Articulatory Phonetics: Manual Alphabet

LEVEL 1: Single-Syllable Words

A pronunciation guide and simplified phonetic system designed for special education professionals who work with learners who are Deaf or hard-of-hearing

Cheri Montgomery

S.T.M. Publishers
Nashville, TN

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PREFACE

Articulatory Phonetics: Manual Alphabet is the fingerspelling and lipreading version of a university-level phonetics program. It features a simplified phonetic system designed for special education professionals who work with learners who are deaf or hard-of-hearing. Instruction in the formation and signing of each sound is provided.

The *Articulatory Phonetics* series is the teacher-focused companion to *Reading and Phonetics*, a corresponding series designed for students ages 10 and up. The preface to Level 1 of *Reading and Phonetics: Manual Alphabet* is provided below.

Articulatory Phonetics: Manual Alphabet is the fingerspelling and lipreading version of a university level phonetics program. It features a simplified phonetic system designed for diverse learners and provides instruction in the formation and articulation of each sound. Following is the preface to the pre-college version.

Today's middle and high school teachers serve students with diverse abilities and language backgrounds. How can one curriculum address such a wide range of learning needs? This series enables every learner to participate in the same lesson.

Individual learning needs are supported through four parallel workbooks created for students, parents, and teachers who are new to:

- braille
- manual signing and lipreading
- English language learning
- articulatory phonetics

Each workbook contains the same carefully ordered selection of words, phrases, and sentences. All exercises include only the sounds and spellings previously introduced. Sentences are deliberately constructed to avoid predictability and prevent guesswork. The intentional design supports early literacy development and proper pronunciation, while the separate formats enhance accessibility for students with distinct learning needs.

The parallel books provide unique instructions for:

- tactile training in braille with audio examples for those learning through touch and hearing
- manual-visual learning through signing and lipreading for those who rely on visual communication
- visual articulatory study using front and midsagittal views of the vocal tract with audio examples for those developing clarity of speech
- visual definition of vocabulary through carefully selected images with audio examples for those acquiring English in the multilingual classroom environment

Reading and Phonetics: Manual Alphabet, Level 1 focuses on fingerspelling and an introduction to lipreading. A structured fingerspelling system with phonetics supports the development of lipreading skills. Phonetic symbols are signed near the mouth. This placement assists lipreading by visually positioning phonetic symbols beside the articulators. Because lipreading alone cannot distinguish between voiced and voiceless consonants, this newly designed system provides an added visual cue to represent the contrast.

Vertical location is used to indicate the letter case required for the simplified phonetic system developed for this group of learners. Uppercase letters are signed near the forehead, while lowercase letters remain at mouth level. This distinction also separates the conventional spellings of words (signed at chest level) from the phonetic system used for lipreading (signed near the mouth).

Because the linguistic core is identical, all student groups can participate in the same lesson while engaging through the pathway best suited to their learning needs. For auditory learners, links to recordings of each sound, as pronounced in multiple languages, further strengthen comparison and deepen phonetic awareness. Additional sensory associations, including scent, touch, taste, and sound, provide alternate avenues for learning when visual or auditory cues are limited.

Level 1 covers the spellings and phonetic transcriptions of single-syllable words. Level 2 expands the vocabulary of single-syllable words, includes words with diphthongs, and provides additional opportunities for phonetic transcription. Level 3 extends the instruction to include words with multiple syllables. English Language Learners and those learning the manual alphabet would benefit from repeating the series using the articulation version. This would further support proper vowel and consonant formations.

Students are encouraged to sing their words as a way of developing clarity of speech. Singing slows the articulatory process, allowing vowels to be sustained and consonants to be articulated with energy and clarity.

The decision to offer this approach originates from more than two decades of experience teaching lyric diction at the Blair School of Music at Vanderbilt University. The concepts have been refined and shared through presentations for the National Opera Association, the National Association of Teachers of Singing, and the International Congress of Voice Teachers.

