

Kindergarten Nemeth Braille Code Curriculum
Module 6: Subtraction, Geometry, and an Introduction to the Ellipsis

On your mark, get set, go! It's time for another adventure on a scooter!
Let's begin with a subtraction story.

Note: *Place 5 counting bears into a bowl or work tray. If preferred, you can use different objects, Unifix blocks, or base ten unit blocks.*

Reach into the bowl and count the bears. Yes, there are five counting bears. We will use them to act out a pretend story about pancakes. Do you remember what pretend means? That's right, scooter racer! Pretend means make-believe or imaginary.

Gracie and her aunt made 5 pancakes. So let's get out 5 counting bears and pretend that they are pancakes. Gracie ate 3 pancakes for breakfast. Let's put three of the bears back into the bowl.

How many pancakes are left? Let's count the pancakes together.

1 2

Yes, there are two pancakes left. Now let's try a subtraction story about bears.

Five bears sat on the grass in the zoo. So let's get out 5 bears and pretend that they are sitting on the grass. Two of the bears walked to the nearby cave to take a nap. Let's move 2 bears and place them back in the bowl.

How many bears are sitting on the grass now? Let's count the bears together.

1 2 3

There are 3 bears sitting on the grass now.

Note: *Show the Five Frame (available within the curriculum) to the student. It may help to place the Five Frame on a nonslip surface such as a rubber shelf liner. You may also place the Five Frame on a cookie sheet or magnetic board and use magnetic counters instead of pennies. The Tactile Tokens from APH fit perfectly into the Five Frame and the two textures can represent the two addends. You can also use the shapes and line segments from the Picture Maker Wheatley Tactile Diagramming Kit to create the Five Frame. It may be helpful to use a work tray to hold your counters/pennies.*

Sometimes we use a Five Frame instead of counting bears. Use your hands to explore the Five Frame. Find the title and read it with me.

The title is at the top of the page. The title is Five Frame. Now use your hands to find the squares in a row. A row goes from the left to the right. Move your hands across the row of squares from left to right. Now count the squares. That is correct. There are five squares.

Note: *If preferred, you may begin with five small storage boxes and then transition to the Five Frame.*

Let's go back to the bear story. There were 5 bears sitting on the grass. We can use pennies (or small pieces of Wikki sticks) on the Five Frame to show the bears. Let's work together to place 5 bears on the Five Frame. We will only place 1 bear in each square, beginning with one on the far left and then moving to the right.

Then two of the bears walked away. Let's take away 2 bears from the Five Frame and place them in the work tray.

How many bears are sitting in the grass now? Excellent counting! There are 3 bears sitting on the grass now.

Let's try another one. Before we begin, remove the pennies (or small pieces of Wikki sticks) from the Five Frame and place them back in the work tray.

Jose has 4 cookies. So how many pennies should we place on the Five Frame? That's right. We will place 4 pennies on the Five Frame. He shares one of his cookies with a friend. How many pennies should we take away from the Five Frame? That is correct. We should take 1 penny off of the Five Frame.

How many cookies does Jose have now? That's right! He has 3 cookies now!

Before we begin another one, remove the pennies from the Five Frame and place them back in the work tray.

There are 2 turtles swimming in the pond. How many pennies should you place on the Five Frame? That's right. You will place 2 pennies on the Five Frame. One turtle swam away. How many pennies should we take away from the Five Frame? That is correct. We need to take 1 penny off of the Five Frame.

How many turtles are swimming in the pond now? You got it! There is 1 turtle swimming in the pond.

Let's try one more. There were 5 children reading books in the library. How many pennies should you place on the Five Frame? That's right. You will place 5 pennies on the Five Frame. Three of the children walked away to search for another book. How many pennies should we take away from the Five Frame? That is correct. We need to take 3 pennies off of the Five Frame.

How many children are reading books now? That is right! There are 2 children reading books now.

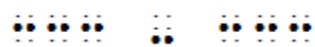
Fun fact: Some people who have difficulty walking use an electric mobility scooter instead of a wheelchair or walker.

Activity time: Now it is time for you to make up your own subtraction story, and then we will work together to braille it. We will illustrate your story using a variety of small objects, tactile stickers, and paper with different textures.

Note: *There are additional instructions about how to make up the subtraction story in the Teacher Reference Materials.*

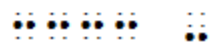
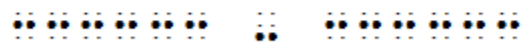
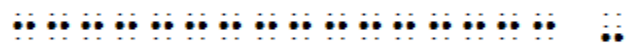
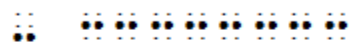
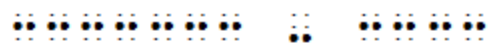
For the second part of the adventure, let's learn about the minus sign. We use this symbol when we are subtracting numbers in math.

