Video 1: Phoneme Awareness Transcript

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A warm welcome colleagues to this the first area of this series of seven professional development videos focused on strand B of the revised Ontario Curriculum 2023. This video takes about 35-40 minutes to complete the content. There are then reflection points for you to consider after that. There are also follow-up videos and material you may find useful to help you understand the research and practice of teaching phoneme awareness.

This session will cover 10 key points:

1. What are phonemes?

2. What is phoneme awareness?

3. Why should I know about phonemes and phoneme awareness as a teacher?

4. Does phoneme awareness develop on its own, or do I have to teach it?

5. Practicalities – How do I teach phoneme awareness?

6. Practicalities When do I teach phoneme awareness?

7. Practicalities: To whom and how much do I teach?

8. How do I assess that my teaching has been successful? What evidence am I using?

9. How do I use this teaching to prevent difficulties?

10. How does phoneme awareness teaching fit to my wider reading curriculum?

By the end of this session, you should have all of the essential information you need to be able to plan and deliver a strong phonemic awareness reading foundation that will be of enormous impact to young people who otherwise struggle here.

1. **What are phonemes**?

The word phoneme comes from the Greek word phōnēma, which means 'sound'. Other words that come from the same origin include tele*phone*, anglo*phone*, franco*phone*, sym*phony*, and saxo*phone*. As you might notice, all of these words have something to do with sound. '**Phoneme' however refers specifically to speech sounds – that is, the**

sounds found in the spoken language. A cellphone ringtone is *not* a phoneme. The notes of a saxophone however beautiful are never phonemes!

Phonemes are the smallest units of speech sound in a language.

All languages of the world can be analysed into their constituent phonemes, we can see these phonemes as the building blocks of a spoken language.

Importantly phonemes are also the building blocks of all of the world's **writing systems, where that writing system uses an alphabet**. In some writing systems such as Chinese the words are represented by 'characters' which correspond to syllables and meanings and where letters do not feature at all. Here for example is the (Mandarin) Chinese word for the feeling 'happy' represented by two characters: 高兴.

In alphabets such as English individual phonemes can be represented in words by many varied letters. The same sound 'dge' (in bridge) can also be a single phoneme (in e.g. giraffe). Your understanding of phonemes underpins that of your students.

Among other things, this complexity means that conventions for representing phonemes need to be developed. This is why the International Phonetic Alphabet (IPA) exists. IPA is a list of the approximately 44 phonemes of English. Here, for example, the 'dge' phoneme sound is represented as /dʒ/. In this International Phonetic Alphabet resource, the letter (s), the IPA symbols, and example words illustrate each of these phonemes.

You do not as a teacher need to know these IPA symbols as such but be aware that they exist when you explore your teaching with- or wider reading about phonemes, as they can be helpful as stable representations of speech sounds. They might be helpful for you as a school in keeping a clear written record of exactly what phonemes you have taught for example, or which phonemes a child has yet to explore.

To know your way around letter clusters and how they represent phonemes to teach this clearly to students you do need to be familiar with around 44 phonemes of English.

What are the phonemes? - try this very straightforward resource.

The phonemes are:

24 consonant phonemes . These are: 19 that often represent singletons b d f g h j k etc. (but as we noted they often represent other letter clusters such as 'giraffe' vs 'bridge' or 'edge'.

Plus /ch/ and /sh/ phonemes /th/ and th ('voiced and 'unvoiced' th).

You might have noted there is no .... X in the list! Why is that?

Answer? X features in written English either as a /z/ sound as xylophone (typically at the beginnings of words) or as two phonemes /k/ and /s/ as n box - compare with socks which has the same rime (typically at the ends of words).

Around 20 vowel phonemes.

5 short vowels (a e i o u) – the short vowel letter sounds + *1 'schwa' vowel sound: (away, could book)*

5 long vowels (a e i o u) that approximate to the vowel letter names

3 additional vowels + oo (moon) oi (coin) ou (cloud). These are often referred to as *dipthongs* - which can be understood as 'blurred' or 'merged' vowels where in articulating them the tongue moves between adjacent positions of different vowels, so the 2 vowels run into each other.

5 'r-controlled' vowel sounds: ir or ar er ur (which are also dipthongs) plus 'air' and 'ear'.