From this research emerged a phonetic system first developed for braille readers, now integrated throughout the series. Each workbook offers a simplified and accessible approach to the International Phonetic Alphabet (IPA). Uppercase and lowercase letters are used to represent the sounds of the English language. They are placed between brackets to distinguish phonetic content from the conventional spellings of words. A conversion chart listing the standard IPA symbols with the simplified version is provided below.

The resources needed to create the exercises in this series originated from research developed for the *Lyric Diction Workbook Series* and the *IPA Scramble* game app by Montgomery. Computer-based search tools and a database of more than 87,000 English words with phonetic symbols were used to organize a graded approach to learning English spellings and phonetics.

This workbook follows the Moore teaching model, an interactive approach to instruction developed by mathematician Robert Lee Moore and first implemented at the University of Pennsylvania in 1911. His methodology engages students in the learning process by giving each class member the opportunity to present individually assigned work.

Each class meeting follows a consistent routine. Students begin by presenting a written transcription assignment from one of twelve phrases provided in each unit. The teacher introduces new material in a brief lecture, followed by a guided phonetic reading activity. Finally, each student receives a unique phonetic assignment to prepare and present in the next class meeting. The twelve exercises in each unit are also suitable for independent study.

Note. This text focuses on fingerspelling and the signed representation of phonetic symbols. It does not attempt to teach American Sign Language or serve as a substitute for formal ASL instruction.

Phonetic Conversion Chart

IPA	Simplified	Example	IPA	Simplified	Example	IPA	Simplified	Example
[æ]	[a]	hat	[k^h]	[k]	cake	[θ]	[th]	thing
[ɑ]	[A]	father	[ɬ]	[l]	little	[ð]	[Th]	this
[b^h]	[b]	baby	[m]	[m]	meme	[u]	[u]	moon
[ʧ]	[tS]	chair	[n]	[n]	note	[ʊ]	[U]	book
[d^h]	[d]	dance	[ŋ]	[N]	sing	[ʌ]	[x]	up
[ɛ]	[E]	bed	[ɔ]	[O]	ought	[v]	[v]	vase
[f]	[f]	fig	[p^h]	[p]	pin	[w]	[w]	win
[g^h]	[g]	good	[ɹ]	[r]	ring	[j]	[j]	yes
[h]	[h]	heart	[ɜ]	[R]	earth	[z]	[z]	zoo
[i]	[i]	seat	[s]	[s]	cease	[ʒ]	[Z]	beige
[ɪ]	[I]	fit	[ʃ]	[S]	shirt	stress: [ˈ]	[']	be'lieve
[ʤ]	[dZ]	judge	[t^h]	[t]	time	glottal: [ʔ]	[?]	I, ever

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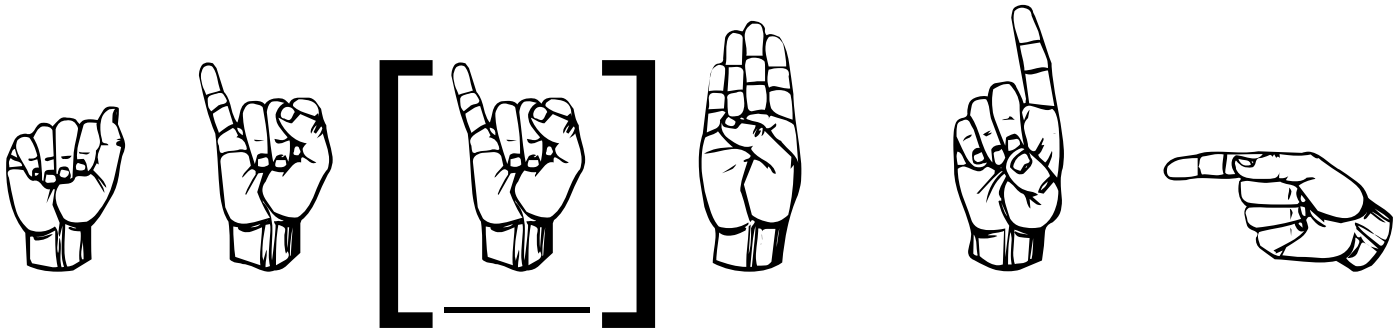
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UNIT 1:

