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!

Phonemic Awareness:
Some First Sounds to Teach

By Holly C. Weiss, M.A., CCC-SLP, CALP and Cara Arduengo, M. S., M. Ed., CCC-SLP

The English language is a fascinating and complex system that spans across time and cultures. It begins with the 44 phonemes (speech sounds) of the English language that are represented by the 26 letters of the alphabet and the other 225+ graphemes the letters create. A grapheme is a letter or combination of letters that spell a single phoneme. For example, depending on the word's origin, the phoneme /sh/ can be spelled ship, chef, nation, musician, and session. Although 90% of students develop speech articulation and perception correctly without intervention, the development of phonemic awareness (PA) skills that support skilled reading often requires direct instruction. The National Reading Panel (NRP) identified PA as one of the five components of reading (listed first before phonics, fluency, vocabulary, and comprehension). In the NRP report (2000), the authors state:

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*It is essential to teach letters as well as phonemic awareness to beginners. PA training is more effective when children are taught to use letters to manipulate phonemes. This is because knowledge of letters is essential for transfer to reading and spelling. Learning all the letters of the alphabet is not easy, particularly for children who come to school knowing few of them. **Shapes, names, and sounds need to be overlearned so that children can work with them automatically to read and spell words.** Thus, if children do not know letters, this needs to be taught along with PA (p. 2-41) (emphasis added).*

In the NRP analysis, studies that spent between 5 and 18 hours teaching PA yielded very large effects on the acquisition of phonemic awareness. Studies that spent longer or less time than this also yielded significant effect sizes, but effects were moderate and only half as large (p. 2-42).

In this article, we suggest ways of teaching phonemic awareness using ten consonant sounds. Please note that phonemes are flanked by slash marks around a letter or symbol (such as /k/, /ŏ/, and /ə/) to distinguish phonemes from letters. Moats (2020) recommends including phonic symbols for instruction to distinguish between phonemes and conventional spellings. These symbols, especially those for short and long vowel sounds, are also typically used in dictionaries, which would then become understandable to students.

Although the classroom lessons presented are geared for Pre-K and early kindergarten, the instructional activities can also be used by special educators, speech-language pathologists, reading interventionists, and any teacher providing remedial services with students who have yet to master phoneme isolation or letter-sound correspondence.

The following questions are answered in this article:

1. How do classroom teachers instruct phoneme isolation and phoneme-grapheme correspondences to their class?
2. How does a teacher assess phonemic awareness and measure student progress?
3. What are some effective remediation activities for a small group?
4. When is it time to contact the speech-language pathologist?

Curious Question:
How many grapheme–phoneme correspondences do students need to know to begin reading words and early decodable text?

Check the last page for the answer!

In order to reach reading proficiency, the majority of students require systematic and explicit instruction in phonemic awareness (Rice et al., 2022). Instruction focusing on individual sounds is at the level of phonemic awareness (PA). The skills of segmenting and blending individual sounds are the most important PA skills for students in learning to read (Ashby et al., 2023; Schuele and Boudreau, 2008).

When teaching a sound and the corresponding letter, teachers can ask students to isolate the phoneme(s) within a word.

This instruction is appropriate for preK and early kindergarten (Ashby et al, 2023; Bursuck & Damer, 2011). Becker and Sylvan (2021) found that students who were provided with mirrors, mouth pictures (pictures of mouths showing individual speech sounds), squares (to represent syllables), and blocks (to represent sounds) showed growth in their ability to segment sounds and identify letters in words.

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In my (Holly's) practice, I have modeled and taught for students this method:

1. Isolating the beginning phoneme (onset) (such as /s/ in *sat*).
2. Stretching out a short word (sssssăăăăăt) and saying it slowly (*sat*).
3. Saying the word sound by sound (segmenting) (/s/ - /ă/ - /t/).

After learning the corresponding phoneme and grapheme, students can (1) articulate each sound without pausing (sssssăăăăăt), (2) say the word slightly faster, and then (3) quickly blend the sounds to say the whole word.

An important study conducted by Gonzalez-Frey and Ehri (2021) compared two approaches to decoding instruction for kindergarteners who could not yet read.