A teacher tip is to take time to get to know them and be clear in articulating them. You could explore how they are articulated in the mirror. Watch out for where lungs are involved (e.g. 'this' versus 'thin') and where and how the tongue, palate lips and mouth work together very precisely to make these distinct phonemes. HOWEVER, know that vowels vary in way they are pronounced at front of mouth, based on the consonant context (e.g., look at your face while saying 'sit' vs 'sip' – the shape is differing for the vowel phase in the middle – this suggest that articulation is not a reliable tool for the 20 or so vowels at least). For this reason, it will not be helpful to teach articulation features of vowels, to aid phoneme awareness.

Students do not need to know the 44 or more phonemes 'as a rote learned list' but you do need to know your way around the list in an assured way to teach *Phoneme Awareness* well and model the sounds and their representation in words.

The clearer and more consistent you can be in using phonemes, the clearer it will be for students to learn to use them of course!

Students can use such sound (phoneme) charts to check phonemes they are working with and build their awareness.

Students need to be able to consciously **use** these phonemes to accurately build words.

I should now introduce another important clarifying points about phonemes in the Ontario curriculum. Phonemes sometimes represent individual letters. In that case, we need a way of distinguishing between the speech sound of a phoneme and the written letter.

The Ontario curriculum strand B follows the convention of putting 'backslash' symbols *e.g. / t /* around written forms of phonemes to show they are referring to phoneme sounds not the letters (thus /t/ represents the phoneme 'tuh' in this case, not the 't' letter). This system also helps us represent sounds that are consistent across quite different letter patterns (e.g. the /dʒ/ sound in 'jump' 'giraffe' and 'edge').

2. **What is phoneme awareness?**

Phoneme awareness is the 'conscious' or 'explicit' awareness and use of these phonemes. This ability is shown most clearly through the articulation of phonemes out loud or intentional manipulation of phoneme units. Phoneme awareness is a specific form of phonological awareness. As we will learn, research has shown that phoneme awareness is key to reading success.

The Ontario Ministry of Education guidance says: *Phonological awareness refers to the ability to reflect on the sound structure of spoken language. Phonemic awareness is a subcomponent of phonological awareness. It refers to the ability to identify and manipulate the smallest unit of sound in spoken words, called a phoneme. When students begin to identify, notice, segment, blend, and manipulate individual sounds or phonemes in words, they are developing and consolidating their phonemic awareness*.

It is important to understand that phoneme awareness is NOT shown simply by 'sensitivity' to phonemes. For example, asking a child to select the odd one out of spoken words such as 'cat', 'cup' 'dog', likely measures only *sensitivity* to phonemes even if completed correctly. To be useful students need to use phonemes to help read words. Hence the strongest measures of phoneme awareness involve some sort of clearly evidenced awareness. Tasks involving manipulation of phonemes such as blending 'c'-'a'-'t' phonemes to make 'cat' or segmenting 'dog' into its constituent phonemes are examples of such tasks. It is blending and segmenting tasks such as these that were used in the research that I will describe below that predicted student's reading development.

The Ontario curriculum guidance speaks first to a grade 1 target of blending Consonant - vowel Consonant (CVC) phonemes of monosyllables such /sh/ /o/ /p/ and /s/ /p/ /l/ /i/ /t/ . Ability to blend and segment monosyllables of various kinds is a key skill for grade 1.

3. **Why should I know about phonemes and phoneme awareness as a teacher?**

As already suggested above, phonemes have been shown in years of careful research around the world to be crucial in word reading development:

Here is just one example of research on the importance of phonemes:

In the early 2000's my team and I worked closely with dozens of schools to help regular school staff assess phonemic abilities in young students in England. The wider idea was to

then identify early and prevent reading difficulties with appropriate supplemental teaching in Grade 1. As part of this work, we followed three hundred and eighty-two regular students from 21 typical elementary schools in one school board in London in England. Students were assessed by regular school staff at age 5 (their grade 1) on phoneme awareness, early word reading and decoding. Then this group of students were followed all the way until they were age 11.

Variation in the grade 1-equivalent phoneme abilities of individual students predicted who became a strong reader on regular national curricular tests at age 11 – some 6 years later! Students who were good at phoneme awareness at 5 became strong text readers at 11. Students who struggled with phoneme awareness tasks at age 5 went on to become below average text readers at age 11.

