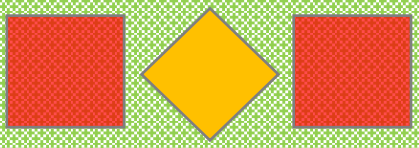
Teaching Phoneme Awareness in 2022:

A Guide for Educators



Jane Ashby, Marion McBride, Shira Naftel, Lucy Hart Paulson

David Kilpatrick, Louisa Cook Moats

Teaching Phoneme Awareness in 2022:

A Guide for Educators

Jane Ashby, Ed.M., Ph.D.
Mount St. Joseph University

Marion McBride, M.Ed.
Barksdale Reading Institute

Shira Naftel, M.Ed.
Mount St. Joseph University

Lucy Hart Paulson, CCC-SLP, Ed.D.

David A. Kilpatrick, Ph.D.
State University of New York at Cortland

Louisa Cook Moats, Ed.D.

Authors' Note
We thank Susan Brady, Pam Kastner, and Rebecca Miles for their comments on a previous version of this guide.

Welcome Educators,

We hope that you find this guide helpful in furthering your expertise with phonemic awareness instruction. Adopting these practices will help more students develop this essential foundation for learning to read.

Purpose: Recent discussions occurring online, in journals, and at conferences are creating uncertainties about what phonological awareness instruction will be most effective with which children. This guide addresses some of these questions by using what we currently know from the scientific research, from teacher experiences, and from observations in clinical teaching environments for children who struggle with reading.

The authors of this document bring decades of experience in communicating developments in the science of reading, phonological awareness instruction, reading instruction, and assessment.

Notes about Terms and Resources

Forward slashes (/) indicate spoken sounds and quotation marks (“) indicate spoken words. Text in a green box is a direct quotation.

Phonological awareness refers to an awareness of any sounds in spoken words (e.g., syllables, rhyming patterns, or phonemes). *Phoneme awareness* is a subset of phonological awareness and refers to the ability to identify and change the individual sounds in spoken words. For example, “cat” has three phonemes (/k/ /a/ /t/) and “shoe” has two (/sh/ /oo/). *Phonological processing* refers to the mental processing of speech codes that occurs during speaking, listening, reading, and spelling.

This guide was written as a resource that can enhance children’s learning when you use any phoneme awareness curriculum. It is not in itself a curriculum. If you are looking for a curriculum that teaches easy concepts before more difficult concepts, here are three that we recommend.

For 4-year-olds:	Phonemic Awareness in Young Children (Adams et al.,1998)
K and Grade 1:	Road to the Code (Blachman et al., 2000)
K-1 Intensive:	The Intensive Phonological Awareness Program (Schuele & Murphy, 2014)

For a phonological awareness curriculum for students in Grade 2 and beyond, you might try Equipped for Reading Success (Kilpatrick, 2016). Full disclosure, the Equipped manual was written by one of the authors of this document. We mention it because many teachers find it useful.

Two freely available phonological awareness assessments are:

- The Rosner Test of Auditory Analysis Skills (TAAS) http://courses.washington.edu/sop/Test%20of%20Auditory%20Analysis%20Skills.pdf
- Phonological Awareness Screening Test (PAST) www.thepasttest.com

We recognize the care and enthusiasm that you bring to the classroom each day. Thank you for your commitment to continually refining and developing your teaching practices.

With appreciation and respect,

Jane, Marion, Shira, Lucy, Dave, and Louisa

Table of Contents Page

Section 1. Reading Research, Instructional Practice, and Phoneme Awareness

1.1 When should reading research influence instructional practices?

Science is dynamic in nature, and different perspectives are continually developing. Individual researchers occasionally put forward new claims and ideas, which should then be tested scientifically and clinically. Until there is ample new data to confirm that a change in practice will support more effective learning, instruction should continue to align with existing scientific research on reading. We agree that teaching practice should shift in response to new evidence, but it should not shift in response to new ideas proposed without new evidence.

Recently, a few academics are proposing that phonemic awareness instruction should not be a universal component of reading instruction in K-1 and that extensive phonemic awareness is NOT essential for older struggling readers. There is little scientific basis for such ideas at this time. When children receive effective phonemic awareness instruction in small daily doses, it improves their ability to read and spell unfamiliar words independently.[1]

We encourage educators to choose their classroom practices based on the extensive research evidence that is available now. Here is what that research shows.

- Both struggling readers and beginning readers have poor phoneme awareness due to underdeveloped, inefficient phonological processing.[2] When students do not process speech sounds precisely in their minds, they may not store spoken words with the level of detail needed for mapping letters to sounds in reading and spelling. Having crisp, sound-by-sound memories of spoken words is not necessary for speaking, but phoneme awareness is necessary for learning to read. Students who struggle with word recognition and phonics share weaknesses in phonological processing.[3] The discovery and confirmation of this phonological core deficit in struggling readers is one of the most powerful discoveries in reading science. It is simple to identify poor phonemic awareness, relatively easy to provide explicit instruction, and this instruction supports gains in reading.

- Based on more than 50 peer-reviewed papers, the National Reading Panel Report (2000) recommends that all children in K-1 should receive instruction in phonemic awareness in addition to phonics.[4] The evidence for the effectiveness of phonemic awareness and phonics instruction are described using two separate terms in two separate sections of the report. This is because the research indicates that these two aspects of instruction are distinct and both are crucial for learning to read.

