



Setting Your Classroom Up for Success with the Science of Reading

Sound Walls

An important tool for supporting students' understanding of phonics - including phonemes and the different spellings or *graphemes* for each phoneme - is a **sound wall**. A phoneme refers to the smallest unit of sound in a language; there are many different graphemes - or spellings - associated with each phoneme in English. As the different phonemes are introduced during whole group instruction, cards with the phonemes written between verdules (i.e., /a/) are added to a sound wall that is displayed in an easily visible and accessible location for students. As the different graphemes for each phoneme are introduced, they are listed under the phoneme on the sound wall. **Appendix A** of this document provides a list of all of the different graphemes associated with each phoneme. This is a comprehensive list, *but only graphemes that are introduced in your grade level should be posted on your sound wall.*

A unique feature of sound walls is that they also include images of students' mouths articulating the different phonemes so that students can make the connection between what a phoneme sounds like and what their mouths should be doing when they are saying that phoneme. These images should be placed directly over the phoneme card on the sound wall. In order to make a sound wall truly interactive, teachers may choose to have a mirror nearby so that students may observe their own mouths while using the sound wall. Images of students' mouths are provided in this document, but you may also take pictures of your own students' mouths to make it more personal for your class.

Sound walls are often organized into two separate sections - vowels and consonants. Vowel walls include the different phonemes associated with vowels and are arranged in a "valley" formation that mirrors the opening of the mouth that occurs when different vowel sounds are articulated. Vowel sounds are distinguished from consonant sounds by the free-flow of air through the mouth.

Consonant walls are organized by the "manner of articulation," which refers to what the mouth does while the phonemes are being articulated (Moats, 2020). The manners of articulation are as follows:

- Stops - airflow is completely obstructed by the lips
- Nasals - airflow is obstructed in the mouth, but released through the nose
- Affricates - begins as a stop, but ends as a fricative
- Fricatives - air flows, but friction is created by small separations between articulators
- Glides - no friction in the airflow, but changes in sound are produced by the placement of the tongue and lips
- Liquids - the tongue creates a partial closure in the mouth that redirects airflow

While it is not important for students to be able to identify the manners of articulation, understanding that our mouths move differently to articulate different phonemes can help support them in applying this knowledge while reading and



writing. A hand-held mirror located near the sound wall can also support students by allowing them to look at what their own mouths do as they articulate the different phonemes.

Sound walls are not “pre-built” before the students arrive; instead, different phonemes are placed on the sound wall as they are introduced by the teacher. This helps the students actively participate in the construction of the sound wall, and enhances its utility as a resource for reading and writing. An example of a sound wall is included in **Appendix B** of this document.

Scope and Sequence

Most ELA curricula have a well-developed scope and sequence for introducing phoneme/grapheme correspondences. You should follow the scope and sequence of your curriculum, and add the phonemes and graphemes to your sound wall as they are introduced.

Assembling a Sound Wall

Sound walls require substantial bulletin board or white board space. A large bulletin/white board divided into two sections or two smaller bulletin/white boards provide enough space for a complete sound wall to be displayed. A picture of a sound wall is included in Appendix B of this document.

The sound wall cards provided by the Louisiana Department of Education provide all of the cards for phonemes and graphemes that you will need to set up a sound wall in your classroom. In addition, images of children’s mouths saying the sounds are included for you to display as well.

Appendix B of this document shows how the phonemes included in a sound wall should be organized.



