

Building Phoneme Awareness: Know What Matters

With an understanding that research in the future may provide even more powerful pathways for reading success, this fact sheet presents guiding principles for instruction informed by what we know from research today. Science evolves and is dynamic. As reading research progresses, and as understanding and interpretation of the research advances, educators and policymakers must periodically adjust or refine practices and policies. Now it is time to implement what accumulated evidence indicates regarding a key component of reading acquisition, phoneme awareness (also known as phonemic awareness).

Students who are learning to read must become aware of the smallest segmented parts of spoken words (*phonemes*) that are represented by graphemes (letters and combinations of letters) in written words. *Phoneme awareness* is the ability to be aware of and consciously think about these individual speech sounds in spoken words. It is a critical foundational skill for reading.

This fact sheet discusses phoneme awareness, why it is necessary, and how it develops. In it you will find tips for effective practices to build children’s phoneme awareness in kindergarten, first grade, and beyond. Based on current understanding of research findings, this fact sheet also covers the importance of integrating phoneme awareness instruction that links phonemes and associated graphemes with letter names and handwriting instruction. It further raises important considerations regarding the interpretations of research in commonly used programs, standards, evaluation rubrics, and legislative requirements for literacy instruction.

To unpack what is known, it is helpful to first review relevant terminology.

Terminology

Phonological Awareness is a broad term that refers to the ability to think about and be consciously aware of the sound structures in spoken words, ranging from larger, more noticeable structures (such as syllables and rhymes) to individual phonemes. Phonological awareness is sometimes used to refer to awareness of a subset of those sound structures, but it is clearer to use the more specific terms, phonological sensitivity and phoneme awareness to be more precise and avoid misunderstandings.

- ***Phonological Sensitivity*** refers to awareness of the larger, sometimes more easily noticed sound structures in speech, including whole words and sound structures within words: rhymes, syllables, onsets, and rimes.

Note: when representing the phonemes in spoken words in writing, phonemes are bracketed by diagonal lines; for example, /k/ signifies the speech sound represented by the first letters in kitten and cop.

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Rhymes—consisting of the stressed vowel in a word and what follows—can extend across one or more syllables (for example, *cat/bat*; *mountain/fountain*). Syllables include a vowel phoneme and may have one or more consonant phonemes before and/or after the vowel phoneme (for example, *I, am, go, sit, spot, script*). The onset, if present, is the first phonetic segment of a syllable before the vowel sound; in the word *cat*, it is the /k/. The rime includes the vowel phoneme and anything that follows it in the syllable; in the word *cat*, it is the two phonemes that follow the /k/.

- **Phoneme Awareness** (or *phonemic awareness*) is the ability to be aware of and consciously think about individual speech sounds (*phonemes*) in spoken words, as noted above. Phoneme awareness is a necessary component of early reading and spelling development. It goes beyond the hearing or perceiving of the speech sounds in spoken words. Phoneme awareness involves conscious awareness that allows a learner to notice and think about the phonemes in words they hear and pronounce. This skill develops gradually, almost always in the context of learning about phonemes and letters in written words.

Focus on Phoneme Awareness

Why Phoneme Awareness Is Important for Learning to Read

To understand how the English alphabetic writing system works, the learner must realize that letters (or combinations of letters) represent the individual phonemes in spoken words. This awareness is referred to as *gaining understanding of the alphabetic principle*. An awareness of individual phonemes, subsequently linked with corresponding letters, provides an insight about the nature of writing that is essential for learning to read and write. This insight usually begins by becoming aware of one or more of the first phonemes in spoken words (the /k/ in *cat*; the /s/ in *soup*). Awareness of each of the phonemes in English in the different positions in spoken words, and knowledge of the corresponding letters or letter combinations (*graphemes*), unfolds over time, bringing about expanded mastery of the alphabetic system. In short, phoneme awareness is a critical cornerstone of that process. Without awareness of phonemes and the ways in which they are represented in print, written words would seem to be arbitrary sets of letters that must be memorized.

Why Phoneme Awareness Is Challenging to Acquire

Children's abilities vary in terms of how difficult it is to acquire phoneme awareness; this is unrelated to intelligence. Speaking and listening do not require being aware of the individual speech sounds in spoken words. Instead, those language skills are processed automatically by

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the language system in the brain. However, to learn to read, children must acquire a new meta-level skill that requires consciously thinking about words as a sequence of individual speech sounds rather than just attending to the meaning of what is being said, as they have been used to doing.