The first method involved teaching students to segment sounds, such as /f/ /ă/ /n/ - *fan*, as commonly found in reading programs. The second method involved teaching students connected phonation (continuous blending) of sounds: ffffăăăănnnn - *fan*. While further research is needed, this study corroborated earlier findings that decoding instruction is more effective with connected phonation, starting with continuants (phonemes that can be continued with the breath, e.g., /l/, /m/, /s/, /v/) and moving to stop consonants (phonemes where the breath is stopped, e.g. /b/, /d/, /g/ /t/).

Spoken English

During reading instruction, teachers instruct which sounds, or phonemes, are represented by different graphemes. Teachers should clarify whether their focus is the phoneme or grapheme (such as the sound /k/ vs. the letter *k* "kay"). This helps students understand that a single sound can be represented by multiple graphemes or combinations of letters. Graphemes may make different sounds, such as *ch*, which can say /k/ (*chorus*), in addition to /ch/ in *chum* and /sh/ in (*mustache*) (Terrell and Watson, 2018).

An understanding of phonetics can help PreK-2 teachers provide more effective reading and writing instruction, as they have new insights into connecting oral language to print (Becker and Sylvan, 2021; Gillon et. al., 2021). Spoken English is composed of phonemes that are divided into different categories based on place, manner, and voicing.

Place refers to the articulators used to produce the sound and where the sound takes place, specifically the lips, teeth, or tongue, hard palate (bony front area of the roof of the mouth), and the soft palate (softer back area of the roof of the mouth).

Manner refers to the type of sound that is produced, for example, a nasal sound (/m/, /n/, /ng/) or continuous air flow (such as /f/ and /th/).

Sounds produced are either **voiced or unvoiced**, with the vocal folds vibrating (such as /d/ and /z/) or not (/t/ and /s/).

In our experience, an effective way to begin instruction of isolated phonemes is with sounds articulated at the front of the mouth. Students can more easily see sounds that are produced by:

- **Lips:** the bilabials /p/, /b/ and /m/
- **Lips and teeth:** the labiodentals /f/ and /v/
- **Teeth and tongue:** the linguadentals /th/, which is voiced or unvoiced

These are the only phonemes that are made entirely at the front of the mouth and completely visible when teachers model them or students look in a mirror. We will also address /n/, /w/, and /h/, which in our experience are easy first sounds for students to distinguish. When practicing the isolated sound, teachers can make multimodal connections between the phoneme and the grapheme by involving students in hands-on activities, in which they move sound tiles, mirror hand gestures, or choose the targeted letter(s).

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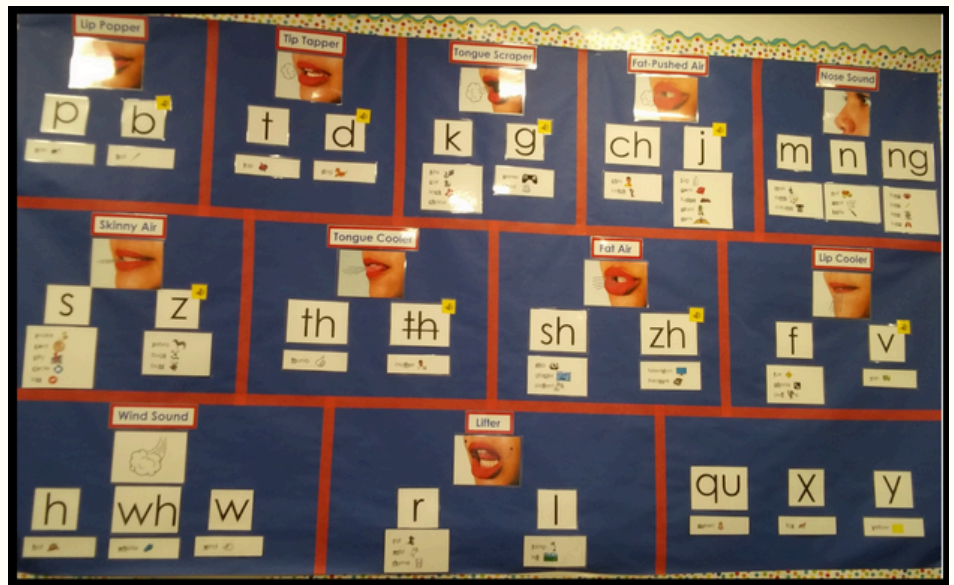