- Phonemic awareness activities strengthen and sharpen phonological processing and, therefore, are crucial for many students who are beginning to read as well as struggling readers. Phonemic awareness instruction helps readers perceive the sound sequences in words accurately, which is necessary for learning the letter-sound patterns in phonics. Comparisons of present research indicate larger reading gains for students when lessons include phonemic awareness as well as phonics.[5] In addition to research evidence, we all have received feedback from teachers who see the value of phonemic awareness instruction first-hand in their students' reading and spelling.

1.2 What is Phonological Awareness? Why is it Important?

Phonological awareness includes phonemic awareness, which is a crucial foundation for reading and writing development. Phonological awareness also includes larger units of speech (syllable awareness and rhyming). Phonemic awareness involves the ability to identify the individual sounds and sound sequences in spoken words.[6] Most children who will struggle with learning to read have underdeveloped phonemic awareness when they enter school. Phonemic awareness instruction helps children strengthen their ability to mentally process the sounds in speech. A precise awareness of speech sounds helps students to read words independently by sounding them out and to remember those words when they appear again.

> The skill of blending is needed to decode unfamiliar words... Being able to segment and blend onsets and rimes in words helps children read unfamiliar words by analogy to known words. Phonemic segmentation helps children to read and spell words because it helps them identify and separate the phonemes that are bonded to graphemes when a word's written form is retained in memory. (NRP, 2000, 2-32)

Phonemic awareness instruction fortifies and specifies speech processing. Identifying phonemes may require instruction because (1) the phonemes in spoken words overlap or blend together, making it hard to notice the individual sounds, (2) the features of phonemes can be similar, which can make them confusable and difficult to distinguish (e.g., /k/ and /g/; /ch/ and /tr/), and (3) many children enter school without the understanding that spoken words are composed of sequences of speech sounds. Students who identify sounds in spoken words easily can learn the phonics skills that support accurate decoding and spelling, which, in turn, supports memory for written words.

Developing phonemic awareness is critical for reading in English because it:

- supports an understanding of the alphabetic principle (sound/symbol correspondences),
- helps with mapping sounds onto letters to decode and spell words,
- helps students recognize decoded words faster when they are seen again,
- sharpens awareness of word pronunciation for vocabulary learning, and
- facilitates reading accuracy.

> Effects of phonological awareness instruction on reading lasted well beyond the end of training. Phonological awareness instruction produced positive effects on both word reading and pseudoword reading, indicating that it helps children decode novel words as well as remember how to read familiar words. (NRP, 2000, 2-5)

Notes_____

_____

_____

_____

_____

_____

Section 2. The Who, When, What, and How of Teaching Phonemic Awareness

2.1 Who needs to be taught phoneme awareness?

Emergent readers and struggling readers benefit from phonological awareness instruction.

Emergent readers enter school knowing that words have meanings, and phonological awareness instruction focuses their attention on the sound sequences that make up spoken words.

Some children need more carefully-designed instruction than others in order to learn phoneme identification and segmentation. For example, students who have less preschool experience, lower language skills, a history of chronic ear infections, a family history of poor reading, or attention issues may need a sequenced approach.

Determining whether older students in Grades 2 and up need phonemic awareness instruction can be decided according to diagnostic assessments of phonemic awareness skills, spelling, and word reading. Teacher-friendly phonological awareness assessments, such as Rosner's Test of Auditory Analysis Skills (TAAS) or the *Phonological Awareness Screening Test* (PAST)[7], indicate where student performance falls in the skill sequence. Underdeveloped phonemic awareness reflects phonological processing problems that can hinder reading development by making it difficult to learn phonics, sound out words, remember written words, and spell words phonetically. For example, a second grader who writes "fog" for "frog" or "jup" for "jump" is unlikely to be perceiving the second sound in the beginning consonant blend /fr/ or the second to last sound in the final consonant blend /mp/. These sound combinations can be difficult for some students to notice until phonemic awareness instruction explicitly focuses their attention on the interior sound in spoken consonant blends.

Precise pronunciation is key to effective phonemic awareness instruction (see Section 2.7, #1).

2.2 When should phonological awareness instruction begin?

Phonological awareness instruction can begin as early as age 3. Rhyming and syllable awareness, which are phonological skills, develop by age 4 in many children. By the beginning of kindergarten, most children can rhyme words and identify words that have the same first sound. In preschool and early kindergarten, syllable counting, word play, and rhyming activities have a role in preparing young students to attend to and think about spoken language.

Most children pick up syllable awareness quite easily. We do not know if it is necessary to teach syllable-level and onset-level phonological awareness after preschool. Teachers who begin teaching phonological awareness with syllables often use familiar two syllable words to introduce the procedures involved in the tasks as well as the concepts of blending and segmenting. In addition, teachers find that older students (Grade 3 and up) benefit from a few lessons of syllable-level phonological awareness. For example, syllable-level phonological activities provide an opportunity to build accuracy with segmenting and deleting two and three syllable words. These activities also provide a conceptual foundation that could be helpful when reading multi-syllabic words.

The point of phonological awareness activities with syllables is to prepare students for success with phonemic awareness tasks that focus on perceiving individual speech sounds. It is these phoneme awareness skills that are crucial in learning to read. The best research we have indicates that engaging in phonemic awareness instruction in addition to phonics in K-1 helps more children learn

to read and spell better than phonics without phonemic awareness.[8] Teachers note that students learn phonics and morphology more easily when they can first identify the individual sounds and sound sequences that make up spoken words, recognize letters, and understand that sounds can be written with letters.

