

## **Project INSPIRE Lesson 2 (13:30)**

**SPEAKER:** Pre-kindergarten first grade students-- Nemeth code within UEB contexts and strategies for supporting the student and building math skills. Lesson 2-- math problems and Nemeth code switch indicators.

Slide 2 has the objectives for this lesson. The first one focuses on missing numbers, signs of operation or signs of comparison and how we represent those. And the second objective focuses on using the Nemeth code indicators within word problems.

Let's move on to slide 3 and review the general omission symbol. The general omission symbol is braille with the full cell-- that's 1-2-3-4-5-6. You're going to use the general omission symbol when there's a question mark or blank that's showing something omitted, whether that's a number, a sign of operation, or a sign of comparison. You will space the general omission symbol the same way you space whatever it's replacing.

On slide 4 please do activity 2A, where you interline the problems. And note that a sign of comparison is missing in the fourth problem. When you're ready, please resume the video.

Slide 5 has the answers to activity 2A. Ensure that you know how to use the general omission symbol.

Slide 6 introduces you to the long dash. The long dash takes four cells of dots 3-6. it's used when there's a line drawn showing that something is missing. You typically place a space before and after a long dash. The exception is going to be if the long dash is followed by punctuation. So this means that the long dash is next to a sign of operation-- we're going to break our rule about no space around a sign of operation.

Please look at the two examples here on slide 6. The first one is 7 plus line equals 10. So I braille numeric indicator seven plus space four cells of dots 3-6 for my long dash space equals sign space 10. In my second example I have line minus 12 is less than 35. So begin with the long dash, which is my four cells of dots 3-6, space minus 12 space my less than sign space 35.

So often at the prekindergarten, first grade level, worksheets will have triangles, or circles, or squares used to show that something's missing. Sometimes these are random for print appeal, but sometimes they are meaningful. For example, the child does the worksheet, and all the odd answers are written in triangles, and all the even answers are written in circles. And there's a question asking the child, what's the difference between the numbers in the triangles and the numbers in the circle?

Obviously, our braille reader then needs to have triangles and circles to be able to answer that question. It's really recommended that you use either a texture or a sticker to represent a shape, and you avoid using the general omission symbol at this grade level. And that's because our younger students really need opportunities to tactually explore shapes.

Let me show you an example here on slide 8. 7 equals rectangle plus 4. This particular braille reader has some usable vision, so I've opted to use a green rectangle because I know my student can see green. So I'm going to braille numeric indicator 7 space equals space. I've put my green sticker for my rectangle in that shape. I've left enough of a space so that the braille does not run into the rectangle. So then I've put my plus 4.

Slide 9 gives you the opportunity and activity 2B to interline four problems. So go ahead and do that, and then resume the video.

Slide 10 has the answers to activity 2B. Take a moment to review these. If you have any questions, go back and review.

Slide 11 has activity 2C. Go ahead and write the following four problems in braille. If you don't have a sticker or texture, you can go ahead and draw what you would put for the students. When you're ready, please resume the video.

Activity 2C answers are found on slide 12. So we've gone over how to show omission using a shape.

Slide 13 introduces you to the Nemeth code switch indicators. Each of these take two cells. So the opening Nemeth code indicator is 4-5-6, 1-4-6. And the Nemeth code terminator is dots 4-5-6, 1-5-6. I like to think of these as starting and stopping Nemeth code, and it may be helpful to use the terms start and stop with your student.

There's a sample worksheet on the right side of slide 13. And this shows the title, which is expanded form, and then the directions, which is write each number as an addition problem. That's obviously all in UEB. But now I want to start math, because I have six math problems.

In this case, on the line I've put the opening Nemeth indicator-- dots 4-5-6, 1-4-6-- on a line by itself. Then I braille the 6 problems. And now I'm done, so at the bottom I'm going to terminate Nemeth. I've done that a line by itself, so I'm consistent-- dots 4-5-6, 1-5-6. We'll talk about double spacing materials when we get to lesson 4, and also braille page numbers, which you'll see at the bottom of this page.

Going to go on to slide 14 and talk a little bit about that idea of positioning these Nemeth indicators. On the example I showed you on slide 13, the opening Nemeth indicator and the Nemeth terminator were each on a line by themselves. It is permissible that I could have put the opening Nemeth indicator on the same line as the text, and the Nemeth terminator on the same line as problem 6 at the end of the math, in this case.

The important thing is that you're consistent. So whatever you decide to do the first time you use the Nemeth indicators, you want to do that throughout the document. Your student does need to see both ways of doing things.