Appendix A - Phoneme/Grapheme Correspondences

Phoneme	Corresponding Graphemes	Phoneme	Corresponding Graphemes	Phoneme	Corresponding Graphemes	Phoneme	Corresponding Graphemes
p	p, pp	sh	sh, ce, s, ci, si, ch, sci, ti	wh	wh	short u	u, o, oo, ou
b	b, bb	ch	ch, tch, tu, ti, te	zh	s, si, z	aw	aw
t	t, tt, th, ed	j	j, ge, g, dge, di, gg	x	x	long o	o, oa, o_e, oe, ow, ough, eau, oo, ew
d	d, dd, ed	m	m, mm, mb, mn, lm	qu	qu	oo	o, oo, u, ou
k	k, c, ch, cc, lk, qu, q(u), ck, x	n	n, nn, kn, gn, pn, mn	long e	e, ee, ea, y, ey, oie, ie, l, ei, eo, ay	long u	o, oo, ew, ue, u_e, oe, ough, ui, oew, ou
g	g, gg, gh, gu, gue	ng	ng, n, ngue	short i	i, e, o, u, ui, y, ie	schwa	a, e, i, o, u, y
f	f, ff, ph, gh, lf, ft	h	h, wh	long a	a, ai, eigh, ay, er, et, ei, au, a_e, ea, ey	er	er, ir, ur
v	v, f, ph, ve	l	l, ll	short e	e, ea, u, ie, ai, a, eo, ei, ae	ar	ar
th (voiced/ unvoiced)	th	r	r, rr, wr, rh	short a	a, ai, au	or	or
s	s, ss, c, sc, ps, st, ce, se	y	y, l, j	long i	i, y, igh, ie, uy, ye, ai, is, eigh, i_e	oi	oi, oy
z	z, zz, s, ss, x, ze, se	w	w, wh, u, o	short o	a, ho, aw, aw, ough	ou	ow, ou, ough

SOURCE: *The 44 Phonemes in English*. [The Reading Well: A Virtual Well of Dyslexia Resources](#), 2013-2020.



Appendix B



*Note: Only some graphemes have been included on this board to give you a sense for what a board that is “in progress” may look like; as you introduce the different sounds and graphemes, you then add them to your board. Only the sounds and spellings that have been introduced should be displayed.

Phonemes

Consonants

Vowels

R-Controlled Vowels

Diphthongs

/p/

/b/

/t/

/d/

/k/

/g/

/f/

/v/

/th/ ,
/th/

/s/

/z/

/sh/

/ch/

/j/

/m/

/n/

/ng/

/h/

/l/

/r/

/y/

/w/

/wh/

/zh/

/x/

/qu/

/ē/

/ī/

/ā/

/ĕ/

/ă/

/î/

/ ǒ /

/ ǔ /

/ aw /

/ ō /

/ ǒo /

/ ū /

/e/

The schwa sound should be displayed upside down.