Must rhyming be mastered before instruction moves to individual phonemes?
No, and here's why. The tasks associated with early phonological awareness, while serving as "red flags" or indicators of potential reading problems, are only moderately associated with early reading and spelling. Learning to be better at them is not necessarily going to lead to proficiency in what really counts. It is phoneme awareness—specifically, the ability to say the individual phonemes in words, to pull them apart, and to put them together—that enables kids to read and spell in an alphabetic writing system like English. That is what instruction should focus on, especially from mid-kindergarten onward.[9]

2.3 What phonemic awareness skills should be taught?

Many educators and researchers think that instruction should track the typical developmental sequence of skills. The developmental sequence involves the awareness of larger units of language, including syllables and rhyming, developing before the awareness of phonemes. Phonological awareness programs that follow this developmental sequence teach basic concepts before more advanced concepts. A typical sequence would be 1) syllables, 2) initial phonemes, 3) final phonemes, and 4) all phonemes in CV (consonant-vowel) words, then CVC words, then CCVC words and CVCC words. Phonemic awareness performance that includes the accurate identification and sequencing of phonemes is one of the best predictors of reading skill in Grade 1.[10]

A note about scripted phonological awareness programs for K-1. Educators who are new to teaching phonological awareness may be using a scripted program that provides detailed lessons and language for instruction. This is a good start. Be aware, however, that some scripted programs skip around in the phonological awareness sequence. Although this is not ideal, it may work well-enough for some typically developing readers. More importantly, teachers can use such a curriculum to observe which children are successful and which are not. Young students, who do not learn to perform phoneme awareness tasks accurately using a scripted program that jumps around in the developmental sequence, may learn quite well in a more carefully sequenced program (see curricula on page 1). Children who are at-risk for reading problems and those who need help with their reading will require a systematic, multimodal approach. Most children can develop phonological awareness readily when instruction proceeds from larger speech units (syllables) to smaller units (phonemes), if each concept is taught for accuracy first and then practiced for automaticity. See Section 2.8 for tips on delivering multimodal, phonemic awareness instruction.

Blending and segmenting are foundational phonological awareness tasks for both emergent and struggling readers. Students who can segment two-syllable words by syllable are ready to focus on the first sounds in spoken words. Some children can do this quite easily at the start of kindergarten, but others cannot. Learning to identify and segment the initial consonant from the rest of a one-syllable word can help children who have difficulty with rhyming words. For students who can already rhyme, first-sound activities can provide them with an on-ramp to phonemic awareness by providing practice pulling the first sound away from the rest of the spoken word.

Teaching syllable awareness may be helpful during the first weeks of kindergarten and Grade 1, but teachers should begin instruction that focuses on individual phonemes ("hat": /h/ /at/, then /h/ /a/ /t/) as soon as possible. Phoneme awareness in early kindergarten is the single, most important predictor of reading skill at the end of Grade 1. In contrast, syllable awareness does not predict reading skill.

2.4 How should phonological awareness instruction begin?

At the start of kindergarten, teachers begin systematic phonological awareness instruction by speaking compound words and showing corresponding picture cards for each syllable. In the first lesson, children can learn to segment two parts of a compound word ("cupcake") by moving the cards apart as they say each part. The next lessons practice segmentation with two-syllable words that are not compounds ("monkey"). This is a good time to teach lesson routines, such as each student listening carefully to the spoken word then echoing that word aloud.

Begin phonemic awareness instruction as soon as possible. In early kindergarten, use words that have two phonemes as in the word "see," then move to identifying the first sound (/s/ /it/). In Grade 1 and above begin with 3-sound words like "mat," focusing on the first sound, then move to building awareness of the last sound in 3-sound words. Later, students will learn how to segment words with initial blends, then words with final blends. An example sequence chart appears on page 17.

When teaching first sound blending and segmentation, begin with continuant consonants combined with a vowel (e.g., /m/ - /e/; /s/ - /ay/). Continuant sounds in the first position, such as /s/, /m/, and /f/, can be stretched out more easily than stop consonant sounds that block the breath suddenly, such as /p/, /b/, /t/, /d/, /k/, and /g/. Once the student can accurately blend stop sounds into simple syllables, then phonemic awareness activities can use words with any of the speech sounds in English that the child can articulate. Due to variations in pronunciation, teachers should check that students echo the word the same way that the teacher pronounced it. Avoid using words that contain sound clusters with variable pronunciations, such as "ask" (often pronounced "aks").

Each phonemic awareness lesson should review the previously taught concept first, then focus on teaching the next sound position in the sequence. For example, if adding an initial sound to three-sound words (/s/ + "pit" becomes "spit"; /b/ + "lame" becomes "blame") is the new skill, then start the lesson by reviewing three-sound segmentation orally. A two-part lesson plan allows teachers to move forward in the phoneme awareness sequence while reviewing the previously taught concept until students demonstrate at least 80% accuracy two days in a row. An example instructional routine for teaching a new phonemic awareness skill appears in the Additional Resources (p.17).

Begin segmentation and deletion activities with a spoken word or picture. For each item, the teacher says the word as it is normally pronounced and each student repeats it aloud. From this point, activities will differ depending on whether the goal is accuracy (for the new task) or automaticity (for the review items). It is easier for most children to learn a new phonemic awareness task when they move tokens to represent each sound unit in the spoken word (see Section 2.8). Once a student understands the task and can perform it accurately with tokens, then she can practice without tokens to develop automaticity. Each item should end with the student producing the word as it would normally be spoken.

