



TEACHING READING IN BRIEF

IMPLEMENTING ACT 139

PHONEME ISOLATION AND CATEGORIZATION, VOL. 1, NO. 4

Each series will be curated by a Vermont expert on the subject, with editing support from Dorinne Dorfman, Ed. S., Ed. D., and The Reading League Vermont. If you are interested in writing an article, please contact Dr. Dorfman at dorinnedorfman@gmail.com.

The three-part series features:

1. **Phonemic awareness** in September - November 2024, with lead editor Cara Arduengo, MS, CCC-SLP, M. Ed.
2. **Phoneme-grapheme mapping** in December 2024 - March 2025, with lead editor Kathryn Grace, M. Ed, CAGS
3. **Orthography and morphology** in April - June 2025, with lead editor Peggy Price, M. Ed., Fellow/OGA

During the 2025-26 school year, we will continue with the themes of **fluency, vocabulary, and comprehension**. We look forward to sharing the teaching expertise of your colleagues across Vermont and moving toward the goal of reading equity!

Curious Question: How many sounds can be pronounced from the single grapheme **y**?

Phoneme Isolation and Categorization

By Cara Arduengo, M.S., CCC-SLP, M.Ed.

This series has introduced phonological awareness, phonemic awareness, and phonetics in the previous three articles. This article will reiterate the key ideas for phonemic awareness instruction (teaching with letters, segmenting, and continuous phonation) based on current research. Background information and strategies will be shared for teaching the sounds of the English language not yet addressed in Teaching Reading in Brief: stops, fricatives, affricates, liquids, and vowels. A background in phonetics will help teachers avoid common pitfalls in teaching phonemic awareness. In addition, a solid background in phonetics grounds teachers for successful phonics instruction.

The following questions are answered in this article:

1. What do teachers of reading need to know about speech sounds?
2. How do classroom teachers teach phoneme isolation, segmenting, and phoneme-grapheme correspondence to their class?
3. How does a teacher assess phonemic awareness and phoneme-grapheme correspondence?
4. How can speech-language pathologists collaborate with teachers?

Getting From Words to Sounds

The most important phonemic awareness skill for reading is segmenting individual sounds in a word (Ashby et al., 2024; Schuele & Boudreau, 2008). Therefore, teachers should start with simple CVC words (consonant vowel consonant) such as *sit* or *map*, that contain the target sound, then stretch out the sounds with continuous phonation, or voicing (“sssiiiit” or “mmmmaaaaap”) (Gonzalez-Frey & Ehri, 2021). The chart below provides tips from experience in instruction and assessment of target sound-symbol correspondences. Isolating the first sound in a word is easiest, followed by identifying the last sound. The vowel in the middle of the CVC word can be isolated once students have a solid ability to isolate the consonants. (McIntyre, Protz, & McQuarrie, 2008).

Place	Phoneme	Teachers Teach and Model for Students	Monitoring and Responding to Student Learning
Front of mouth	<p><u>Stops</u></p> <p>Bilabial /p/ <i>unvoiced</i></p> <p>/b/ <i>voiced</i> See TRB No. 2</p>	<p>Stops develop early and therefore their phoneme-grapheme correspondences are often taught early in curricular sequences. However, producing stops requires the air to be cut off, which makes it impossible to stretch them out for segmenting. For that reason, teachers may want to teach them later in a sequence.</p>	<p>For children with phonological or articulation disorders, stops often replace more difficult sounds. For example, a student might say “pun” instead of <i>fun</i> or “toap” instead of <i>soap</i>. If teachers notice this pattern in a student, they should consult with the school’s speech-language pathologist (SLP).</p>