Even more impressively phoneme awareness predicted reading 6 years later after we first controlled for the known effects of reading and student's 'baseline' wider abilities at age 5, and more general student characteristics such as gender, home language, and social class at age 5 known to impact attainment. This shows a powerful and specific link exists between phoneme awareness and later reading. This is a link of practical value to educators.

Our first studies of this kind were in England, but we found exactly the same patterns when we worked with school boards in Canada, and many other researchers have shown the same patterns round the world. In sum:

Students who establish strong phonemic abilities early in the equivalent of grade 1 are much more likely to go on to be typical readers at age 11. Students who have weak phoneme abilities at age 5 are much more likely to go on to be below average readers at age 11 (unless we set out to do something about it in the early school years of course).

We also know from much research that students who are or are at-risk for developmental dyslexia, as a group, often experience sustained difficulty in a range of phoneme awareness tasks, such as deleting a phoneme /t/ from 'stand', sometimes even when compared to younger typical readers.

Finally, we have quite a clear understanding of exactly how phoneme awareness contributes to reading.

One line of evidence comes from computer simulations. Simulations are powerful methods used throughout science to model things we cannot control directly in the real world such as modelling the effects of climate change or bird migrations or patterns of infections. For learning we can use simulations to look directly at processes we think are important while knowing that children bring unique insights we can never hope to model! In one simulation the computer is not simply programmed as they normally are, but instead the program 'learns' print to sound relationships by being given feedback on

response accuracy (this is a bit like a student might). The simulations use learning 'algorithms' very similar to the ones CHAT GPT and other such tools do, learning through exposure to print.

Where the computer was deliberately set up to have *'imprecise'* representations of phonemes at the start (just like many below average readers in grade 1 do) it was poor at learning print to sound relationships and this learning did not generalise to new items.

Where the computer was deliberately set up to have more precise representations of phonemes (like an average or above average reader often has in grade 1) it was much better and quicker at learning letter to sound relationships and these more precise and accurate links cascaded into precise representations of words and generalised to new items sharing these patterns.

Even if the later letter-sound to word links were imperfectly represented, a strong base in phonological awareness helped the system correct errors.

Finally, where the computer first tried to learn lots of letter-sound links with poorly specified phonemes, later better specification of phonemes did not help – the damage had been done and was hard to unpick!

This study shows that without phonological awareness, teaching students letter-to-sound links leads to confused representations of letters and words does not 'stick' in memory. Students then struggle to decode words. This all suggests that phoneme awareness should be taught early.

We can show this same role of phoneme awareness in letter-sound learning in students directly from our recent work (Savage et al., 2020., and many others). Here we looked at two different ways of approaching letter learning.

In one condition, we carefully taught half of 149 at risk below average readers in grade 2 letter-sound patterns for 12-15 hours over 12 weeks. In another condition for the other half of the poor readers, we drew attention to letters without teaching the letter-sound links, and also for 12-15 hours over 12 weeks. This latter condition is somewhat similar to some learning contexts that are not based on the science of reading. We also measured phoneme awareness to see how it affected learning rates. After this we found all children made modest progress in learning. However, teaching these letter sounds helped students become better readers, *but only when* students *started with good phoneme awareness*.

Phoneme awareness makes letter learning more efficient and helps students retain letters and word forms in memory. They are pathways to storing print in our brains.

4. **Does phoneme awareness just develop, or do I have to teach it?**

Young students can often show sensitivity to phonemes and other phonological units. Does phoneme awareness develop spontaneously?

In the late 1970s and 1980's in Portugal there was a high illiteracy rate associated with political turmoil from the Salazar dictatorship and its impacts on education. In Brazil as an emerging economy, mass education was not fully established. Jose Morais and colleagues had the creative idea to work with spoken word poets who could not read in Portugal and Brazil. Poets have spent a lifetime thinking about words and sounds, of course. Unsurprisingly, when asked they were very good at identifying rhymes in Portuguese (e.g. 'povas' 'movas'). More surprising was their clear inability to manipulate phonemes in spoken words. Here the poets struggled in a task to identify the first phoneme of a word even where coins were present to represent the phonemes:

"This is ZOP. What is the first sound?' (one poet responded: 'ZO')
"This is ZO. The first is /z/ and the last one? (one poet responded: 'I can't!).