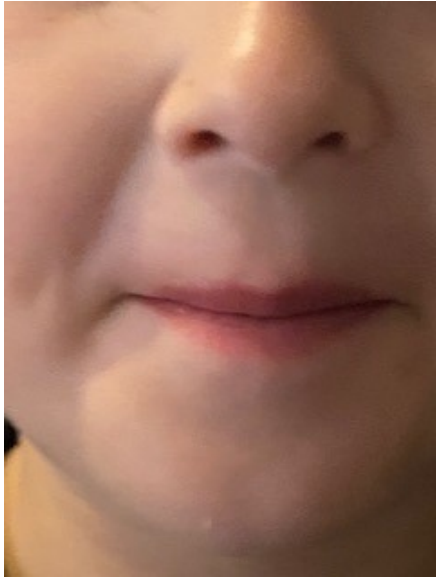
/er/

/ar/

/or/

/oi/

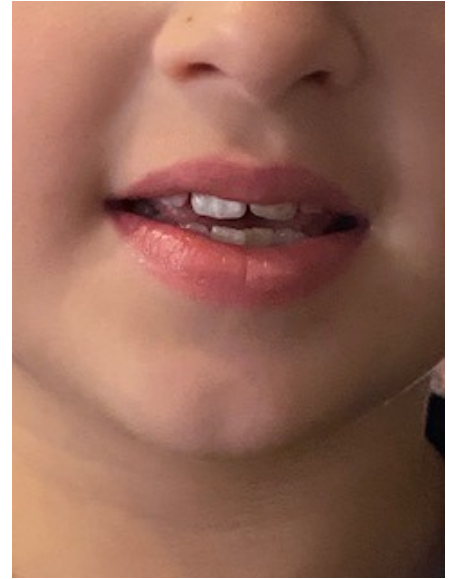
/ou/



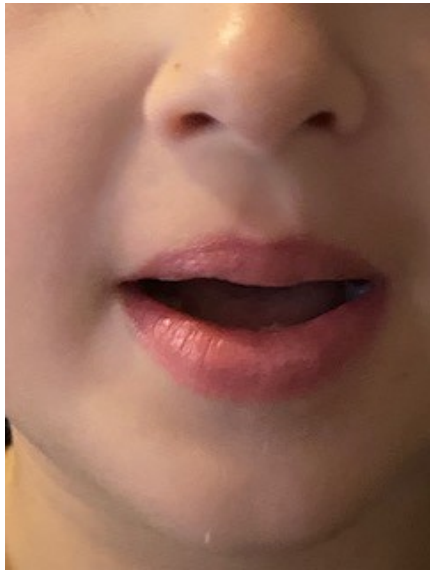
p/b



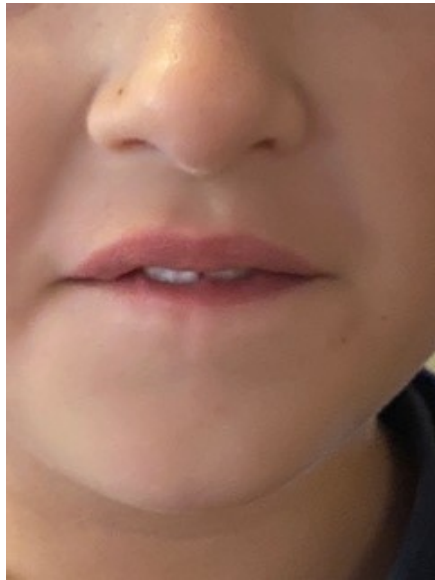
t



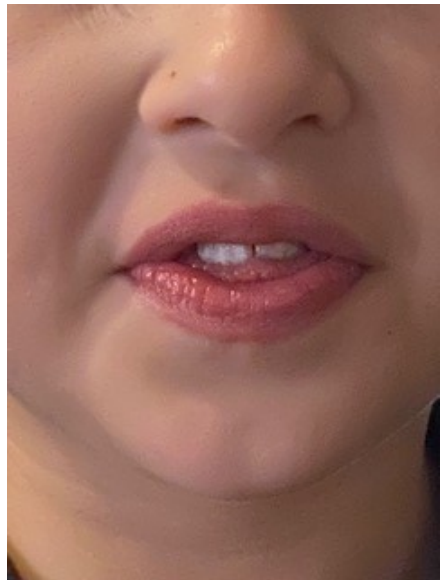
d



k/g



f/v



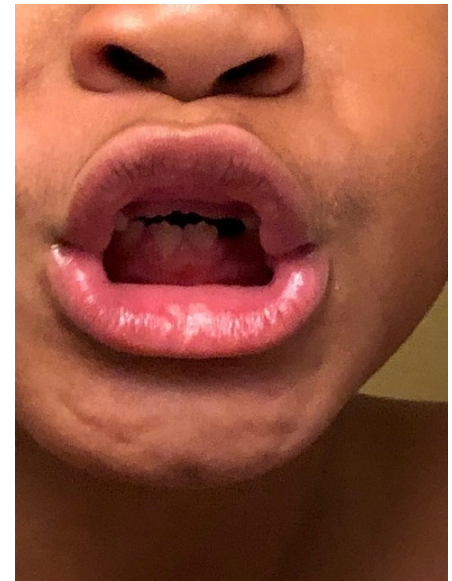
th



s/z



