

Grades 2-5 Lesson 2- 16:19

SPEAKER: Welcome to An Introduction to Nemeth Code Symbols Used in Grades 2 to 5 and Strategies for Supporting Elementary Students in Building Math Skills. This is Lesson 2: Mathematical Comma, Decimal Point, Money and Linear Word Problems.

Slide two has the objectives. You will be able to read and write symbols, including the mathematical comma on in large numbers, decimal point, cent sign and dollar sign. You'll also be able to read and write those symbols in linear math problems and in word problems.

Slide three talks about multi-digit numbers and the mathematical comma. Now, beginning in grade two, students learn to write numbers up to 1,000. And by the time they're done with 4th grade, they're rocking and rolling with large numbers. So when you go to write a multi-digit number, you're going to use a comma if there's one in print. And it's the mathematical comma. That's dot 6. So this is different than the UEB comma, because we would confuse the UEB comma with the number one. So the mathematical comma is dot 6.

I've got four examples for you. I've got the number 537. No comma in print. No comma in braille. I've got 7,639. In print I have a comma, so I'm going to do my numeric indicator, seven, my comma, which is dot 6 because it's my mathematical comma, 639. Then I've got a big number. 312,457,089. Notice I begin with my numeric indicator. I'm going to do my 312, mathematical comma, 457, mathematical comma, 089.

All right, they're challenging us down here. We're going into the billions, folks. 1,234,567,890. Again, I begin with my numeric indicator. After my 1, I have my mathematical comma, 234, mathematical comma, 567, mathematical comma, 890. Just like we do in print where we have a comma and a large number, we use the mathematical comma.

Slide four talks about really long multi-digit numbers. Now, it's rare that we divide a very large number across lines, but it can happen. So if you absolutely cannot get the number all on one line, you are going to divide it in braille. And when you do this, you're going to put a hyphen, which is dots 3-6, after one of the commas and then break and go to the next line.

When you do that, you're going to put the numeric indicator on the next line. So we're actually in this very large number going to have a numeric indicator to begin the number, as we normally would. When we get to the end of the line, we're going to break after the comma, putting a hyphen, and when we go to the next line, we're going to put a numeric indicator and continue on with the number.

Now, it is past your narrator's skills to be able to tell you how to actually say this number. But I just want to point out to you it begins with a 5, a comma, 670, and then many, many, many, many zeros divided by commas. So please take time to look at the end of the first line, see that we have the mathematical comma, hyphen, go to the second line, numeric indicator, 000, mathematical comma, 000. If you can pronounce this, you do not belong in this course if you know what number this is.

Okay, slide five has activity 2A. Please interline the following. And when you're ready, check your work. Activity 2A answer key is on slide six. Did you use all your mathematical commas correctly?

Slide seven talks about the decimal point. Now, in Nemeth code, the decimal point is dots 4-6. We don't use dots 2-5-6 because that would be confused with the number 4. So students begin to learn to use the decimal point early on. And by the time they get to fifth grade, they're very proficient with decimal points. When you go to write the decimal point, you follow the same rules that you would follow for writing whole numbers. So you begin with a numeric indicator if the number is standing alone. You put that decimal point wherever it happens to fall.

I've got five examples to show you. 5.7. So I'm going to do numeric indicator, 5, my decimal point, which is dots 4-6, 7. Second example, 7.234. Numeric indicator 7, my decimal point, and then the 234. Then I have the number 8,349.25. Okay, so I'm going to do numeric indicator, 8, comma, remember, that comma is dot 6, my mathematical comma, 349, decimal point, 25.

My next two examples do not have a whole number at the beginning. I have .675. Remember, numbers always start with a numeric indicator when standing alone. So it's going to be a numeric indicator, followed by a decimal point, 675. And my bottom example is .01. So I'm going to do numeric indicator, decimal point, 01. Not too hard.

Slide eight has activity 2B. Go ahead and braille the following numbers that all have decimal points. When you're ready, come back and check your work. Slide nine is the answer key to activity 2B.

Let's move on to slide 10 and talk about cents. Now, the cent sign in braille is two cells. The first cell is dot 4 and the second cell is dots 1-4, AKA the letter c. And the way I like to think about this and point out to my students is c starts the word "cent." A cent sign in print looks like a c with a line drawn through it. So therefore, we use the c in braille. You're going to use a numeric indicator followed by the number and then the cent sign. Never ever do you put a space between the number and the cent sign.

I've got four examples for you. 75. So numeric indicator, 75, dot 4, c. 23. Numeric indicator, 23, dot 4, c. See a pattern here? Third example, 50. Numeric indicator 50, dot 4, c. And I know you can do the last one without me, so say it with me, folks. 1. Numeric indicator, 1, dot 4, c. All right, we've got our cent sign down.

So let's go on to slide 11 and talk about the dollar sign. We've got a pattern going here. Just like the cent sign, the dollar sign takes two cells. So dot 4, dots 2-3-4. And yes, that's the letter s. And again, we have a similarity here. In print, the dollar sign is an s with a line going through it. So in braille, we use the letter s.