Another clue comes from students learning in Chinese language school systems. In some school contexts students only learn the Chinese characters that represent word meanings and are not exposed to a letter-sound alphabet system at all. Research shows that students in such contexts who have not been exposed to teaching of alphabetic systems such as English find phoneme awareness tasks very hard. Once children are exposed to phonemes, however, they learn them readily, we also know.

Summary points:

We have shown that there are really good reasons backed up by much research to teach phoneme awareness as part of your classroom planning in kindergarten and grade 1.

Phoneme awareness may not develop naturally, we cannot rely on it emerging without direct teaching it.

5. Practicalities – What do I teach? How do I teach it?

Having learned what phoneme awareness is and that phoneme awareness is important in reading we will spend the rest of the video on the key practical questions about what and how to teach about phoneme awareness.

First of all, there are **different kinds** of phoneme awareness tasks. I have listed these below in broad order of increasing difficulty below:

- identification
- blending
- segmenting
- elision (deletion)

- addition
- substitution

Two important features of all these phoneme awareness tasks to bear in mind are **syllable complexity** and **the position within a syllable** a task requires students to operate. Turning first to complexity, two phoneme words (e.g. 'at' ,'go') are easiest to manipulate. In any 3 phoneme Consonant-Vowel-Consonant word (e.g. cat), students will find manipulation of the initial phoneme easiest followed in order of difficulty by the final phoneme and finally the medial vowel. The Ontario curriculum thus represents this order:

Turning to syllable complexity, work *within complex* initial phoneme clusters (e.g. within 'fr'- in 'from' such as identifying 'f' and 'r') will be more challenging as will final phoneme clusters (e.g. within 'lt- in 'spilt') but can be an appropriate challenge once ready. Working with multisyllabic words should occur after monosyllables are mastered. These ideas are also represented in the Ontario curriculum advice:

You might assess where your students' precise learning needs are by exposing them to tasks early in this hierarchy of difficulty and within syllables of varying complexity seeing what they can reliably do already and then work forwards from this baseline to teach new phonemic abilities.

Whatever the task used, the teaching goal is always that students are aware of and use the phonemes of words.

1. Teaching phoneme identity

This should be the least demanding task in grade 1 at least. There are a number of ways to teach students about the identity of phonemes so they can be aware of them and then use them.

i) Use coins as Morais and colleagues did and say a word asking students to identify a phoneme (say out loud). For example asking what is the first sound in 'cat'.. the last sound in 'bed' etc.

ii) Use Elkonin sound boxes and coins to help students represent sounds:

iii) Take advantage of incidental opportunities to teach using oral prompts – 'put your hand up if your name starts with /c/ or /d/ for example. Question: What is the first sound in 'sun'? You can usefully start with *continuants* – phonemes that can be stretched out like: ssss- -ffff, -zzzz versus stop consonants such as b- and d that cannot be stretched so easily.

iv) Use picture pair snap games e.g. 'sun' – 'soup'. Add positionality i.e. first sounds (sun - soup) last sounds (meat- bat) then medial vowels (sun – cup)

Categorising all pictures beginning with 'b' (e.g. 'bird'- 'ball' among other picture cards). Then all words ending with 'g' and medial vowels.

2. **Teaching blending** (teacher: I will say a word slowly and see if you can guess what picture it is: b...ir ....d. Child: 'bird'.

I will say a word very slowly and see if you can guess the word: b....ar....n).

Use a robot or puppet or other device that speak a funny way (the original phoneme awareness studies from Scandinavia used exotic 'trolls' to sound words and child to blend CVC words).

Take advantage of incidental opportunities to teach using oral prompts – Can /b/- /e /- /n/ put his hand up? (then, child with more phonemes in their name e.g. /r/ /a/ /v/ /i/). Pick up your 'p'-'e'-'n'-'s'.

You can usefully start with blending *continuants* – phonemes that can be stretched out like: ssss- ffff-o, zzzz-ip versus stop consonants b in 'bed', or d in 'dog' that cannot be so easily stretched out.

Here are a few examples I have observed in classroom visits over the years seen where really certain teachers have inadvertently confused students in blending tasks –

1. *Teacher says*: "'Ch' always makes /ch/' . Charlotte in her class says, 'not always!' but is told she is wrong!!