Contributing to the challenge of becoming aware of the individual phonemes, the articulation of a phoneme usually overlaps to some extent with the articulation of other phonemes that precede and/or follow it. This overlap happens because phonemes are produced with combinations of muscle gestures, such as opening and closing the lips, raising, or lowering the jaw, and vibration of the vocal cords; gestures that yield one phoneme may occur at the same time or overlap with the production of adjacent phonemes (known as *coarticulation*). For example, consider the pronunciation of the words *see* and *sue*: at the start of saying the /s/ in *see*, the lips are already wide for the long *e* vowel sound; for *sue*, they are rounded in anticipation of the *u* vowel sound. The difficulty of becoming aware of individual phonemes may stem in part from this coarticulation of the gestures across phonemes, given that the pronunciation of a phoneme in a word generally carries some information about neighboring phonemes as well. At the same time, focusing children’s attention on the key articulatory components of a phoneme can be beneficial for fostering awareness of phonemes. As an example, even with the slight variation in lip position in the pronunciation of /s/ in *see* and *sue*, students can notice that /s/ in both cases is a hissy sound made by placing the tip of the tongue close to the upper front teeth and pushing air out at that location—the key articulatory components of that phoneme.

Phoneme Awareness as the Starting Point

Early research found that first-grade students had awareness of phonemes, but preschoolers did not. Because approximately half of the preschoolers tested demonstrated awareness of the larger phonological element of syllables, it raised a question: Must children first become aware of these larger chunks of speech sounds before developing phoneme awareness? Over the years, an assumption was widely embraced by researchers—and implemented by practitioners—that instruction should follow a sequence from larger to smaller phonological elements. However, research has confirmed that phoneme awareness can be taught to children who lack phonological sensitivity, demonstrating that acquiring phoneme awareness does not require students to first gain syllable segmentation skills. Multiple findings also corroborate that programs are effective when they begin with a focus on phoneme awareness rather than phonological sensitivity, and highly so when instruction then links phonemes with graphemes. This is documented both for beginning readers and for students who have struggled with acquiring reading skills. This research indicates that phonological sensitivity instruction (with

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larger units such as rhyme, syllables, and onset-rime) is neither a prerequisite nor a causal factor in the development of phonemic awareness.

How Phoneme Awareness Develops

Phoneme awareness develops gradually, most often as children are learning to read and spell. Direct instruction in phoneme awareness, promptly linked with letter knowledge, facilitates reading acquisition, and learning to read reciprocally expands awareness of phonemes.

Correspondingly, acquisition of the alphabetic principle unfolds gradually. It develops in tandem with the phoneme awareness ability to isolate and identify phonemes in spoken words, provided that phoneme awareness instruction is linked subsequently with letter knowledge (letter names and letter sounds). Blending and segmenting at the phoneme level are essential skills because they are central to decoding and encoding (spelling). Therefore, when teaching and practicing phoneme awareness skills, once the student has become aware of the phoneme, linking each speech sound with the grapheme that spells it will facilitate the transfer of skills to reading and writing.

Beginning Phoneme Awareness

The location of a phoneme influences the ease with which students become aware of that phoneme. It is easiest for students to isolate the initial phoneme in a spoken word, regardless of length of the word, if the first phoneme is not part of a consonant blend. For example, beginners can identify the initial phoneme /b/ in the spoken words *bus* and *banana* more easily than they can in *blue* or *brown*.

A *simple syllable* (such as *bus* or *keep*) is one that does not include a consonant blend. After becoming aware of initial phonemes (such as the /b/ in *bus* or the /k/ in *keep*), students generally become aware of final phonemes in simple one-syllable spoken words (the /s/ in *bus*, the /p/ in *keep*). The next level is becoming aware of the medial vowel phonemes in simple syllable words such as these. In short, explicit instruction in phoneme awareness (including phoneme segmentation) with words that are simple syllables facilitates a student's beginning awareness of phonemes.

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Instructional Goal: With appropriate instruction, full acquisition of beginning phoneme awareness—awareness of each of the phonemes in simple syllables—is a realistic goal for kindergarten students, coordinated with instruction that links the phonemes with targeted letter names, letter sounds, and letter writing.