Tips

- To focus on a particular speech sound, the teacher can prompt students to notice how they produce that sound. For example, "What is working, your tongue or your lips"?
- During phonemic awareness instruction, the teacher may draw student attention to how the sounds feel as they are produced in the mouth. For example, "When you say */b/,* how are you making the sound"?
- Effective error correction during phoneme tasks includes teacher comments that draw attention to the child's mouth movements as they say the word. For example, "Say the word slowly and feel what your mouth is doing to make that last sound."
- Avoid segmenting the word for the student. Instead, prompt them to stretch it out.

2.5 How much time should be devoted to phonemic awareness activities?
Most of the instructional time during the first two years of school should focus on phonemic awareness.

Research demonstrates that phonemic awareness is relatively easy to teach, and most children make progress with just a few minutes of daily instruction at the start of the language arts lesson. In Pre-K, activities can be embedded into everyday routines by using a range of word play activities focusing on words that rhyme, syllable awareness, and initial phoneme awareness. The goal is for all children to develop at least first sound awareness before entering kindergarten.

In K-1, syllable awareness activities may not be necessary for some children. As soon as possible, instruction should proceed to focus on developing phoneme awareness beginning with identifying and segmenting the initial consonant sound from the rest of a one-syllable word, then continue with the sequence described in Section 2.4. Small group activities can take less than 5 minutes in kindergarten and about 5 minutes in Grade 1 and beyond.

Students in Grade 2 and beyond who perform poorly on a phonological awareness assessment or who are struggling readers should continue to receive phonemic awareness instruction for a few minutes each day in a sequenced program that is multi-modality. Multi-modality instruction integrates visual, auditory, and articulatory pathways for learning (see Section 2.8 for a description). Students who do not advance their phonemic awareness skills with these programs may require a more intensive approach to strengthen phonological processing.

2.6 Is there any value in beginning phonological awareness instruction with larger units, such as syllables?
The research is not clear. In practice, many children are not able to perform phonemic awareness tasks when they are first presented. Syllable-level tasks can pave the way for phoneme-level activities by introducing instructional routines and providing practice with attending to the larger sound structure of words. The goal is to learn these foundation skills as quickly as possible before moving on to first sound awareness. Once students can segment the first sound in words, then the instruction moves to awareness of the final consonant, followed by an awareness of all phonemes in simple, 3-sound words.

Some assessments include three syllable items that provide useful diagnostic information for older struggling readers who have good working memories. However, many children under 7 have

difficulty performing phonological awareness tasks with three syllables, as do older students who struggle with reading. If a student can segment two syllable words, he can move on to identifying the first sound in one-syllable words, then identifying the final sound, then segmenting three sounds.

2.7 Do onset-rime activities have a role in early phonemic awareness instruction?
Yes, activities that help children focus on the first sound in spoken words play an important role in early phonemic awareness instruction.

Using the term *first sound* instead of the term "onset" provides a more accurate description of the beginning stages of phonemic awareness development, which involves the ability to identify the first *single* sound in spoken words.

Segmenting the first consonant sound, such as separating /l/ from /ip/ or /f/ from /an/, can help emergent readers and struggling readers in two ways.

- Children who cannot yet identify rhyming words in spoken language can do so more easily once they can accurately segment the first sound in spoken words. Word rhyming seems easy, but it involves segmenting the onset (initial consonant or consonant sounds) from the rime (the vowel and any following consonant(s) in a single-syllable word) and then substituting another onset. Two words ("lane" – "rain") rhyme because the onset (/l/) of the first word can be substituted with the onset (/r/) to form the second word. Once children can recognize and produce word pairs that rhyme, then they can choose which word rhymes with a simple word like "fun" among several options ("sun," "fin," and "man"). Using pictures for the choices can reduce the burden on children's working memory and, thus, may improve phonological awareness performance.

- The first sound in a word is usually easier for listeners and speakers to detect than the word-final sound or the internal sounds. For example, in "sat" the /s/ is easier to detect than the /t/. When developing phoneme awareness with sequenced instruction, first-sound segmentation activities provide a first step for identifying individual phonemes in spoken words.

Four points to remember when planning first-sound segmentation activities.

1. Your precise pronunciation of the sounds is key to effective phoneme awareness instruction. Check that you are pronouncing every sound correctly in isolation. "Clip" all consonant sounds, saying /k/ rather than /kuh/, for example. Practice with a knowledgeable partner.

2. Avoid words beginning with consonant blends because blends are harder to segment than words beginning with a single consonant. For example, words such as "block" or "snake" should be avoided at this point in the instructional sequence.

3. Phonemes that are represented with consonant digraphs/trigraphs, such as /sh/ in the word "ship," are appropriate to use in first sound segmentation activities. Consonant digraphs /trigraphs spell a single speech sound. For example, the word "ship" has three phonemes as does the word "sip."

4. Avoid words that begin with vowels, such as "at," in first-sound activities after Pre-K, as such words have no initial consonant sound. Most children need practice identifying and segmenting first consonant sounds.