2. *Teacher asks:* How many phonemes in 'king'? A student says '3'. Teacher then draws form boxes and breaks word into 'k' –' i'-'n'-'g' – then to blend sounds /k/ /i/ /n/ /g/ (something like 'kinerga' – 'king' - students then look confused).

C. **Teaching segmenting** for pictures of (e.g. animal) words using 'Elkonin sound boxes' stretched articulation again suggest continuants (e.g. sun...)

D. **Teaching elision (**deleting). Here tasks involve removing a phoneme from a word e.g. /t/ from 'stand'. Teacher might say what is stand without the /t/? and child says 'sand'. Remember to bear in mind the position within a syllable of the deletion that affects how hard the task is:

E. **Teaching substitution.**
Substitution involves swapping out one phoneme and replacing it with another in a word. For example:
Such approaches are first carefully modelled by the teacher of course.

Gene: This example from an existing intervention but might be easily modified to convey the idea.

3. Practicalities When do I teach it?

As mentioned earlier teaching phoneme awareness is a foundation of learning letters and words. Foundations come first when building anything ....

No clear evidence exists on whether 'massed' (e.g. 10 x 1 hr sessions) versus 'distributed' teaching (e.g. 30 x 20 mins phoneme awareness (e.g. little and often) works best. This gives teachers freedom trying out what works best in your class and for your students each year – it could be the first 2 weeks of literacy instruction in the year intensively or short session 3 times a day for first 2 weeks or 1 20 minute short sessions daily for first 12-13 weeks of the year ...

However, it is done, focus of no more than 10 hours total of teaching time here near the start of the year is important for the oral ability given what we know if its effects on the efficiency of learning letter-sound correspondences.

Phoneme awareness can then be continued alongside the introduction of letter-sound correspondence learning to help children learn these letter-sound patterns quickly and efficiently.

4. Practicalities: To whom? How much?

To whom? Nearly all students in early years will benefit from some phoneme awareness teaching in K and grade 1. Few arrive with all abilities here ready to go. Always bear in mind differentiation however: if students can **reliably** do a phonemic task, you perhaps do not need to teach it, **but** you have to be very confident it is mastered to do this, of course. Convergence across a range of assessments of abilities – e.g. assess through teaching over several days, tasks, and contexts, against the curriculum guidance, and some formal screening tools including some mandated in Ontario might all provide useful information. Some students will need extensive support in learning phoneme awareness. In a typical diverse classroom, you will need to structure the class time to give the concentrated phoneme awareness instruction work to those who need it most for them to avoid risk of reading difficulty.

How much time should I devote to phoneme awareness teaching?– A review of all of the well-executed research on phonemic awareness by Erbeli et al. (2024) suggested that 10 hrs or so phoneme awareness teaching where it is presented separate from print is optimal. After that the time spent was less effective in improving reading. *A further 10-20 hours of phoneme awareness teaching when combined with the teaching of print abilities such as letter-to-sound correspondences and phonics* was still a strong force for reading improvement their data showed.

However, bear in mind these are averages, not all student*'s needs are the same.*

5. **How do I assess my teaching has been successful?** As in all learning a strong model is one that involves assessment - clear teaching of phoneme awareness – and re-assessment approaches. These can take place in loops over time and can occur throughout the learning cycle not just at the end of a particular 'loop'.

6. **How do I use this teaching to prevent difficulties?** Careful progress monitoring and recording is a helpful way of showing you and students the learning that has taken place (e.g. in blending from CV / CV -> CVC -> CCVC-> CCVCC syllable structures).

Good records can help track teaching given and help inform need for additional 'tier 2' (small group) instruction, and beyond.

7. How does phoneme awareness teaching fit to my wider (reading) curriculum?

Phoneme awareness and letter knowledge together -> phonic decoding -> word reading

 Word Decoding + LC - > Reading comprehension

Phoneme awareness is a part of listening and reflecting and meta-cognition (thinking about thinking), learning about problem solving and can involve discovery learning and teamwork. It involves careful action, attention and listening around language.