Fig. 1. Classroom sound wall with LiPS images
(photo courtesy of Dorinne Dorfman)

Phoneme	Teachers Teach and Model for Students	How Teachers Assess Student Learning
For all phonemes *continued on next page*	Isolate the sound as the first or last from a word. Segment the sounds in a short word, saying the word slowly and then saying each sound separately in immediate repetition. Use fingers or tokens to represent sounds (Schuele and Boudreau, 2008). Look in a mirror or at each other to watch each articulator (tongue, lips, teeth, palate) and describe what it does. Look at the letter(s) while making and discussing the sounds.	Phoneme isolation and segmentation are better assessed in a small group or individually. Ask a student to say the first or last sound in a word without giving the answer first. Ask a student to say each sound in a three-sound word, not in repetition. Keep data on these phonemic awareness skills separately from phoneme-grapheme correspondence, as students may vary in their abilities (Ashby et al, 2023). If a student pronounces words differently in a pattern consistent with a home dialect, accept that pronunciation as correct (Ashby et al, 2023).

Phoneme	Teachers Teach and Model for Students	How Teachers Assess Student Learning
For all phonemes	Trace or write the letter while making the sound. Create and refer to a sound wall, which includes mouth pictures arranged in articulation categories, and the corresponding letter(s) (see fig. 1 below). Finally, blend the target sound back into a short word. Say each sound, then say the whole word slowly. Again, use three fingers or letters to represent the sounds. Students repeat what the teacher says teacher chorally.	Circle around the students and ask them, one by one, to say the targeted phoneme. Shy students can say it in the teacher's ear. Show a letter and ask students, one by one, to make the sound. Each student makes the targeted sound(s) as an exit ticket at the end of class. Maintain a class list with a column for each phoneme, which is checked off for each student who produced both sound and letter. Assess blending in small groups or individually. Say three separate sounds and ask students to repeat them, then blend them into a whole word. Using manipulatives or letters may support working memory here.
Bilabial /p/, /b/	The phonemes /p/ and /b/ are produced when the lips pop apart with the force of air building up behind them. Ask students to feel the puff of air with their palms in front of their lips. There will be less of a puff for the /b/ because it is voiced.	Scan the class as students make the sound in unison to ensure lips are coming together and apart. Ask students, one by one, to demonstrate articulation of the two sounds and correctly state which phoneme represents the letter *p* or *b*.

Phoneme	Teachers Teach and Model for Students	How Teachers Assess Student Learning
Voicing **Glottal /h/**	Though students can't see the vocal folds, they can feel their vibrations on the larynx (Adam's apple or throat). Ask students to feel their throat vibrate or buzz as they hum the phoneme /m/. The phoneme /h/ is voiceless, made with a push of air through the vocal folds (glottis). Ask students to feel the air with one hand and feel their throat being still with the other. Be sure **not to teach** plosive phonemes /p/, /b/, and /h/ with a schwa (/ə/ or "uh") at the end. Try to clip the sound as precisely as possible. In our experience this is important for blending sounds, so students don't have to unlearn, "buh-luh / ū/," and instead sound out, /b/ - /l/ - /ū/.	The /h/ sound is a good one for students to whisper to the teacher for assessment when asked about the letter **h**. Listen carefully as students make both the voiced and unvoiced sounds as a pair (called cognates). If students add a vowel sound to the stop or plosive consonant (saying, "buh" or "huh"), ask them to gesture with their hand to cut off the sound stream with imaginary scissors in front of their mouth.
Nasal **/m/, /n/**	The phoneme /m/ is produced when the lips seal together and force air up through the nasal passageway. For this to occur, the soft palate (roof of the mouth, in back) has to pull down to allow the air to be forced upward and out the nose. Show students the difference between /b/ and /m/ by having them hold their nose while producing each sound. They will find no difficulty producing /b/, but it will be impossible to produce /m/. The other nasal sound is /n/ with the tongue at the top of the mouth (alveolar). Teach this with the letter **n** and the keyword "nose." Have students feel their nose buzz when they say /n/.	Scan the class as students press their lips together as they repeat /m/ or to check that they are distinguishing /m/ from /n/. Ask students to distinguish between /n/ and /m/ by giving a word that starts or ends with /n/ or /m/ and having students isolate and produce that first or last sound. Students can point to or write the letter **m** or **n** when given the sound.