2.8 What are manipulatives and how can I use them when teaching phoneme awareness?
Manipulatives are small items that students touch and move to help them perceive sounds and remember sound sequences in a phonological task. Spoken words can be difficult to remember. Many students learn new phonemic awareness tasks more quickly, and are more accurate, when they use manipulatives. For example, a child might use two small blocks or chips for first sound segmentation of the word “map.” First, he repeats the word “map,” pushing one square up under the picture of a map when he says /m/ and pushing another up when he says /ap/. In later lessons when he is able to fully segment words into phonemes, he would push up three chips as he segments each sound /m/ /a/ /p/, and then blends those sounds to say “map.”

In Grade 1 and beyond, students can use different color chips to represent consonant and vowel sounds. Consonant sounds are obstructed by the lips, teeth, and tongue and are "closed" sounds. Vowels are "open" or unobstructed sounds that are the essential part of any syllable. Calling children's attention to the feel, look, and sound of a phoneme can be helpful. For example, students can feel the vowel by placing their hand under their chin and feeling their jaw drop with the vowel production. Using two colors of manipulatives makes it is easy for teachers to check if words with 3-6 sounds are segmented correctly. For struggling readers, manipulatives are a key part of the multi-modality instruction that helps them focus on and sequence sounds during phoneme awareness tasks.

Simple tokens (blocks, blank tiles, discs, felts) can be beneficial for teaching phonemic awareness in several ways:

- They support the identification of sounds and keep sound sequences available in working memory during the activity.
- They allow students to learn phoneme tasks using several modalities (listening, feeling the sounds as they are produced, moving the tokens, and seeing the tokens).
- Students can focus on the sounds in the spoken words more easily.
- Teachers and students do not need to consider word spellings.

Use tokens to teach new phonemic awareness skills to the point of mastery. Then practice that skill orally, without tokens, until the student performs it accurately and easily.

If a student makes an error, encourage them to try again. The first step is to repeat the word and ask students to echo. After the echo, students should say the word slowly, stretching it out to feel and hear each sound. To clarify confusable sounds, teachers can focus attention on how the sounds are produced differently. For example, we produce the sound /m/ with lips together and produce the sound /n/ with the tongue up and lips open. The child can watch the teacher produce each of those sounds, then notice this production difference in their own mouth movements. A personal mirror may be necessary at times to help some children verify how the tongue, lips, and teeth work to form a specific sound.

An example sequence, instructional routine, and scaffolded error correction appears in the Additional Resources (p. 17).

2.9 Is it important to teach phoneme awareness with tasks like phoneme deletion and substitution?

Yes, it is important to use these types of tasks with struggling readers in Grade 2 and beyond.

Not all students will need explicit instruction in phoneme deletion and substitution tasks. When we teach K-1 readers phonemic awareness, the goal is to facilitate their ability to segment sounds in single-syllable words. Typical readers usually develop phonemic skills simply by reading and spelling, so they perform well on phonemic manipulation tasks like deletion and substitution.

However, struggling readers have phonological processing weaknesses. Deletion and substitution tasks help to strengthen phonological processing and support reading and spelling. Studies that used phonemic deletion and substitution activities for intervention[11] yielded substantially higher word-reading results than studies that relied primarily on phonemic segmentation activities.[12] When students struggle with reading and/or spelling, phonemic awareness activities that include segmenting, deleting, and substituting sounds are an appropriate part of a code-based lesson.

Struggling readers need explicit instruction to perform more rigorous phoneme tasks like phoneme deletion ("Say: bat." Student repeats "bat." "Now say *bat* without /b/") and substitution ("Say: fish." Student repeats "fish." "Now change /f/ to /d/"). More intensive phonemic awareness instruction enables students to attend to and manipulate phonemes in any position in a word. Practice with these tasks further strengthens phonological processing, which facilitates mapping sounds to letters and, thus, supports memory for written words and instant word recognition. Using manipulatives initially will help students track how the sound sequence is changing and bolster their understanding of the task (see Section 2.8). When accuracy with tokens is above 95% on two consecutive days, begin practicing first-sound chains orally to further mastery.

Using sound chains to teach phoneme awareness

Sound chains begin with one word, then substitute one sound in that word to make a new word. Start sound chains with simple CVC words. Begin with chains that change out the first sound, move to chains that change out the final sound, then chains that change out sounds in either position. Struggling readers benefit from practice changing out sounds in words with blends. At each level, *students first use manipulatives to work for accuracy*. Then, in later lessons, they build proficiency with oral-only practice before moving on to the next step.

Example Sound-Chaining Routine

Say "dot." Now say the word slowly, stretching out the sounds. Place one chip down as you say each sound. Change the /d/ to /p/. Point to the sound that changes. What sound is leaving? What is the new sound? Blend the sounds to make the new word. Student says "pot." Now change the /p/ to /l/. Point to the sound that changes. What sound is leaving? What is the new sound? Blend the sounds to make the new word. Student says "lot."

Once students can sound chain words with three-phoneme words confidently, sound chaining activities with four-sound words can help them perceive sound differences among similarly spoken words (e.g., *fright*, *flight*, and *fight*). These activities promote more accurate reading and spelling.

Notes and Student Observations

Section 3. Questions about Teaching Phonemic Awareness and Letters

3.1 What do I teach first, letter names or phonological awareness?
Early in kindergarten, some emergent readers are just learning to recognize their letters and play with syllables and beginning sounds in spoken words. Letter identification and phonemic awareness are important for learning to read and write, and both should be part of early literacy lessons. Teach them in parallel, as two strands of the language arts block. In K-1, letter lessons that include learning the letter name, its most common sound, and how to write it are helpful preparation for later reading and writing development. At any age, a student can use tokens to represent sounds during phonemic awareness tasks.