Spellings and phonetic symbols:

a [a] i [I] b [b] d [d] g [g]



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BASIC PRINCIPLES FOR SIGNING LETTERS

Introduction

Letters are produced using one hand, the dominant hand, which should be used consistently. Most letters are static, while a few involve brief, controlled motion. Do not bounce the hand when transitioning from one letter to the next. The hand is held at chest height, slightly in front of the body, with fingers clearly shaped—neither collapsed nor overly tense. The second letter of duplicated letters is signed by moving the hand outward. These guidelines apply to fingerspelling, not full ASL.

Signing Uppercase and Lowercase Letters

This system distinguishes uppercase and lowercase letters through vertical location.

- Lowercase letters are produced at the standard signing location (chest height).
- Uppercase letters are produced by elevating the signing hand above the standard location.

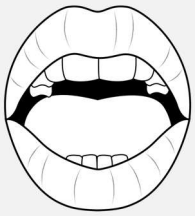
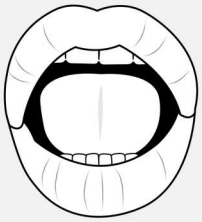
Signing Phonetic Symbols

Signed phonetic symbols are to be placed near the face. Lowercase phonetic symbols should be signed near the mouth. Uppercase phonetic symbols should be signed near the forehead. The phonetic symbols displayed in this text are placed in brackets.

Direction and Presentation-Based Modeling

For ease of presentation, the student may face the same direction as the observers while modeling phonetic symbols. When demonstrating from the front of the room, the student may stand with their back to the class, allowing observers to copy the signs directly from the signer's perspective. This orientation matches the images in the text and reduces the need for mental mirroring. Once ready, the student may rotate the wrist so that vowel and consonant symbols can be displayed near the mouth or forehead, visually aligned with the lip and tongue formation.

INSTRUCTIONAL TOOLS

	a [a]	i [I]	b [b]	d [d]	g [g]
PHONETIC SYMBOLS					
ARTICULATION	The tongue tip touches the lower front teeth while the front of the tongue forms a mildly sloped arch.	The tongue tip touches the lower front teeth while the front of the tongue forms a steep arch. The middle is lowered to form a furrow.	The lips lightly contact while the tongue tip touches the lower front teeth. Vocalized tone is released with aspiration.	The tongue tip touches the alveolar ridge. Vocalized tone is released with aspiration.	The tongue tip touches the lower front teeth while the back contacts the soft palate. The tone is released with aspiration.
LIP AND TONGUE FORMATION					
SCENT ASSOCIATION	apple pie	incense	bacon	dogwood	garlic
TACTILE ASSOCIATION	sand	inch ruler	bean bag	dominoes	gloves
TASTE ASSOCIATION	cranberry	mint	butterscotch	donuts	grapes
CHARACTER ASSOCIATION	adventurous	inquisitive	bold	dedicated	grateful

SYMBOLS AND SPELLINGS

a [a], i [I], b [b], d [d], g [g]

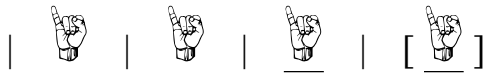
Word signing: the hand is placed at chest level.
Phonetic signing: the hand is placed beside the mouth.
Uppercase letter signing: the hand is elevated.