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↓	<p>Alveolar /t/ <i>unvoiced</i></p> <p>/d/ <i>voiced</i></p>	<p>Teachers and students should produce stop sounds very quickly, without adding any vowel sounds afterward, like “uh” (teachers should say /t/ unvoiced, not “tuh”, which is a common pitfall).</p> <p>The sounds /t/ and /d/ are produced with the tongue blocking the air on the alveolar ridge, at the top of the mouth behind the teeth. For visual cues to connect to sound production, teachers and students can see and feel their tongue tip up, and/or touch the side of their mouth above their top lip.</p>	<p>The morpheme -ed can be pronounced as /t/ or /d/ depending on whether the sound preceding it is voiced (resulting in /d/) or unvoiced (resulting in /t/). Given words in past tense, students should be able to isolate the final sound and distinguish between /t/ and /d/, like in ripped (/t/) or rubbed (/d/).</p>
Back of mouth	<p>Velar /k/ <i>unvoiced</i></p> <p>/g/ <i>voiced</i></p>	<p>The velar stops are produced with the tongue bunched up at the back of the mouth to block the air. Teachers and students can physically connect to the /k/ and /g/ sounds by putting a hand under their ear or jaw.</p>	<p>The letter name g is confusing for some to learn because it doesn’t contain the /g/ sound! The grapheme can sometimes make the “soft g” (/j/) sound in its name, called an affricate in phonetics. That affricate is produced at the center-top of the mouth and has a flow of air after the stop. To practice distinguishing “hard and soft g” (the stop and the affricate), students can say the sound in isolation given a CVC word containing it (such as got and gym).</p>