You're going to place the dollar sign in front of the number that it goes with. Very, very important. We do not use the dollar sign and the numeric indicator. The way I like to think of it is once the braille reader sees that dot 4, s, the braille reader knows we're in money, so we don't

need to do double duty and give the braille reader a numeric indicator. So it's dot 4, s and then the dollar amount or the decimal point if it's a cent amount.

Okay, let's look at our three examples. First one is \$5.39. So my dollar sign, dot 4, s, 5, that decimal point, 39. Second example. This time it's dollar sign, decimal point 33. So I'm showing the braille reader 33. So dot 4, s, decimal point, 33. Then very rich here, \$68,000. So dot 4, s, 68, my mathematical comma, 000.

On slide 12, we have activity 2C. Braille the following monetary amounts. Make sure you use your cent and dollar sign correctly. Slide 13 has the answer key to activity 2C. Ensure that you are brailleing your cent sign properly, dot 4, c, and your dollar sign properly, dot 4, s. No spaces between those signs and the numbers. And when you're ready, we're going to go ahead and go on to slide 14.

And slide 14 lets us explore how to write linear problems that use dollar and cents. So when you go to do this, you're going to be using your signs of operation and your signs of comparison the exact same way you did previously with whole numbers.

Just a couple quick reminders. When you are in a math problem, once you begin the problem, you do not repeat the numeric indicator after the sign of operation. Remember, there's always a space on either side of the sign of comparison. Do want to point out to you when we get to problem five that we've got a long dash in that problem and it's a little tricky. So we'll review that.

But let's start with the first one. 10 plus 15 equals long dash. Numeric indicator, 10, my cent sign, my plus sign, 15, my cent sign, space, equals, space, long dash. Remember, that long dash is four cells of dots 3-6.

Second problem. \$3.75 minus \$1.50 equals. And there is a dollar sign in front of each of those monetary amounts. So I'm going to begin with my dollar sign, dot 4, s, 3, decimal point, 75, minus, my dollar sign, 1, decimal point, 50, space, equals, space. And because there is not anything written after that equals sign, I want the braille reader to know that there is a blank. I'm going to use my full cell and my general omission symbol.

Third example. \$9 times 5 equals question mark. Going to begin with my dollar sign, 9, decimal point, 00, my times sign, dot 4, 1-6, 5, space, my equal sign, space. I have a question mark. I'm going to use that general omission symbol to represent it.

Let's take a look at the fourth one. 60 divided by 3 equals long dash. So I'm going to begin with my numeric indicator, 60, my cent sign, my division sign, which is 4-6, 3-4, 3, space, equals, space, long dash.

And then my final problem on slide 14 is \$23 minus long dash equals \$18. Now, we have a rule, just to remind those of you who may not remember that rule because it's a little tricky, is when I have a sign of operation followed by a long dash, I put a space after the sign of operation before

the long dash. So notice that I have my dollar sign, 23, minus, space, that four cell long dash, space, equals, space, and then my dollar sign, and 18.

Let's go on to slide 15 and talk about when you have monetary amounts and decimal points. And we've got to start switching things up here, because we're going in and out of the word problem and we've got money or we have decimals. When I have a monetary amount in a word problem, I'm going to have to turn on Nemeth, do my monetary amount, and turn off Nemeth. Sometimes I have one single word between monetary amounts or between decimals and then I have the option to either write out that word or to use the one word switch indicator, which is dots 6-3.

Let's take a look at the example word problem. So it's problem two. Tonya asked, "Is .75 the same as 75? And then we have a dollar sign, 0, decimal point, 75, question mark, closing quotation mark. "Explain if Tonya is correct or not." So with word problems I begin in the first cell. And this word problem has no multiple choice answers. So my runover is going to be in cell three.

So I braille along here. Number two, I'm in UEB, Tonya asked "Is. Now, I've gotten to the decimal .75. I'm going to open up Nemeth code, 4-5-6, 1-4-6, space, got my numeric indicator, decimal point, 75, space, then I close Nemeth, 4-5-6, 1-5-6. Okay, I'm out of Nemeth, back in UEB. The same as...

Oh, here we go again. Opening up Nemeth. I've got my numeric indicator, 75, my cent sign "and" is a single word, so I'm going to do dot 6-3, "and" contraction, then I've got my dollar sign, 0.75, space, closing Nemeth, my question mark, and my closing quote. And then I have my last sentence, which is in UEB. "Explain if Tonya is correct or not."

So you can see how I used the one word switch indicator. You can see how I used opening and closing Nemeth. Because I have to use the Nemeth code indicators when I have decimals or monetary amounts in a word problem. These are not whole numbers, and therefore they're mathematical. So I have to turn Nemeth on and off for them.

Slide 16 has activity 2D. I want you to go ahead and braille the word problems using your numbers correctly and your monetary amounts. Slide 17 has the answer key to activity 2D.

Let's go on to activity 2E on slide 18. You have two more word problems to braille. Be sure you braille your dollars and cents properly. When you're ready, come back and check your work. And slide 19 has the answers to activity 2E.

So in this lesson, you've learned how to braille the decimal point, the cent sign, the dollar sign, and also how to use the comma in numbers, including very long numbers. Thank you for taking part in Lesson 2.