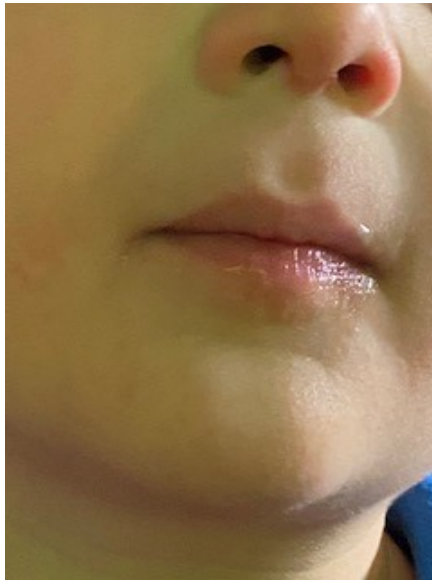
sh



ch



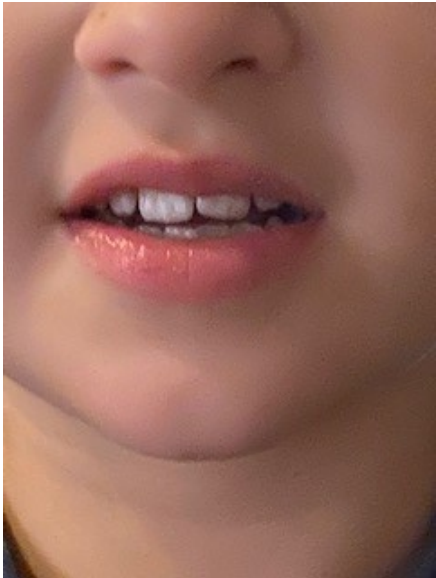
j



m



n



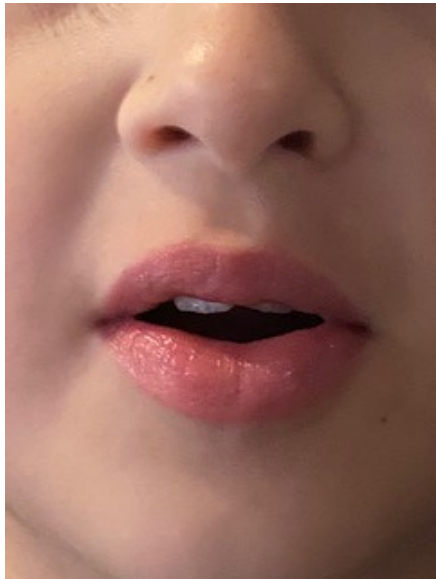
ng



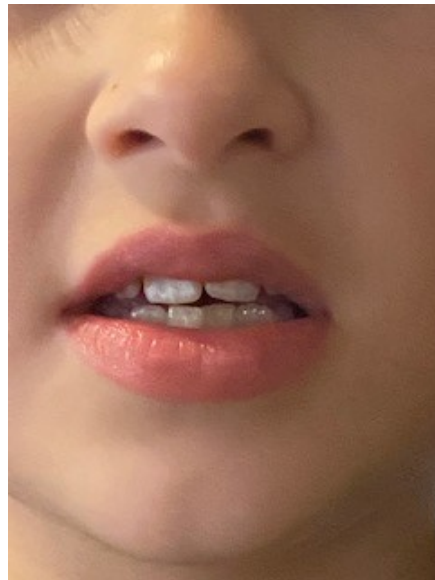
h



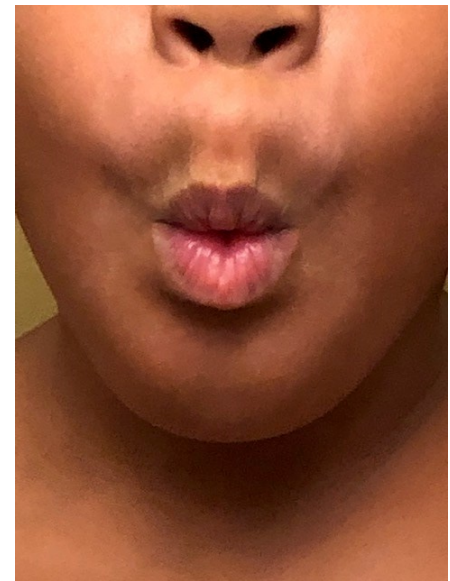
l



r



y



w/wh



zh



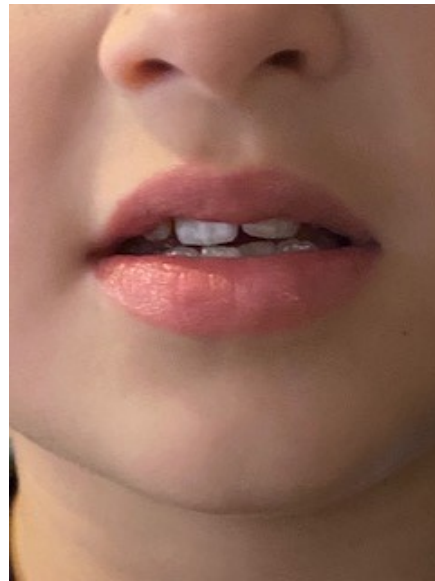
x



qu



long e



short i