Later Phoneme Awareness

Once students master awareness of phonemes in simple syllables, they are ready for explicit instruction in words that are complex syllables. A *complex syllable* is one that includes one or two consonant blends (for example, *clap*, *felt*, *crisp*, *splash*). Note that long vowels can be included when doing an oral segmentation task (with words such as *float* or *claim*) once the child’s spelling skills have advanced to include the graphemes that will spell that phoneme. Becoming aware of initial or final external consonants (the /k/ or /p/ in *crisp*) is easier than becoming aware of the internal consonants in two-phoneme blends (the /l/ in *clap* or *felt*; the /r/ and /s/ in *crisp*), or in three-phoneme blends (the /p/ and /l/ in *splash*).

Instructional Goal: Once awareness of phonemes in simple syllables is confirmed for individual students by the end of kindergarten or early in first grade, awareness of phonemes in complex syllables is an appropriate goal for first grade. Beyond first grade, a student who has not attained full phoneme awareness will need further instruction, first determining where the student is in their development of phoneme awareness and going forward from there.

Teaching Tip



Be alert to a student’s spelling and reading errors that reflect a phoneme awareness weakness. Omission of a speech sound is a flag that the student may be unaware of one or more phonemes in the spoken word. For example, spelling *bed* as “bd” often reflects lack of awareness of the medial vowel; spelling *plan* as “pan” is an indication that the student is having difficulty being aware of the /l/ in the blend and needs to do activities that will foster awareness of internal consonants.

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Why It Is Important to Coordinate Phoneme Awareness Instruction with the Teaching of Grapheme-Phoneme Correspondences, Spelling (Encoding), and Handwriting

When a child demonstrates awareness of a phoneme (for example, being able to isolate and pronounce an initial phoneme), this can be followed by introducing the letter or combination of letters that represents that phoneme. This sequence builds an understanding of the alphabetic principle, as noted earlier. The value of incorporating graphemes when building phoneme awareness (for example, in a spelling activity) has been verified both for beginning readers in kindergarten and students who have deficits in reading at any age who have phoneme awareness weaknesses. Further, this sequential pairing facilitates the links between phonemes and letters needed for orthographic mapping of words (storing the spellings of words in memory). Likewise, it is beneficial to work consistently on handwriting practice that is coordinated with the grapheme-phoneme relationships that have been learned, and to apply these skills in spelling, reading, and writing activities. This, too, strengthens students' mastery of phoneme-grapheme correspondences and is a key foundation for writing fluency.

This approach is an example of an important concept of Structured Literacy: Student learning of foundational reading skills is facilitated by instruction that is *integrated*—that coordinates the development of phoneme awareness with the learning of letter and grapheme names and sounds, and that includes instruction in handwriting along with practice writing the targeted letters. This approach helps students gain awareness of the alphabetic principle, supports the learning of each component, and lays a foundation for decoding, word recognition, and spelling. Once a student has early phoneme awareness and letter knowledge for a small set of consonants and one or two vowels (for example: *a, m, s, f, l, i, t, p*) they can begin to read and spell many words (*sat, map, lip, fit, ...*). With a set of vowels and consonants such as these, kindergarteners also can (and should) practice encoding and writing words that use the learned set of phonemes and letters. Likewise, they can (and should) practice applying these skills to reading decodable text with these same phonemes/letters and with a small number of high-frequency words necessary to compose sentences. The exciting accomplishment of reading text is rewarding – and helps consolidate the skills being learned.

You might be surprised by the recommendation to coordinate letter knowledge and writing skills with phoneme awareness tasks in light of the fact that a number of programs do not. The practice of not incorporating letters stemmed from early findings showing that good readers are better than poor readers at doing oral phoneme manipulation tasks without letters (for example, what is *smile* without the /s/?). At the time, there was widespread agreement on the implications of this research, and the practice of attempting to develop phoneme awareness skills without any connection to graphemes was an appropriate interpretation of what was

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known at the time. However, further research indicates that such skills are the consequence of spelling and reading development: When good readers are asked to manipulate the phonemes in a spoken word by substituting, deleting or adding a phoneme, they automatically access their knowledge of the spelling (the orthographic representation) of that word. Students who can do manipulation tasks orally for words that are complex syllables are likely to be good readers and spellers who are beyond the need for phoneme awareness instruction. For other students who do need to increase their awareness of phonemes, research still is needed to determine whether oral-only manipulation of complex syllables (without including letters) is beneficial. Given the lack of evidence to support oral-only phonemic awareness manipulation activities and because existing research shows those tasks associated with stronger effects when integrated with print, incorporating letters in phoneme manipulation tasks is recommended to enhance awareness of phonemes in spoken words and to support memory of letter-sound correspondences.