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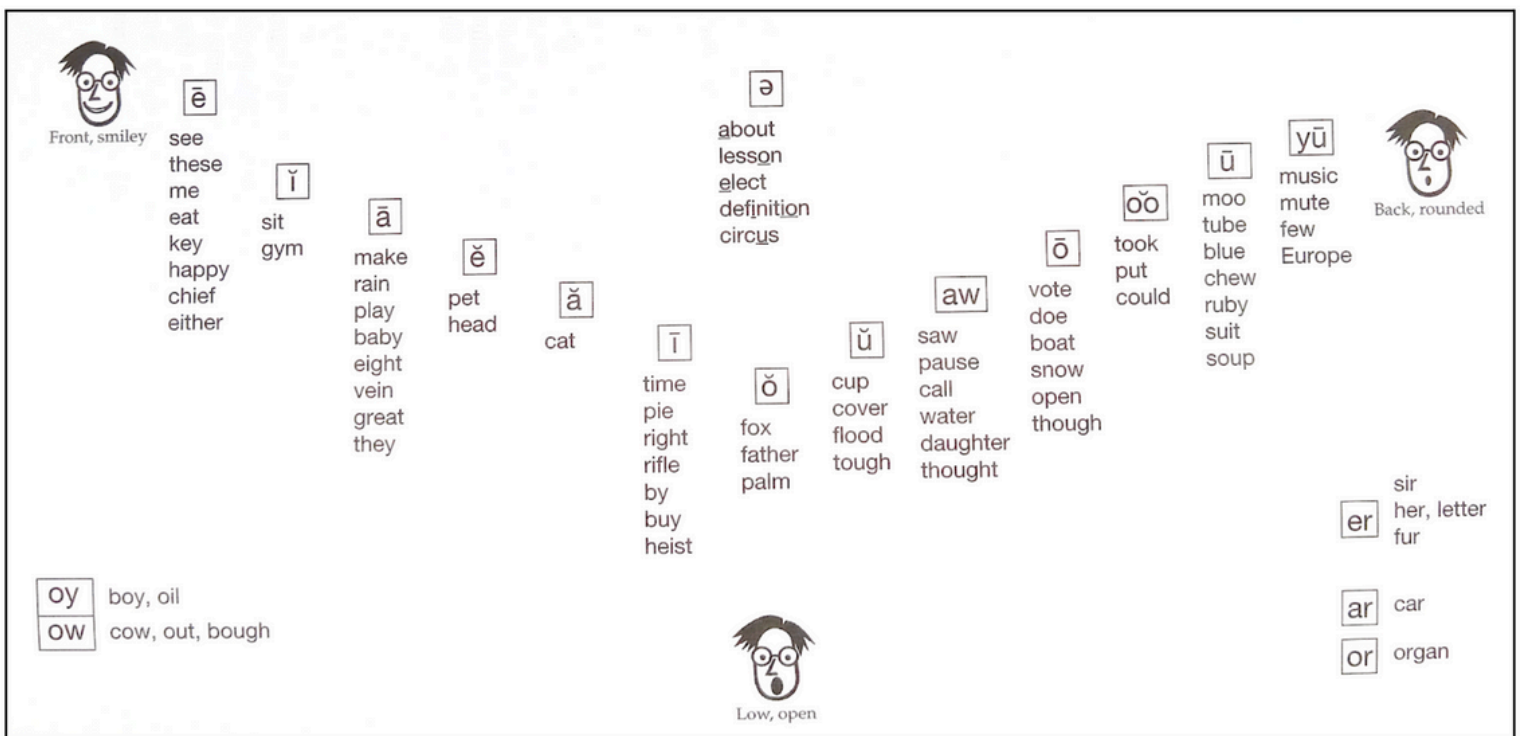
Place	Phoneme	Teachers Teach and Model for Students	Monitoring and Responding to Student Learning
<p>Front of mouth</p> <p>↓</p>	<p>Fricatives Labiodental <i>/f/</i> <i>unvoiced</i></p> <p><i>/v/</i> <i>voiced</i></p> <p>Interdental <i>/th/</i> <i>unvoiced</i> or <i>voiced</i> See TRB No. 2.</p>	<p>Fricatives work well for stretching and segmenting because the sound continues. The air in fricatives is only partially blocked, creating a turbulent “noisy” sound that students can listen for and feel.</p> <p>The sounds <i>/s/</i> and <i>/z/</i> are produced on the same alveolar ridge as <i>/t/</i> and <i>/d/</i>. Students can gesture (sky write), trace, or write the letters <i>s</i> and <i>z</i> while continually making the <i>/s/</i> and <i>/z/</i> sounds. The wavy shape of the letter matches the wavy turbulence of the airflow.</p>	<p>What the general public refers to as “lisps” are different pronunciations of the fricatives <i>/s/</i> and <i>/z/</i>. Some children may show a pattern of producing these sounds with their tongues too far forward, either toward the front teeth or even between the teeth. This is known as fronting. Other children may produce the <i>/s/</i>, <i>/z/</i>, and <i>/sh/</i> sounds with too much air rushing around the tongue through the cheeks, creating a slushy sound. This is known as lateralized production. If these frontal or lateral productions are noticed in kindergarten and after direct instruction, the SLP should be contacted for further assessment.</p>
<p>Middle of mouth</p>	<p>Alveolar <i>/s/</i></p> <p><i>unvoiced</i> <i>/zh/</i> <i>voiced</i></p> <p>Palatal <i>/sh/</i> <i>unvoiced</i></p> <p><i>/zh/</i> <i>voiced</i></p>	<p>Moving the tongue back from <i>/s/</i> to the roof of the mouth produces <i>/sh/</i>, and <i>/z/</i> becomes <i>/zh/</i> (as in <i>vision</i>) at the palate. The <i>/zh/</i> sound-symbol correspondence is not usually taught until later, as it is less frequent, and produced by several different graphemes (<i>beige</i>, <i>measure</i>). The <i>/sh/</i> sound can be explained as a digraph, which has two letters (<i>sh</i>), that together make a single sound (<i>shop</i> = <i>/sh/ /ō/ /p/</i>).</p>	