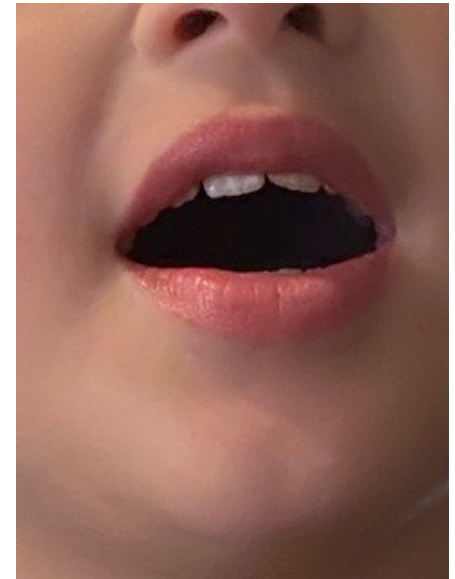
long a



short e



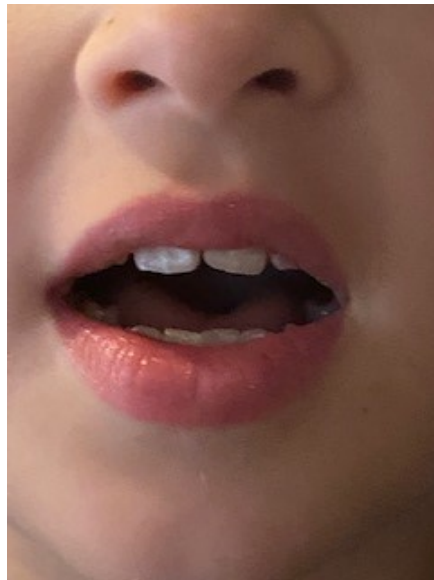
short a



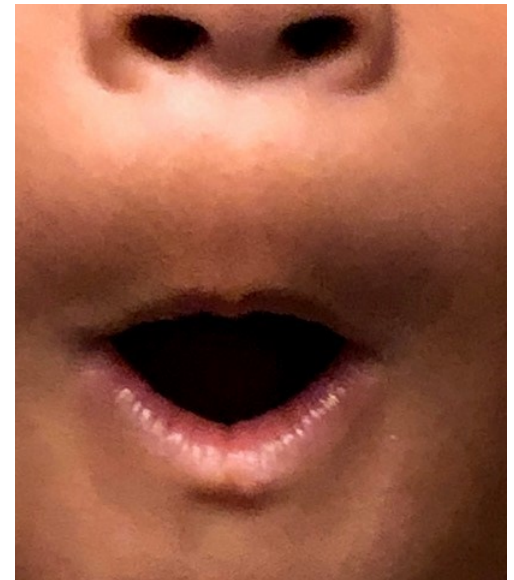
long i



short o



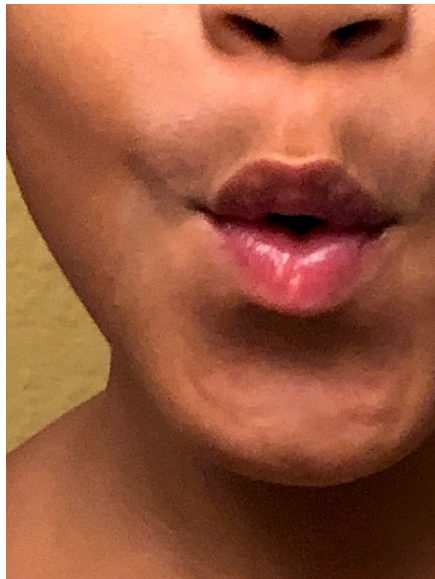
short u



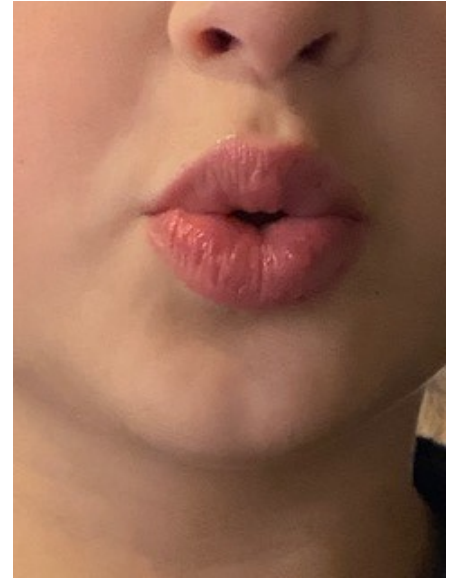
aw



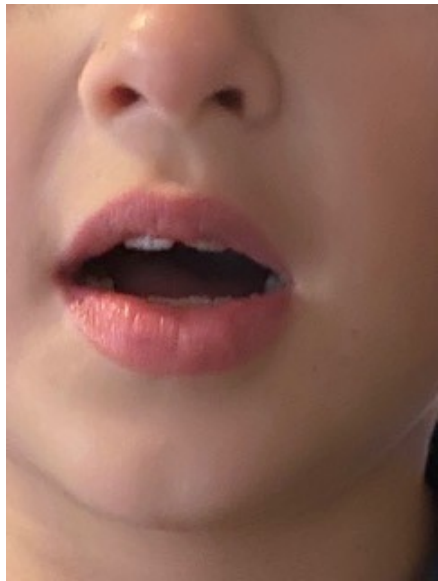
long o