When teaching letters to small groups, consider grouping students based on their letter knowledge and then regrouping for phoneme awareness instruction based on their phonemic awareness skill level. Some students can learn their letters but have difficulty noticing individual phonemes and their sequences in spoken words. Other students have more difficulty learning their letters than perceiving phonemes in spoken words. Then there are students who learn both their letters and phonemic awareness easily and those who won't learn either easily. These latter students will need explicit, sequential, instruction that allows them to see, touch, produce, and hear phonological units as they segment them.

3.2 Should phonemic awareness instruction use letters?
Phonemic awareness and letter knowledge both support learning to read and spell. Although the ultimate goals of both lessons are intertwined, there are several reasons to consider teaching phonological awareness with manipulatives in place of letters.

About 95% of the phonemic awareness studies included in the NRP's analyses used oral activities and/or tokens at first to teach phonemic awareness. Therefore, there is presently no basis for saying that students should see the letters associated with the sounds rather than blank tokens during phonemic instruction.

Teaching phonemic awareness separately from phonics and spelling seems to provide the best environment for focusing student attention on the sounds in spoken words. This fits the NRP's conclusion that both phonemic awareness instruction and phonics instruction are distinctly important for growing confident readers. Comparisons of reading gains indicate that emergent readers and struggling readers who receive phonemic awareness instruction *in addition* to phonics instruction make more reading progress than children who receive phonics instruction alone.[13]

Teachers observe that using tokens in place of letters is especially effective for emergent readers and older students who struggle with reading and spelling. Phonemic awareness activities that use manipulatives direct student attention to the sounds in spoken words, while avoiding the complexity of letter identities and letter-sound mapping. This may be helpful for both emergent readers and older struggling readers. Drawing attention exclusively to the sound sequences in spoken words is necessary for some children to clarify their perception of speech sounds. Once students can segment spoken words with initial blends (e.g., "flop") automatically, teachers often see a decrease in reading errors like *fop* and *flip*.

When deciding whether to use letters to teach phonemic awareness, please consider the following.

- Letter-sound correspondences add complexity to the phonemic awareness task. If a student has not yet automatized letter recognition and has difficulty learning letter-sound associations, then adding letters to even simple phoneme tasks can make them quite challenging. Using tokens instead of letters makes the task easier and reduces frustration for students. This makes phonemic awareness instruction more accessible to more students and supports success in phonological activities while letter-based skills are still developing.
- When teaching phonemic awareness with letters, avoid spoken words with letter patterns that have not been taught yet. Each word must be spellable by all children in the group.
- Some spoken words will be difficult for novice readers to represent with letters. For example, the same long A sound is spelled with different letters in "cake," "paid," "may," "steak," "hey," and "weigh".
- If using letters in a phonemic task, teachers must decide whether the child who segments "paid" into /p/ /a/ /d/ and chooses the letters *p-a-d* has given a correct answer or an incorrect answer, when the goal of the activity is to build phonemic awareness.
- When letters are used in phonemic awareness tasks, letter identification errors and letter reversals can interfere with phonemic awareness performance.
- If letters are always used in place of tokens during phonemic awareness instruction, then phonemic awareness instruction may be indistinguishable from letter-sound instruction.
- Using letters can muddy the interpretation of student errors. If a student responds correctly to a phonemic task using letters, it is difficult to know whether the child is demonstrating phoneme awareness (of the long A sound, for example) or letter-sound knowledge (the letter A spells the long A sound, for example) or both. If a student responds incorrectly to a phonemic task using letters, it is difficult to know whether the error is due to poor phonemic awareness or inadequate letter-sound knowledge.

At this time, the research does not indicate when and how phonemic awareness should be linked to letter forms. Typically, the linking of letter knowledge and phonemes can begin by mid-kindergarten, depending on the students' incoming language and cognitive levels. When students can identify initial consonant phonemes in words, identify most of the letters, and have developing sound knowledge, they are ready to connect letters to sounds to read and spell simple CVC words. New phonemic awareness skills can continue to be taught as a distinct strand of the lesson that parallels phonics instruction. Focused phoneme instruction with tokens avoids the challenges mentioned in the bulleted list above.

Phonemic awareness instruction also can be connected to letters in several ways that will promote understanding of the alphabetic principle. Vowel and consonant sounds can be posted with information about their most common spellings. This provides a useful reference for students as they learn to link letters to sounds. Teachers can encourage students to spell by sound by prompting them to say the word slowly (stretch it out), attend to each sound as they say it, then write each letter. K-1 students can use the tokens from PA activities to help them segment sounds as they are writing sentences and stories. Sound chain activities can be adapted to include letters when students are ready. For example, students might practice decoding and spelling words that only differ by one letter each time (it, hit, lit, bit, bat, sat, sap).

Struggling readers who are learning to segment phonemes in the later grades can begin linking letters to sounds in reading and spelling while continuing to develop phonemic awareness in separate activities that use tokens followed by oral practice.

3.3 Can students develop phonemic awareness by only being taught letter-sound correspondences?

Many children develop phonemic awareness by learning to read in an alphabetic writing system. However, this is typically not the case with at-risk and struggling readers.