Note that this is not to say that all oral phoneme awareness tasks are inappropriate. For example, it's fine to ask students to isolate and/or identify an individual phoneme or to say each phoneme in an oral segmentation measure, if these activities are introduced at the appropriate point in students' phoneme awareness development. Keep in mind that, even with these tasks, it can be helpful to promptly make connections to the graphemes that spell the phonemes. Using letters helps establish the functional value of the phoneme awareness task because it connects phoneme awareness with reading and spelling.

Teaching Tip



Whenever phoneme manipulation tasks are used to build awareness, provide letter tiles or written letters in some form to represent the spellings of the phonemes in the word and the phoneme being manipulated. Asking students to do such manipulation without letters can strain working memory, putting a counterproductive, unnecessary burden on beginners and struggling readers.

The Impact of Speaking a Second Language or a Different Dialect

Whenever there is a difference between the language or dialect background of a student learning to read and write in General American English (GAE), the student will have extra language and cognitive learning demands. In U.S. schools, approximately 400 different languages other than English are spoken; Spanish is the most common. The second language learner must become consciously aware of the phonemes in English, including any English speech sounds that are not in the student's native language.

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A similar situation exists for speakers of English dialects, with a significant case being the African American English (AAE) dialect in which phonological rules differ from GAE regarding how certain phonemes are pronounced in particular contexts (for instance, consonant clusters in final position in a word may be reduced to a single final consonant). Linguistic analyses have long established that AAE meets all the systematic, rule-governed characteristics of a spoken language, reinforcing the need for positive attitudes about this dialect.

Teaching Tip



Teachers need to be well informed about the phonemes of English and be aware of which speech sounds are particularly challenging for the second language learner depending on the child's first language. This awareness will enable them to provide extra support to help the student gain mastery of those phonemes. For example, when students whose first language is Spanish encounter the phoneme /sh/ (a phoneme not in the Spanish phonology), they may confuse it with the similar phoneme that is present in both Spanish and English: /ch/ (spelling *ship* as *chip*). Attention to how /sh/ and /ch/ differ in articulation may be helpful, as may be sorting activities with cards depicting objects that in English start with one or the other of these phonemes.

Likewise, teachers may be better able to teach AAE speakers if they gain an understanding of when and how particular phonemes are pronounced differently in the two dialects and provide extra support as needed pertaining to phoneme awareness, as well as to other differing linguistic aspects of AAE and GAE. With that understanding, teachers can respectfully help students learn how spoken GAE differs, while also explicitly linking it to written English.

Other Questions You May Have

What to Do if Students Lack Phonological Sensitivity

Lack of phonological sensitivity (awareness of the larger sound structures in spoken words such as rhymes, syllables, etc.) and phoneme awareness is particularly common for young children and for children coming from low socioeconomic circumstances. Though phonological sensitivity can be taught to young students, doing so delays the instruction needed to build students' phoneme awareness and corresponding letter knowledge—skills that are necessary to become successful readers. It can also introduce confusion for learners when they switch to a focus on phonemes. Because an instructional continuum from phonological sensitivity to phoneme

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awareness is not necessary, delaying phonemic awareness instruction by starting with phonological sensitivity activities is unlikely to be the most direct and beneficial path to launching students' phoneme awareness skills and reading success.

Teaching Tip



Start right away with activities that target phoneme awareness, focusing first on initial phonemes, the easiest phoneme position in a word for beginners to isolate. Two practical guidelines should influence which phonemes are selected to be in the words used.

First, the instructor (and ideally, the curriculum) should begin with words in which the phonemes are easier to become aware of because they are produced in the front of the mouth (and hence are more visible in a mirror or when produced by another speaker) and can be stretched out—such as the /m/ in “mmmmmap.” Phonemes such as these can be used to make a number of common one-syllable words.