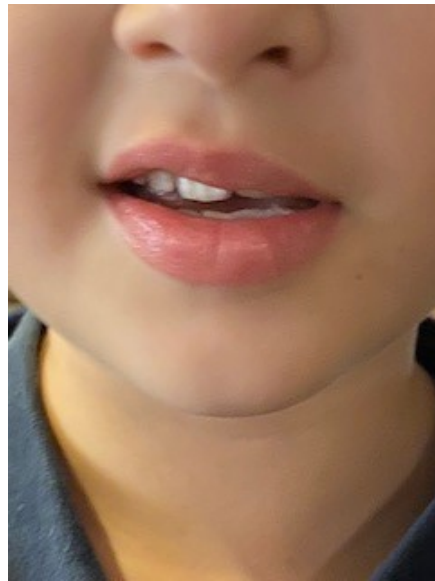
oo



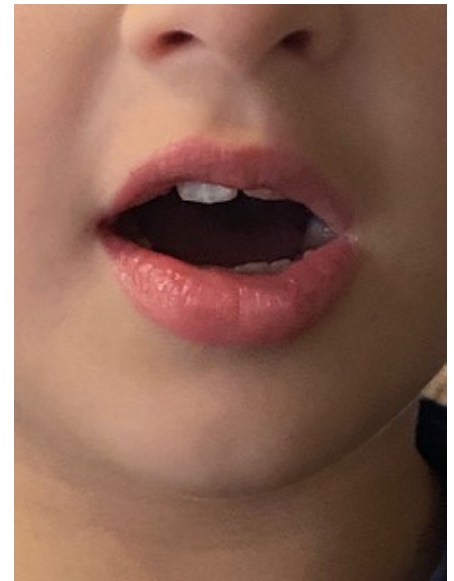
long u/yu



schwa



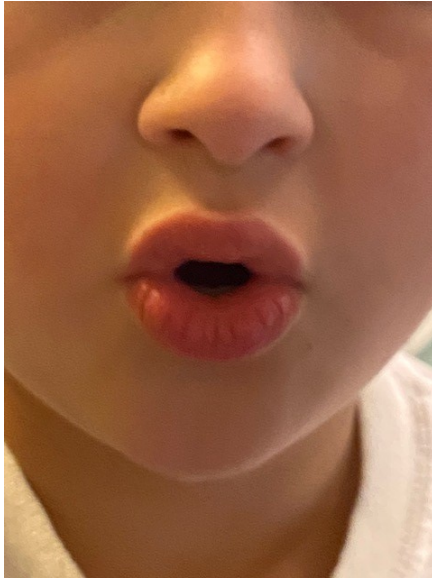
er



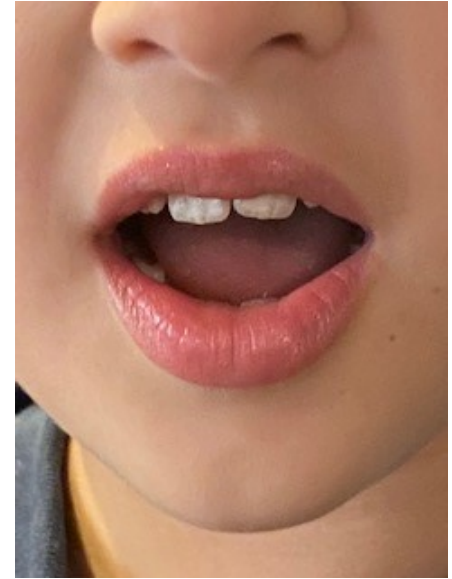
ar



or



oi



ou

Manners of Articulation

(organize your consonant phonemes according to what the mouth does while the phoneme is being articulated.)