Place	Phoneme	Teachers Teach and Model for Students	Monitoring and Responding to Student Learning
<p>Front of mouth</p> <p>↓</p> <p>Middle of mouth</p>	<p><u>Affricates</u></p> <p>Palatal <i>/ch/ unvoiced</i></p> <p><i>/j/ voiced</i></p>	<p>An affricate is a combination of a stop and then a fricative. These sounds are produced at the roof of the mouth, or palate.</p> <p>Adding a /t/ to the /sh/ sound creates /ch/ (as in chip), as adding a /d/ to /zh/ creates /j/ (as in gem or jam). The digraph ch is therefore related to the other digraph sh. The letter name j starts with the /j/ sound and is a useful swooping shape for gesturing, tracing, or writing while producing the turbulent sound /j/.</p>	<p>Preschoolers may still be developing these sounds, but 90% of children will produce them correctly before kindergarten (Crowe, & McLeod, 2020).</p> <p>Students may mix up /ch/ and /sh/. It can help to remind them that /ch/ is a choppy sound, with that /t/ stop at the beginning. /sh/ is a continuous phoneme, whereas /ch/ is not.</p>
<p>Front of mouth</p> <p>↓</p> <p>Back of mouth</p>	<p><u>Glides</u></p> <p>Bilabial <i>/w/ voiced</i></p> <p>Palatal <i>/y/ voiced</i></p> <p>Glottal <i>/h/ unvoiced</i></p>	<p>The /w/ and /h/ glides were introduced in TRB No. 2, leaving /y/. The glide /y/ is produced with a more obvious movement of the tongue at the top of the mouth (palate). The swooping shape of the letter matches the gliding movement of the tongue.</p>	<p>The letter name for y begins with the rounded glide /w/, as in /wī/, which can be confusing for students.</p> <p>Articulating the phoneme /y/ is done with a smile, whereas the phoneme /w/ produces rounded lips. Teachers can look for this difference to check student production at a glance.</p>

Place	Phoneme	Teachers Teach and Model for Students	Monitoring and Responding to Student Learning
<p data-bbox="69 646 167 768">Front of mouth</p> <p data-bbox="69 1041 172 1163">Middle of mouth</p>	<p data-bbox="245 716 350 789"><u>Liquids</u> voiced</p> <p data-bbox="245 842 412 877">Alveolar /l/</p> <p data-bbox="245 1062 394 1098">Palatal /r/</p>	<p data-bbox="550 300 911 422">A liquid is amorphous like its name, filling the space between the articulators.</p> <p data-bbox="550 474 927 856">The /l/ sound is a bit easier to distinguish and associate with the letter <i>l</i> because it is further front, again tapping that alveolar ridge. The shape of the tongue reaching up can be associated with the letter <i>l</i> stretching up and down.</p> <p data-bbox="550 909 927 1514">The /r/ sound can be made two different ways: with the tongue tip bent up and backward to the palate, or with the back of the tongue bunched and tense near the top of the mouth. Students can feel how the two liquid sounds are related by stretching out the beginning of the word <i>learn</i>, moving their tongue front to back from /l/ to /r/.</p>	<p data-bbox="987 432 1544 596">Liquids can be produced in several different ways with the tongue and can be difficult for young children to produce.</p> <p data-bbox="987 648 1552 989">Japanese and Cantonese do not contain the alveolar liquid in their phonetic repertoire, so speakers of these languages may have difficulty with /l/. The /l/ in Spanish can sound more like a trill; this pronunciation should be considered correct for Spanish speakers (Ashby et al., 2024).</p> <p data-bbox="987 1041 1544 1381">Some kindergarteners may not yet produce /r/, but 90% will by the end of the year. Initial /r/ as in <i>run</i> is typically easier to produce than vocalic /r/ as in <i>for</i>. Teachers should ask their SLP about first graders not producing initial /r/, if they're not already being seen for speech therapy.</p>
<p data-bbox="69 1661 167 1782">Front of mouth</p> <p data-bbox="69 1835 180 1913">Back of mouth</p>	<p data-bbox="245 1661 342 1749"><u>Nasals</u> voiced</p> <p data-bbox="245 1766 418 1801">Bilabial /m/</p> <p data-bbox="245 1818 423 1854">Alveolar /n/</p> <p data-bbox="245 1871 396 1906">Velar /ng/</p>	<p data-bbox="550 1745 873 1822">Nasals are discussed in TRB No. 2.</p>	

Vowels

English has 6 letters (**a, e, i, o, u**, plus **y**) to write vowels, but has 15 vowel sounds! A vowel provides the push of breath at the heart of each syllable (măăăth (**math**), hōōōp (**hope**), as it resonates and is not stopped or restricted by the articulators. Each vowel letter has a short and long sound. The vowel chart below (Moats, 2020, p. 110), is often called the “Valley of the Vowels,” due to the gradual lowering and raising of the jaw to make different vowel sounds..