At-risk and struggling readers enter school with poor phonological awareness, which indicates that their phonological processing is less developed than it is in children who are on track for typical reading development. Several factors may contribute to poor phonological awareness: a family history of reading difficulty and/or ADHD, chronic ear infections, etc. There is no evidence that intelligence, trauma, or poverty restrict the development of phonological awareness. Children who enter school with poor phonemic awareness are more likely to become poor readers.

Unfortunately, it is difficult to predict who will become a struggling reader with complete certainty. Present assessments can predict who will struggle in reading with about an 80% accuracy rate. This means that 1 in 5 students who will eventually struggle in reading do not get identified early on.

If instruction emphasizes phonemic awareness from the very start of elementary school, this will help non-identified students build the phonemic awareness foundation needed to read at grade level. This was the goal of the NRP's recommendation to provide focused phonemic awareness instruction to all students in K-1.

Notes_____

_____

_____

_____

_____

_____

_____

End Notes

1. National Reading Panel report (NRP, 2000, p. 2-32).

2. "The predominant core cognitive correlate of WLRD [word-level reading disability] involves phonological awareness, a *metacognitive* understanding that the words we hear and read share internal structures based upon sound" (Fletcher et al., 2019; p. 116 emphasis theirs). "[A]lthough some individuals with dyslexia have weaknesses in a variety of areas, impaired phonological processing appears to be a universal cause of dyslexia" (Ahmed, et al. 2012; p. 210).

3. Fletcher et al., (2018); Share, (2021); Vellutino et al., (2004).

4. National Reading Panel report (NRP, 2000; pp. 2-5; 2-92); "[T]hese studies converge with others . . . in demonstrating that phoneme awareness and letter knowledge are critical foundations for the development of reading skills in children just entering school. Children who have some ability to manipulate phonemes in spoken words when they enter school and who have good knowledge of the sounds of letters make much better progress in learning to read than children for whom either of these skills is weak (Hulme & Snowling, 2009, p. 45).

5. Kilpatrick (2015; Chapter 11).

6. Fletcher et al. (2018); NRP (2000); Moats (2020).

7. Available for free at:

http://courses.washington.edu/sop/Test%20of%20Auditory%20Analysis%20Skills.pdf

www.thepasttest.com.

8. NRP (2000).

9. National Center on Improving Literacy. Ask an Expert, with Dr. Louisa Moats

https://improvingliteracy.org/ask-an-expert/must-children-master-rhyming-being-taught-recognize-segment-blend-and-manipulate

10. Fletcher et al. (2018); Melby-Lervåg et al., (2012).

11. Torgesen et al. (2001); Wise et al. (1999).

12. Lovett et al. (1994); Rashotte et al. (2001).

13. Kilpatrick (2015, Chapter 11).

References

Ahmed, Y., Wagner, R. K., & Kantor, P. T. (2012). How visual word recognition is affected by developmental dyslexia. In J. S. Adelman (Ed.), *Visual word recognition: Vol. 2. Meaning and context, individuals and development* (pp. 196–215). Psychology Press.

Fletcher, J. M., Lyon, G. R., Fuchs, L. S., & Barnes, M. A. (2018). *Learning disabilities: From identification to intervention*. Guilford.

Hulme, C., & Snowling, M. J. (2009). *Developmental disorders of language learning and cognition*. Wiley-Blackwell.

Kilpatrick, D. A. (2015). *Essentials of assessing, preventing, and overcoming reading difficulties.* Wiley & Sons.

Lovett, M. W., Borden, S. L., DeLuca, T., Lacerenza, L., Benson, N. J., & Brackstone, D. (1994). Treating the core deficits of developmental dyslexia: Evidence of transfer of learning after phonologically- and strategy-based reading training programs. *Developmental Psychology*, *30*(6), 805–822.

Melby-Lervåg, M., Lyster, S. A., Hulme, C. (2012). Phonological skills and their role in learning to read: a meta-analytic review. *Psychological Bulletin,138*(2), pp.322-352.

Moats, L. C. (2020). *Speech to print: Language essentials for teachers.* Brookes.

National Reading Panel (2000). *Teaching children to read: An evidence-based assessment of the scientific research literature on reading and its implications for reading instruction: Reports of the sub- groups* (NIH Publication No. 00-4754). U.S. Government Printing Office (pp. 2-5; 2-92).

Rashotte, C. A., MacPhee, K., & Torgesen, J. K. (2001). Effectiveness of a group reading instruction program with poor readers in multiple grades. *Learning Disabilities Quarterly*, *24*, 119–134.

Share, D. L. (2021). Common misconceptions about the phonological deficit theory of dyslexia. *Brain Sciences, 11,* 1510.

Torgesen, J. K., Alexander, A. W., Wagner, R. K., Rashotte, C. A., Voeller, K. K., & Conway, T. (2001). Intensive remedial instruction for children with severe reading disabilities: Immediate and long-term outcomes from two instructional approaches. *Journal of learning disabilities*, *34*(1), 33-58.

Wise, B. W., Ring, J., & Olson, R. K. (1999). Training phonological awareness with and without explicit attention to articulation. *Journal of Experimental Child Psychology*, *72*(4), 271-304.

Vellutino, F. R., Fletcher, J. M., Snowling, M. J., & Scanlon, D. M. (2004). Specific reading disability (dyslexia): What have we learned in the past four decades? *Journal of Child Psychology and Psychiatry 45*(1), 2–40.