Use the speaker symbol to indicate whether or not the phoneme is "voiced" or "unvoiced."

nasals

stops

fricatives

affricates

glides

liquids

All vowel sounds are
voiced.

VOWEL

VALLEY

Manner of Articulation	Phonemes
Nasals	/m/, /n/, /g/
Fricatives	/s/, /z/, /th/, /th/, /sh/, /zh/,
Glides	/y/, /w/, /wh/
Stops	/p/, /b/, /t/, /d/, /k/, /g/
Affricates	/ch/, /j/
Liquids	/r/, /l/
2 Sounds	/q/, /x/

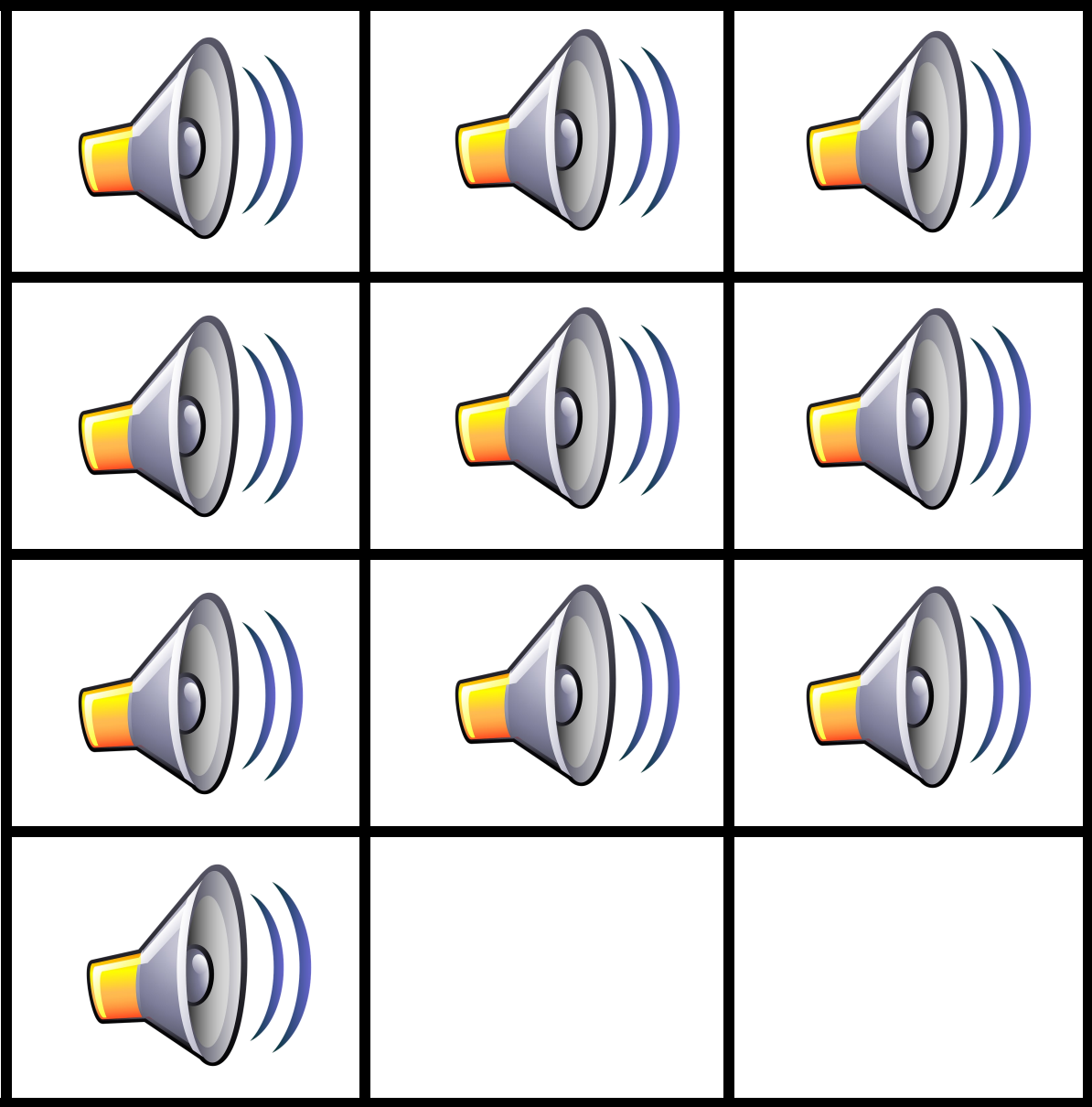


To indicate that a phoneme is “voiced,” attach one of the speaker cards to the upper right corner of the phoneme on your sound wall. The following phonemes are “voiced:”

/b/, /d/, /g/, /j/, /z/, /zh/, /v/, /w/

/th/ is sometimes voiced, sometimes not. You can place a speaker on the right hand corner, but explain that it is only sometimes voiced. The grapheme remains the same.

All vowel sounds are voiced.



Phoneme	Corresponding Graphemes	Phoneme	Corresponding Graphemes	Phoneme	Corresponding Graphemes	Phoneme	Corresponding Graphemes
p	p, pp	sh	sh, ce, s, ci, si, ch, sci, ti	wh	wh	short u	u, o, oo, ou
b	b, bb	ch	ch, tch, tu, ti, te	zh	s, si, z	aw	aw
t	t, tt, th, ed	j	j, ge, g, dge, di, gg	x	x	long o	o, oa, o_e, oe, ow, ough, eau, oo, ew
d	d, dd, ed	m	m, mm, mb, mn, lm	qu	qu	oo	o, oo, u, ou
k	k, c, ch, cc, lk, qu, q(u), ck, x	n	n, nn, kn, gn, pn, mn	long e	e, ee, ea, y, ey, oie, ie, l, ei, eo,	long u	o, oo, ew, ue, u_e, oe, ough, ui, oew, ou