Students can feel and see their mouths making different shapes as they learn the vowel letter names **a, e, i, o, u**, to solidify phoneme-grapheme correspondences. The long e /ē/ sound is the easiest place to start, with the lips spread wide and the tongue furthest toward the teeth. Placing their hands under their chins, students can feel their jaw dropping as they go from /ē/ to /ā/ to /ī/. Then, they feel their jaw rise, their lips round, and their tongue move back for /ō/ and then /ū/. To produce the letter name /yū/, students need to add the glide first /y/.

Short vowels are interspersed in the Valley of the Vowels with the long vowels that say the letter names. Going down from the front, **short** *i* /ī/ comes first after /ē/. Then, /ě/, /ǎ/, /ũ/, and /ǒ/ at the most open jaw. Two additional vowels are distinct in phonetics, /aw/ and /oo/, which are very similar to /ǒ/ and /ũ/.

The **schwa** sound in the middle of the chart is the unaccented “uh” sound when the tongue is lax. This will be addressed with multisyllabic words, forthcoming in article six of Teaching Reading in Brief.

Diphthongs are gliding vowels, so are placed to the side on the vowel chart. These also tend to be taught later in a phonics scope and sequence. The /oy/ (such as **toy**) diphthong glides from rounded /ō/ to smiling /ē/. The /ow/ vowel sound (such as **shout**) glides from /ǎ/ to a rounded /yū/ or /ū/ sound.

Intervention

Instructors track accuracy using a brief formative assessment with a simple plus/minus or check for each phoneme-grapheme correspondence. Students who did not get it right the first time can receive the next layer of intervention in the classroom, with follow-up practice providing more multimodal associations and rapid-fire opportunities. Teaching students to attend to articulators is especially useful for at-risk readers, those scoring in the lowest 25% in benchmark assessments (McIntyre, Protz, & McQuarrie, 2008).

The school’s speech-language pathologist should collaborate as part of the teaching team in phonemic awareness and alphabets (Justice, 2006).

After teaching all these sounds, benchmark assessments should be conducted for phonemic awareness and phoneme-grapheme correspondences. This provides a check to be sure students remember their learning of all sounds and letters taught so far.

Summary

In Vol. 1, No. 2-4, Teaching Reading In Brief has addressed nearly all English phonemes and how each is articulated. This phonemic awareness anchors preschool and kindergarten teachers with the background necessary to prepare for effective instruction and assessment, and for catching students struggling with articulation and beginning letter-sound correspondences (Ehri, 2022). Next in the series will be more complex phoneme manipulation tasks and multisyllabic words.

Answer to this issue’s Curious Question:

The letter **y** can make 4 different sounds: /y/ (**yet**), /ē/ (**candy**), /ī/ (**try**), and /ĩ/ (**gym**).

Meet the Writers and Editors



Cara Arduengo loves collaborating with teachers in Vermont public schools. After earning her Bachelor of Arts at Middlebury College, she attended the Upper Valley Educators Institute and New England College and taught 7-12 English Language Arts. She graduated from the Massachusetts General Hospital - Institute of Health Professions where she pursued a certificate of advanced study in reading, recognized by the International Dyslexia Association. Her passion at work is analyzing the components and connections of written language. She is a speech-language pathologist (SLP) at The New School of Montpelier. Previously she worked at Barre Town Middle School and Milton Middle School. Cara also likes to tie in her other experiences as a tutor, violin teacher, and outdoor educator.

Dorinne Dorfman has served as a teacher and principal for nearly 30 years in Vermont's schools. After completing her undergraduate studies at Goddard College, she earned her Master's and Doctorate in Educational Leadership at the University of Vermont. As a postdoctoral Fulbright Scholar, she taught at the Technical University of Berlin and conducted research on democratic education in Germany. Since completing an Education Specialist Degree in Reading and Literacy Instruction at BayPath University, Dr. Dorfman teaches evidence-based literacy at Barre Town Middle School.



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Additional Resources

The Reading Universe, Phonological awareness:

<https://readinguniverse.org/explore-teaching-topics/word-recognition/phonological-awareness>

Reading Rockets, Phonological and phonemic awareness:

<https://www.readingrockets.org/topics/phonological-and-phonemic-awareness>