| Phoneme	Teachers Teach and Model for Students	How Teachers Assess Student Learning
Glide /w/	Teachers can show students to listen for the air gliding between their lips when articulating /w/. Show students how the lips round and have them trace the circle of their own lips with their finger. They can also notice the push of air in front of their lips.	Scan the class for rounded lips as students repeat the /w/ sound. Some phonemic error patterns substitute the easy /w/ glide for harder liquid sounds, specifically /r/ or /l/. Note these errors and point out to students that they are making the rounded /w/ sound for the letter **w** and not another letter.
Labiodental /f/, /v/	Labiodental sounds are produced by placing the top teeth on the bottom lip. The /f/ phoneme is produced when air is forced between the teeth and lips with the voice off. Its counterpart, the /v/ phoneme, is produced in the same manner, but with the voice on. Teach students to place their hand in front of their mouth and feel their breath against their hand. Notice that /v/ feels like their bottom lip is buzzing.	Scan the class for teeth on bottom lips. One at a time, say words with the letter **f** and ask students to repeat the word and isolate the targeted phoneme. Repeat for letter **v**. After students have mastered both, words that have either **f** or **v**, ask them to state which sound was in the word. Point to the letters **f** and **v**, and listen to their pronunciation (voiced or unvoiced) to be sure they correctly choose /f/ or /v/.
Linguadental /th/	In written English, this sound is represented by **th** regardless of its production. Spoken English has a voiced version (**the, weather**) or a voiceless version (**thick, south**). Show students to produce /th/ by placing their tongue gently between their top and bottom teeth. Ask them to feel their tongue buzzing when they turn their voice on (**that, breathe**).	Scan the class for tongues between the teeth. Students should produce both the voiced and unvoiced with tight cheeks. (Some students attempt to produce this sound while their cheeks puff out, which the teacher must correct.) The teacher makes sure that students keep their cheek muscles tense, forcing the air out the front of the mouth, not into the cheeks.
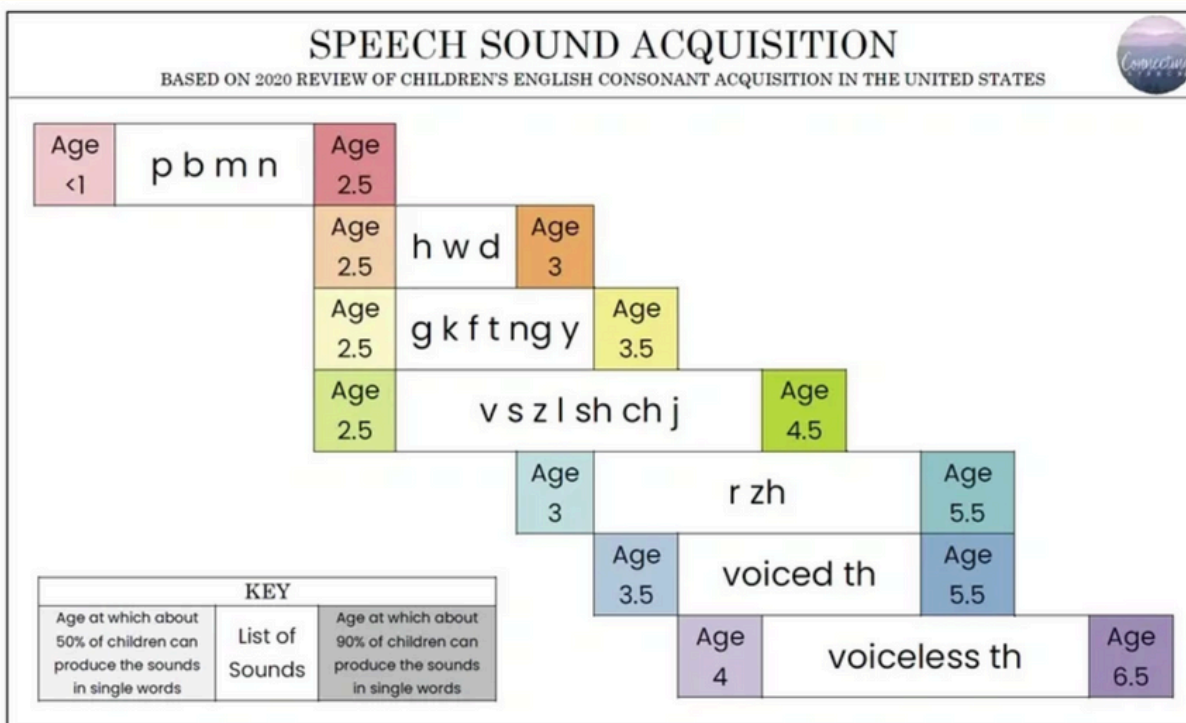
Fig. 2 Speech Sound Acquisition Chart (Troughton, 2020, based on Crowe, K. C. & McLeod, S., 2020)