Second, the phoneme awareness program should not be disconnected from the district's foundational skills program and thought of as an add-on to the curriculum. Rather, the district should follow a logical scope and sequence for foundational skills curricular materials and decodable books, and the phonemes targeted for phonemic awareness should be coordinated with that sequence to systematically link phoneme awareness, letter skills, and reading development.

When to Provide Instruction in Syllable and Rhyme Structures

There can be benefits to teaching students about syllable and rhyme structures, but mostly for reasons unrelated to phoneme awareness. Young children notice rhyme and alliteration as part of hearing and remembering nursery rhymes and songs. The rhyme concept also can be a focus later if students are writing poems. When targeting awareness of an initial phoneme, generating alliterative sequences can help bring that phoneme to children's attention (for example, *Tommy talks to Tess— /t/-/t/-/t/-/t/!*), which can foster early phoneme awareness. Introducing syllables is valuable when focusing on spelling; teachers can explain that words may have more than one syllable and that each syllable has a vowel. Syllables are also the focus when introducing spelling patterns for syllable types and for syllable division tasks. Thus, these concepts are useful for other purposes.

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Implications for Instruction and Assessment

Early success at learning to read fuels interest in reading in the years that follow, whereas a slow, difficult process of reading acquisition does not. Research has provided exciting insights into early phoneme awareness instruction that have the potential to launch more successful readers in kindergarten and first grade.

Three points are evident:

1. Educators should begin right away with phoneme awareness instruction in kindergarten (and when working with older students with phoneme awareness deficits). The best use of instructional time in kindergarten and beyond is to focus on phonemic awareness while greatly reducing time spent on phonological sensitivity elements. Educators do not need to follow a continuum that requires instruction in each element of phonological sensitivity (counting the words in a sentence, rhyme recognition and production, syllable counting, syllable segmenting/blending, and so on) prior to beginning instruction to develop phoneme awareness.
2. By focusing immediately on phoneme awareness instruction coordinated with letter/grapheme knowledge and handwriting, teachers can assess and teach the key skills connected to reading success and thus help students build foundational reading skills more effectively and quickly. These activities provide students with direct instruction and insights about how the writing system works, boosting motivation, confidence, and success.
3. Whenever phoneme awareness instruction is needed, either for beginning readers or for older struggling readers, teachers should focus on phoneme awareness at the level appropriate for the student, keeping these recommendations in mind: Start with initial phonemes, then final phonemes, followed by medial vowel phonemes in words that are simple syllables; after these beginning levels of phoneme awareness are accomplished, next work on awareness of the internal consonants in complex, one-syllable words that include consonant blends.

This fact sheet has focused on phoneme awareness and related instructional elements that are critical beginning steps for reading and writing proficiency. However, we want to acknowledge that these components, plus letter knowledge and handwriting, are only part of a comprehensive Structured Literacy program. The content and instruction described in this fact sheet should, of course, be a component of fully integrated and robust instruction in reading, spelling, and writing.

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The methods summarized here can contribute to impressive literacy gains in the first year of school and can offset the reading difficulties too often observed for socioeconomically disadvantaged students. Moving forward, it will be important to make changes in materials, literacy standards, evaluation rubrics, legislation, and teacher preparation to reflect these gains in understanding about optimal practices for teaching the foundational skills of reading.

Hallmarks of a Strong Phoneme Awareness Program

To summarize, the key points regarding phoneme awareness instruction are as follows:

- focus on building phoneme awareness, rather than phonological sensitivity, from the beginning;
- systematically link phoneme awareness instruction to grapheme and letter knowledge from the beginning and throughout later manipulation activities;
- integrate practice of phoneme awareness, letter and grapheme knowledge, and handwriting;
- work toward mastery of beginning phoneme awareness in simple syllables in kindergarten, progressing to later phoneme awareness of internal consonants in complex syllables in first grade;
- provide instruction informed by assessment of students' phoneme awareness skills, determining where students are in their development of phoneme awareness and differentiating instruction accordingly;
- provide instruction for second language learners and speakers of English dialects (such as AAE) that builds awareness of variations in pronunciation and of phonemes not occurring in their first language or dialect; and
- assess the extent of phoneme awareness in struggling readers in any grade, and if weaknesses in phoneme awareness are evident, calibrates intervention to follow the sequence of phoneme awareness development.

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