Additional Resources

Example Sequence for Phonemic Awareness Instruction

	Teacher	Student
First sound awareness	"SAY," "SIT," "SUN"	/s/
First sound segmentation	"SEED"	/s/ /ēd/
Final sound segmentation	"PAT"	/t/
Final sound awareness	"MAT" "BIT" "LATE"	/t/
Segmenting simple words	"PIG"	/p/ /i/ /g/
Initial blends	/S/ and "TOP"	"stop"
Splitting initial blends	"SPIN without the /S/"	"pin"
Final blends	"PASS plus /T/"	"past"
Splitting final blends	"FIELD without the /D/"	"feel"
Deleting the 2nd sound in initial blends	"SKIP without the /K/"	"sip"
Deleting the 2nd to last sound in final blends	"BEST without the /S/"	"bet"

Example Instructional Routine for Teaching a New Phonemic Awareness Task

To demonstrate a new phonological awareness task, use *I do, we do, you do*.

- *I do*: The teacher models the task fully, playing both the teacher and student roles below.
- *We do*: the teacher and class perform the task together with a different word.
- *You do*: the students perform several items on their own. During the "you do" portion, it is important to pronounce the word clearly as it is normally spoken. Allow the students to do their work, then provide error correction and scaffolding as needed.

Segmenting & Blending (using fingers in K and beyond)
(1) Teacher: say "_____." Students echo.
(2) Teacher: Now say the word slowly, stretching out one finger for each sound. Students segment and extend a finger from their fist for each sound (moving left to right starting with the thumb). Right-handers use their writing hand palm down; left-handers turn their writing hand palm-up so the hand unfolds in a left-to right sequence.
(3) Once the correct sounds are segmented, students repeat the sequence of sounds on the fingers.
(4) Now blend the sounds and say the word. Students say the word.

Phoneme Deletion (using chips in Grade 1 and beyond)
(1) Teacher: say "_____." Students echo.
(2) Student says the word slowly as they place one chip down for each sound that they say.
(3) Teacher: touch each chip and say its sound. Student touches each chip and says its sound.
(4) Teacher: Now what would the word be without the /__/ (insert phoneme)?
(5) Teacher: Which chip moves out? Student moves the chip out.
(6) Teacher: which sounds are left? Student touches each chip and says its sound.
(7) Teacher: Now blend the sounds and say the word. Students say the word.

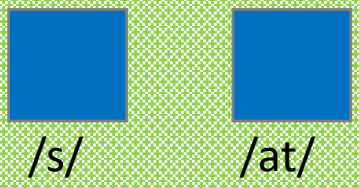
Example of Scaffolded Error Correction for Phoneme Segmentation
This is one example of how you can help students learn to hear the internal sounds in consonant blends, for example. If the student responds incorrectly during segmenting, try this approach to scaffold the correct response.

You can use fingers or chips for scaffolded error correction. This example uses chips as manipulatives, as in Section 2.8. Chips are color squares that students use to represent consonant and vowel sounds. See this guide's back cover for further information about representing spoken words with chips in order to reduce memory load during phonemic awareness instruction.

(1) Teacher: Almost, listen again. Say _____. Student echoes correctly.
Teacher: Place a chip down as you say each sound. Student lays out a chip for each sound.
(2) Teacher: Good. Say the sounds in _____ again, pointing to each chip.
OR
Teacher: Almost. The word is _____. Echo? Student repeats correctly.
Teacher: Watch my mouth as I say the word_____. Now you say it and notice what your mouth is doing. Student says the word slowly.
Teacher: What is your mouth is doing when you make this sound? (Teacher points to the chip) Student describes.
Teacher: And the sound is? Student says the sound.
Teacher: Correct. Good. Say the sounds in _____ again, pointing to each chip.
(3) Teacher: Correct, point to each chip and say its sound.
OR
Teacher: Almost, let's try again. The word is _____. Echo? Student repeats correctly.
Teacher: I hear 4 sounds. Do you have the right number of chips? Student corrects the number of chips.
Teacher: Good, now say _____and feel what your mouth is doing as you make each sound. Point to each chip with me as you say the word very slowly.
Teacher: What sound is this one? Teacher points to the chip with the missing sound. Student says the sound.

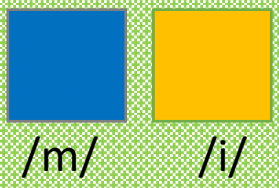
Phonemic Awareness with Manipulatives

“sat”



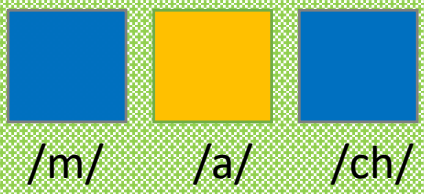
First Sound

“my”



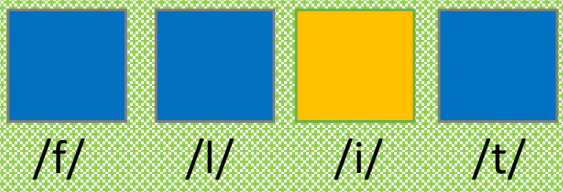
Two Sound

“match”



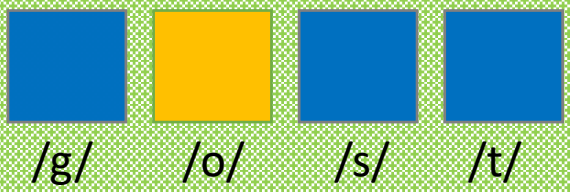
Three Sound

“flight”



Initial Blend

“ghost”



Final Blend