g	g, gg, gh, gu, gue	ng	ng, n, ngue	short I	i, e, o, u, ui, y, ie	schwa	a, e, i, o, u, y
f	f, ff, ph, gh, lf, ft	h	h, wh	long a	a, ai, eigh, ay, er, et, ei, au,	er	er, ir, ur
v	v, f, ph, ve	l	l, ll	short e	e, ea, u, ie, ai, a, eo, ei, ae	ar	ar
th (voiced) th (unvoiced)	th	r	r, rr, wr, rh	short a	a, ai, au	or	or
s	s, ss, c, sc, ps, st, ce, se	y	y, l, j	long i	i, y, igh, ie, uy, ye, ai, is, eigh,	oi	oi, oy
z	z, zz, s, ss, x, ze, se	w	w, wh, u, o	short o	a, ho, aw, aw, ough	ou	ow, ou, ough

p

pp

b

bb

t

tt

th

ed

d

dd

ed

k

c

ch

cc

lk

qu

q(u)

ck

x

g

gg

gh

gu

gue

f

ff

ph

gh

lf

ft

v

f

ph

ve

th

s

ss

c

sc

ps

st

ce

se

pn

zz

s

ss

x

ze

se

sh

ce

s

ci

si

ch

sci

ti

ch

tch

tu

ti

te

j

ge

g

dge

di

gg

m

mm

mb

mn

lm

n

nn

kn

gn

pn

mn

ng

n

ngue

h

wh

l

ll

r

rr

wr

rh

y

l

j

w

wh

u

o

wh

s

si

z

x

qu

e

ee

ea

y

ey

oie

ie

l

ei

eo

ay

i

e

o

u

ui

y

ie

a

ai

eigh

ay

er

et

ei

au

a_e

ea

ey

e

ea

u

ie

ai

a

eo

ei

ae

a

ai

au

i

y

igh

ie

uy

ye

ai

is

eigh

i_e

a

ho

aw

ough

u

o

oo

ou

aw

o

oa

o_e

oe

ow

ough

eau

oo

ew

o

oo

u

ou

o

oo

ew

ue

u_e

oe

ough

ui

oew

ou

a

e

i

o

u

y

er

ir

ur

ar

or

oi

oy

ow

ou

ough