Intervention: When whole-class instruction is not enough

Children are astute observers and typically develop correct speech and language skills through exposure, interactions, and play. Ninety percent of children master speech sounds within the ages in Troughton's chart (Fig. 2).

Since most students will develop correct articulation and perception of speech sounds within the range depicted in the progression above, PreK and kindergarten teachers can concentrate on segmenting sounds in words and associating letters with sounds.

For each student who doesn't correctly isolate or produce a phoneme when given a word or letter after the whole-group lesson, the teacher can provide follow-up lessons in a small group (<5 students). In our experience, at least ten rapid opportunities to practice the sound in isolation in connection with the letter will address the deficit. For further practice segmenting and blending, it is helpful to say words very slowly, use visual clues (exaggerated mouth and gestures) and show the corresponding letter to support auditory memory (Terrell and Watson, 2018).

If a student is still not isolating sounds in words or producing the correct sound when shown the letter after further multimodal practice, contact the school speech-language pathologist (SLP) and special educator. The SLP will want to see classroom data for articulation and phoneme-grapheme correspondences taught. The SLP should reinforce the grapheme while teaching the speech sound for maximum benefit (Apel and Werfel, 2014). When teachers

catch difficulties at this early stage and provide targeted remediation, students are more likely to catch up with whole-class instruction (Catts et al, 2001). Assessing student progress on phoneme-grapheme correspondence in PreK and kindergarten is critical to proficient reading development.

School speech-language pathologists are an excellent teacher resource. They can answer questions about correct phoneme articulation and instruction, why a specific student may struggle to produce a sound, or how to further assess phonemic awareness. SLPs often have resources like visuals, games, and word lists for teachers and reading interventionists to add to their instructional repertoire.

Holly's Reflection

During my student teaching experience, I was lucky enough to have a mentor who understood the task of teaching students to read. He emphasized that teaching students to read is "rocket science" and poor instruction can lead to a lifetime of reading and writing errors or even illiteracy for many students.

I have found that students enjoy learning the "why" behind our rich, complex language. The "why" often helps students connect to written language and remember word families (such as **walk, talk, chalk, balk** or **kind, find, mind**) and morphemes (the meanings of prefixes, roots, and suffixes).

Teachers can't know everything. It's okay to say, "I don't know, but will find out," and then follow up by sharing the answer in the next lesson. It's not okay to tell students that their questions don't matter or there is no answer. Our students grow to understand and appreciate our English language. When teachers maintain our written language, future generations can continue to connect and learn from the generations of the past.

> **Answer to this issue's Curious Question:**
> How many grapheme–phoneme correspondences do students need to know to begin reading words and early decodable text?
>
> Ehri (2022) found students could read a simple decodable text with just four consonants and two vowels! As we noted earlier, students need to be explicitly taught the connections between letter shapes, names, and sounds. Providing practice blending real words in text helps facilitate strong connections. Here is a simple example with **c, n, s, t, a, i**:
>
> **Stan's cat can sit in a tin can. Stan's cat is Nat. Nat is tan. Nat sits in a tin can and scans Stan. Can Stan sit in the cat's tin can? Stan scans a can. Stan can't sit in Nat's can.**

Meet the Writers and Editors

Holly Weiss graduated from Ohio State University with her Bachelor's Degree in Communication Disorders and Master's Degree in Speech-Language Pathology. Throughout her career she has pursued a focus on literacy and became a Certified Academic Language Practitioner through the American Language Therapy Association. Holly, her husband, and four children relocated to Vermont in 2023, and she is a speech-language pathologist in the Barre Unified Union School District.

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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