Look at this math word problem down at the bottom of slide 14. "Joe wrote 3 plus 6 equals 9. Is he correct?" After the 9 is a period. That period is not part in Nemeth code. It's in UEB. So to

braille this problem, I'm going to begin in UEB with "Joe wrote". Then I'm going to open Nemeth code with dots 4-5-6, 1-4-6 followed by a space. You always put a space after you open Nemeth code.

I'm going to braille my Nemeth code. 3 plus 6 equals 9. Put a space-- always put a space before you terminate. So I've got my terminator, dots 4-5-6, 1-5-6. And that period is UEB, so it comes right after the terminator. And then I continue along in UEB, "Is he correct?" In this instance, I put both my Nemeth opening indicator and my terminator on the same line as my problem, and that's the ideal. I technically could separate the indicators from the problem, but you really want to work to avoid that.

Slide 15 talks about the single word switch indicator. There are no contractions in Nemeth code, so I have a choice. Each time I have just a single word between math-- two math entities-- I can either write out that word with no contraction, or I can use dot 6 dot 3-- which is the single words switch indicator-- in front of the word, regardless of whether or not that word has contractions.

If I opt to use the single word switch indicator in my document, I'm going to use it throughout. There's no mixing and matching. My students need to be familiar with how to read Nemeth code within UEB context when the switch indicator is used for a single word, and when it's not.

So down at the bottom I have an example here on slide 15, where I have "3 plus 4 and 2 plus 5 are equal." Both examples begin with the opening Nemeth indicator, but you'll notice in the first one the word "and" is brailled out, and in the second one I have the one word switch indicator-- dot 6 dot 3-- and then my contracted "and". And then in both instances, right after the problem 2 plus 5 I have a space and then Nemeth code terminator.

Slide 16 reminds you that in Nemeth code within UEB context, if you have a whole number like 82, or seven, or 109 in a word problem, you can use UEB. So we use UEB numbers in word problems. So I have the example problem, "Ricardo has 19 marbles and Tiffany has 13 marbles. Who has more marbles?"

This is actually problem 5. So since I'm in UEB, I'm going to begin with my numeric indicator-- my UEB "5 period"-- "Ricardo has"-- and then that "19" is in UEB-- "marbles, and Tiffany has"-- and my "13" is in UEB. So "13 marbles. Who has more marbles?"

Let's look at slide 17, which is activity 2D. The first thing I'd like you to do is decide if you need Nemeth code switch indicators. Go ahead and write down for each of these four problems whether or not you need them. When you're ready, please come back and we'll continue along

OK, slide 18. For the first two problems no Nemeth code switch indicators are needed, because you have whole numbers. In problem 3 yes, you do need Nemeth code switch indicators. So, "Which is more comma"-- I would then open Nemeth code in front of 9 minus 6. I have my "or"-- I can choose whether I use the single word switch indicator or braille out the "or"-- 11 minus 5. And then I'm going to terminate Nemeth with my question mark in UEB.

In the fourth problem, "Marcella wrote the answer 6 for 7 plus question mark equals 13 period. Is she right?" There's actually three ways to braille problem 4. So let me show you real quick the way you can braille these four problems.

I'll let you review slide 19 yourself, noting that for problem 3 I've shown you that you can either use the single word switch indicator in front of the "or", or braille out the word "or". You may be thinking, well, wait. The word "or" has no contractions. Doesn't matter. If you opt to use a single word switch indicator, you do it throughout the entire document.

Now, let's look on slide 20 at the three possible ways to braille problem 4, which again is "Marcella wrote the answer 6 for 7 plus question mark equals 13 period. Is she right?" In the first example, since the number six is a whole number, I braille the number in UEB and then I have the word for. And then I open up Nemeth with dots 4-5-6, 1-4-6 in front of the 7 plus question mark equals 13. And I terminate Nemeth followed by the period.

Since our young student may get confused in the same word problem having a 6 in UEB and then the problem in Nemeth code, in my second example I've opted to open Nemeth code in front of the six. So I open Nemeth code, then six. And in this case I'm using the one word switch indicator, so I use dot 6 dot 3 and contract the word "for".

In my third example, again I've opted to open Nemeth up in front of the six, but this time I'm braille-ing out the word "for" because I've opted to braille out all my single words. So it's really important for you to give your student the opportunity to see the multiple ways that you can use the one word switch indicator, and deciding when to open and terminate Nemeth.

It's your turn. We have activity 2E, and I'd like you to braille the four word problems. When you're ready, come back and you can check your work.

Slide 22 has the answers to activity 2E. So you can check your work to make sure that you've used the Nemeth code terminators in problem 1 and problem 3. And this concludes lesson 2.