Some research-led suggestions on what will and will not be effective

Not effective   **Effective**

Not effective	Effective
A tokenistic' focus on syllables and rimes (i.e. do not focus on phonological sensitivity). The idea that there is a progression from larger units like syllables to smaller ones is not backed up by research.	**Teach phoneme awareness.** Teaching phoneme awareness may help syllables whereas teaching syllables only helps syllables. There *might* be a role for rimes in kindergarten and early years and vocabulary may well be involved
Ignoring progression in task difficulty from identifying to blending segmenting substitution.	Use the known hierarchy of difficulty as basis for planning of teaching.

Planning without progression in learning goals.	Use assessment and task difficulty to build a progression of tasks and learning opportunities relevant to the needs and variation you see in your class through assessing phonological abilities through language tasks and other sources
Teach phoneme awareness in isolation from words reading (after the first 10 hours maximum) and without an explanation of why it is being taught.	Make sure to link to phoneme awareness to letters and to reading (especially after 10 hrs of instructional time). Incorporate letters and handwriting often (especially after 10 hrs of instructional time). There is a role for invented spelling and name writing in developing phoneme awareness. Always explain how and why phoneme awareness works to students.
Assume one size fits all	Assess through your teaching what students can do and teach at instructional level (80% success) Differentiate (e.g. some students identifying phonemes, some blending initial phonemes, others final phonemes, still others other segmenting from clusters so all are at an 'instructional' level in a given inclusive lesson.
Stress students with known articulation difficulties to say some phonemes (especially in 'public' spaces). Ignore that some phonemes are harder for all young students than others to articulate.	Consider the assessment needs of students with speech and language difficulties carefully and consider non-verbal responses where appropriate
Assume one articulation or 'accent' is better than another - student's backgrounds and other languages may impact articulation.	Phoneme awareness is a conceptual ability of understanding not an articulatory one, it is understanding they need. **Consider diversity and inclusion needs here very carefully.**

Treat all phonemic awareness tasks in a syllable as equal	Use syllable CVC structure **Within-syllable sequence** In CVCs: teach onset final and then medial. Introduce polysyllables later.
Don't assess phoneme awareness	Use a variety of assessments to inform assessment for, of, and as learning (e.g., observations, conversations, products, formal assessment systems)
Teach without consulting colleagues	Think of school-wide structures here especially others who might help Close kindergarten – grade 1 links in particular are suggested. Consider a whole school approach - ask consultants speech and language and educational psychology specialists for example)
Teach phoneme awareness as desk-based skill and drill with worksheets	Phoneme awareness is problem solving. Consider co-creating individualized phoneme-grapheme walls to support responsive instruction (e.g., during small group instruction) *of 44 phonemes* then use it to map out the many letters that can represent the sounds. Spoonerisms and tongue-twister games can introduce lively formats, movements can be included. One research intervention modified a twister game for phonemes!

Finally, remember this 'technical complexity' in knowing phonemes and later their range of associated letters is perhaps the small price to pay for the otherwise super-efficient alphabet system where students learn 1000s of new words for themselves – **this is the alphabetic principle**).

Phoneme awareness is part of the technical skill set of an early years teacher – phoneme awareness provides a clear map for learning letters.

Can you correctly segment these words: think, quick, box, start, poison?

Answers: 4,4, ,4, 4, 5

Summary and conclusion

We have considered	We have learned
1. What are phonemes?	Phonemes are the smallest units of sound
2. What is phoneme awareness?	Ability to consciously understand
3. Why should I know about phonemes and phoneme awareness as a teacher?	They are key to reading English and other languages that use an alphabet system
4. Does phoneme awareness develop, or do I have to teach it?	Likely needs to be taught
5. Practicalities – How do I teach it?	With a range of tasks
6. Practicalities When do I teach it?	Early on and then with print
7. Practicalities: To whom? How much?	Assess and differentiate 10 hrs
8. How do I assess my teaching has been successful?	Assessment -teach-assess loops
9. How do I use this teaching to prevent difficulties?	Consider documenting and monitoring.
10. How does phoneme awareness teaching fit to my wider (reading) curriculum?	Phoneme awareness as language problem solving

Reflection points

How can I use this information to shape my practice?

How can we as a whole school (or early years group) work together on a really robust approach to early phoneme awareness development?

How might we develop a community of practice here to develop together?

You should now have all you need to plan and deliver a strong and highly impactful phoneme awareness experience for diverse learners.