Order of operations: sign to self, rotate wrist to sign for receiver, elevate hand for uppercase (underlined), move hand toward mouth or forehead for phonetic symbols (in brackets).

| a | a | A | [a] (as in h<u>a</u>t)



| i | i | I | [I] (as in b<u>i</u>t)



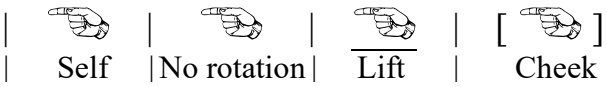
| b | b | B | [b]



| d | d | D | [d]



| g | g | G | [g]



Transcription Notes

Transcription is the process of converting the spelling of a word into its pronunciation using phonetic symbols. Phonetic symbols are enclosed in brackets. Each symbol represents one vowel or consonant sound.

Consonants that are doubled in spelling are not doubled in transcription. Silent vowels or consonants are not transcribed.

A glottal stop precedes a word that begins with a vowel. A glottal stop has a grunt-like sound. The glottal stop may be indicated with a question mark [?]. The International Phonetic Alphabet symbol is [ʔ].

Provide phonetic symbols and sign the pronunciation of the following words:

| #1 | ab



| #2 | ad



| #3 | dad



| #4 | add



Teacher's Notes

This unit may be divided into multiple lessons to manage the many new symbols. Use the associations chart on the preceding page to create a scent, flavor, and activity of the day. Scents in the form of candle wax and small tactile objects can be stored in a labeled pill container. A sample is available at: https://bit.ly/3MayfWw

| #5 | bad

|  |  | []

| #6 | dab

|  |  | []

| #7 | bag

|  |  | []

| #8 | gag

|  |  | []

| #9 | gab

|  |  | []

| #10 | bib

|  |  | []

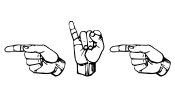
| #11 | did

|  |  | []

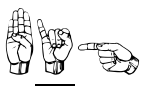
| #12 | bid

|  |  | []

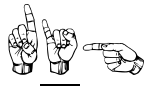
| #13 | gig

|  |  | []

| #14 | big

|  |  | []

| #15 | dig

|  |  | []

| #16 | Gib

|  |  | []

PRESENTATION EXERCISE

Provide phonetic symbols and sign the pronunciation of the following words for the class:

1. dad _____
2. gag _____
3. bib _____
4. bag _____
5. dig _____
6. bid _____
7. dab _____
8. big _____
9. bad _____
10. did _____
11. add _____
12. gab _____

PHRASE ASSIGNMENTS

Provide spellings and phonetic symbols for the following phrases:

Group Exercise

|  | See note below

| #1 |



| #2 |



| #3 |



| #4 |

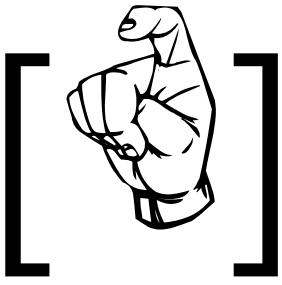


| #5 |



| #6 |





[x]

TEACHER'S NOTE

The word *a* is needed for the creation of phrases and sentences. It is a necessary sight word for beginning readers. The phonetic symbol for *a* is [x] (as in cup). The [x] sound is the stall vowel in English. It is the sound we make when we do not know what to say. It is the only vowel that has no tongue arch. The tongue lies flat on the floor of the mouth. Compare [x] to the formation of all other vowels by using an exercise called "tongue push-ups". Alternate between [x] and the particular vowel to feel the formation of the tongue and shape of the lips.

| #7 |



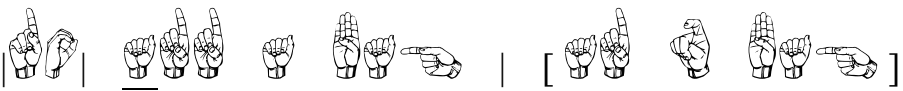
| #8 |



| #9 |



| #10 |



| #11 |



| #12 |



UNIT 2:

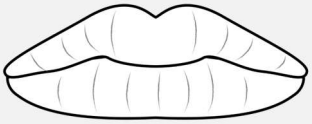
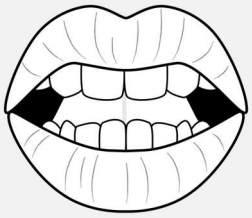
Spellings and phonetic symbols:

p [p] t [t]





