
PLAIN VERBS	No spatial agreement.	MOSTAR (show), QUERER (want), SABER
AGREEMENT VERBS	Incorporate subject/object in spatial frame.	PAGAR (pay), PERGUNTAR
SPATIAL VERBS	Encode location of objects.	LOCAR (post), IR (go), VIR (come)

— SPATIAL MARKING IN LIBRAS —

Libras shows a precise spatial marking system for definite vs indefinite referents:  
STRONG/DEFINITE reference: NP assigned to right or left space — persists in disc  
WEAK/INDEFINITE reference: NP placed in neutral central space.  
Pronouns: point to the previously assigned locus (no separate pronoun handshape r  
This spatial grammar is a universal feature of natural sign languages, not a quirk.  
It is structurally equivalent to case marking or article systems in spoken languages

— KEY GRAMMATICAL FEATURES —

ASPECT: Verb movement modulated: repeated/slow = habitual, fast/tense =  
NEGATION: Head shake NMS + NAO sign, or head shake alone (short clauses)  
QUESTIONS: Y/N: brow raise; WH-: brow furrow + WH-sign (O QUE, QUEM, QUA  
CLASSIFIERS: Large inventory; CL:1 person, CL:V walk, CL:C container, CL:B if a  
SIMULTANEITY: Multiple parameters used simultaneously — single sign = multiple



BRAZILIAN SIGN LANGUAGE (LIBRAS)

BRIDGE PHRASE · DISCOURSE · SIGN LANGUAGE OVERVIEW · SERIES 66D

— BRIDGE PHRASE IN LIBRAS GLOSS —

ISSO FAZER PARA-VOCÊ LIVRE PESSOAS LEMBRAR AVANÇAR

"This was made for you, freely, by people who remembered forward."

ISSO (this): Index points at the object; deictic reference.

FAZER (make): S-hands rotate on each other (cognate with ASL MAKE, LSF FAIRE)

PARA-VOCE (for-you): preposition PARA directed toward addressee's locus.

LIVRE (free): wrists crossed (bound), open outward (iconic: liberation from constraint)

LEMBRAR (remember): A-hand at temple, moves forward — memory + forward direction

AVANÇAR (advance/forward): flat hand pushed forward in neutral space.

FUTURITY NOTE: Like ASL, Libras uses a horizontal timeline (past=behind, future=ahead)

LEMBRAR+AVANÇAR maps perfectly to the spatial metaphor: remembering toward

SIGN LANGUAGE SERIES SUMMARY — ALL 5 LANGUAGES (SERIES 62–66)

Series	Language	Signers	Alphabet	Base order	Family
62	ASL (American)	500k native	1-handed	SVO	French SL
63	BSL (British)	~150k native	2-handed	SOV	BANZSL
64	LSF (French)	~100k native	1-handed	SVO	French SL (parent)
65	CSL (Chinese)	~20M	Pinyin	SOV	Independent
66	Libras (Brazilian)	~10M	1-handed	SVO	French SL lineage

— UNIVERSAL FEATURES OF NATURAL SIGN LANGUAGES —

All natural sign languages share these properties (independent of each other):

1. SPATIAL GRAMMAR: Referents assigned to locations; agreement verbs track the location.
2. CLASSIFIER PREDICATES: Handshapes represent semantic categories in predicative use.
3. NON-MANUAL SIGNALS: Face and body carry grammatical distinctions (not just affect).
4. SIMULTANEITY: Multiple morphological elements expressed in one sign.
5. DUALITY OF PATTERNING: Meaningless units (handshapes) combine into meaningful units.
6. PRODUCTIVITY: New signs can be created systematically (compounds, classifiers, etc.).
7. ARBITRARINESS: Most signs are arbitrary (not merely pantomime), with iconic morphemes.

These features demonstrate that sign languages are COMPLETE NATURAL HUMAN LANGUAGES, not codes, inventions, or derivatives of spoken languages.

A finder of this capsule who encounters a signing community can use the parameters and spatial grammar described in Series 62–66 as a universal bootstrap.