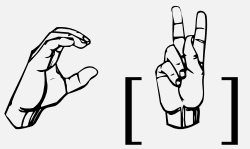
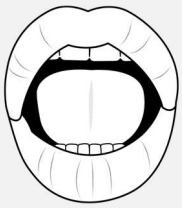
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INSTRUCTIONAL TOOLS		
PHONETIC SYMBOLS	p [p] []	t [t] []
ARTICULATION	The lips contact while the tongue tip touches the lower front teeth. The breath is released with aspiration.	The tongue tip touches the alveolar ridge. The breath is released with aspiration.
LIP AND TONGUE FORMATION		
SCENT ASSOCIATION	peppermint	thyme
TACTILE ASSOCIATION	puzzle piece	tassel
TASTE ASSOCIATION	pop corn	toffee
CHARACTER ASSOCIATION	patient	trustworthy

Full Manual Alphabet

The signed letters with a visual correspondence are highlighted below

SIGNS WITH VISUAL CORRESPONDENCE												
A	B	C		D	E	F	G	H	I		J	
			C							I		J
K		L		M		N		O		P	Q	R
	K		L		M		N		O			
S	T	U		V		W		X	Y		Z	
			U		V		W			Y		Z

INSTRUCTIONAL TOOLS		
PHONETIC SYMBOL	c [k] 	k [k] 
ARTICULATION	The tip of the tongue touches the lower front teeth while the back of the tongue contacts the soft palate. The breath is released with aspiration.	
LIP AND TONGUE FORMATION		
SCENT ASSOCIATION	coffee	kiwi
TACTILE ASSOCIATION	cotton	kazoo
TASTE ASSOCIATION	carrots	Kool-Aid
CHARACTER ASSOCIATION	confident	kindhearted

The Sounds of *c*

The *c* spelling is [k] when final or when followed by a consonant, *a, o,* or *u.*
topic ['tApIk] *crown* [krAUn] *cute* [kjut]

A stress mark ['] precedes the stressed syllable in standard phonetics

The *ck* spelling is [k]
clock [klAk]

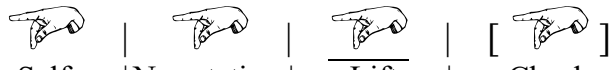
The *c* spelling is [s] when followed by an *i* or *e* (unit 14)
peace [pis] *cinch* [sIntS]

The *ch* spelling is [k] or [tS] (see units 22 and 26)
chord [kOrd] *each* [itS]

SYMBOLS AND SPELLINGS

p [p] t [t]

| p | p | P | [p]



| Self | No rotation | Lift | [Cheek]

| t | t | T | [t]



| Self | Rotate | Lift | [Cheek]

Provide phonetic symbols and sign the pronunciation of the following words:

| #1 | app



| #2 | pad



| #3 | dip



| #4 | pig



| #5 | tab



| #6 | bat



| #7 | tad



| #8 | tag



| #9 | pat



| #10 | tap



| #11 | it



| #12 | bit



| #13 | pit



| #14 | tip



| #15 | tidbit



| #16 | tat



PRESENTATION EXERCISE

Provide phonetic symbols and sign the pronunciation of the following words for the class:

1. gap _____
2. bit _____
3. pad _____
4. tab _____
5. dip _____
6. tap _____
7. tip _____
8. Pat _____
9. tag _____
10. pit _____
11. tad _____
12. bat _____

PHRASE ASSIGNMENTS

Provide spellings and phonetic symbols for the following phrases:

Group Exercise

|  |

| #1 |

|  |

| #2 |

|  |

| #3 |

|  |

| #4 |

|  |

| #5 |

|  |

| #6 |

|  |

| #7 |

|  |

| #8 |



| #9 |



| #10 |



| #11 |



| #12 |



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