Softly glide your fingers across the line of braille. In the middle of the line, you will find a minus sign. There is a line of dots 2-5 before and after the minus sign.



Great work, cyclist! The minus sign is made with the dots 3-6.

Now it is your turn to find the minus sign in each line of braille. Move your fingers lightly across the line of braille and say "scoot faster" when you find the minus sign!



Answer:

The student will say "scoot faster" each time he/she points to a minus sign at the following places:

Line 1: toward the middle of the line

Line 2: at the beginning of the line

Line 3: at the end of the line

Line 4: toward the middle of the line

Line 5: at the end of the line

Let's find more minus signs. Make your favorite scooter sound when you find the minus sign in each line. Be careful to make sure it is a minus sign and not a number, plus sign, or a general omission symbol.

Note: *If you would prefer, the student can stomp a foot whenever he/she finds a minus sign. This option will also allow the student to keep his/her fingers on the braille. If you are using hard copy braille, the student can underline or circle the minus sign instead of making his/her favorite scooter sound or stomping a foot. If you would prefer, the student can also place a small sticker on top of each minus sign.*

Answer: 


The student will make his/her favorite scooter sound each time he/she points to a minus sign at the following places:

Line 1: toward the middle of the line

Line 2: at the end of the line

Line 3: at the beginning of the line

Line 5: at the beginning of the line


Answer:  (The directions are to write the minus sign several times, so there may be variation in how many times the minus sign is written. Any length of line is considered correct.)

Activity time: You will need the Accessible Equation Editor and/or your braillewriter and braille paper for this activity. Listen and then braille what you hear. Space one time between the braille symbols.

15 general omission symbol 6 minus sign





Now move your fingers across the braille and check your work as I say the symbols again.

Press your line spacing key twice to move to the next line.

Answer: 

plus sign 3 4 minus sign general omission symbol

minus sign 2 general omission symbol plus sign




Answer:    

Now move your fingers across the braille and check your work as I say the symbols again.

minus sign 2 general omission symbol plus sign




That was great work, Nemeth superstar! For the third part of the adventure, let's quickly review the equals sign. We use this symbol when we add and subtract numbers in math.



Softly glide your fingers across the line of braille. In the middle of the line, you will find an equals sign. There is a line of dots 2-5 before and after the equals sign.

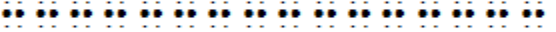

  



Great work! The equals sign is a two-cell symbol. We use dots 4-6 in the first cell and dots 1-3 in the second cell.




Now it is your turn to find the equals sign in each line of braille. Move your fingers lightly across the line of braille and make your favorite scooter sound when you find the equals sign!

Answer: 

The student will make his/her favorite scooter sound each time he/she points to an equals sign at the following places:

Line 1: in the middle of the line

Line 2: at the beginning of the line

Line 3: at the end of the line

Line 4: at the beginning of the line

Line 5: in the middle of the line

Let's also review how to write an equals sign in braille. It will take us two braille cells to write an equals sign. In the first braille cell, we need the dots 4-6. In the second cell, we need the dots 1-3. Place your fingers on the correct keys on either the Accessible Equation Editor or your braillewriter and then practice writing the equals sign one time.

Answer: ⠠⠨

Super work! Move to the next line and practice writing the equals sign one more time. When you finish writing the equals sign, move your fingers across the braille and check your work!

Answer: ⠠⠨

Fun fact: If a person receives training in how to drive an electric mobility scooter, they are more likely to use it.

Activity time: You will need the Accessible Equation Editor and/or your braillewriter and braille paper for this activity. Listen and then braille what you hear. All of the problems will be numbered, beginning with 1.

Note: *Repeat saying the problem as many times as needed. Also remind the student to move his/her fingers across the braille and check his/her work if needed. An answer key in braille is provided on page 2 of the document entitled "B3 Module 6_Answer Key for Writing Activities_K".*

1. minus sign
2. equals sign
3. general omission symbol
4. 1, 3, 5, 7
5. plus sign
6. 2, 4, 6, 8
7. minus sign
8. general omission symbol
9. 17, 18, 19
10. plus sign

Answer:

2 + 3 = 5
2 + 3 = 5
2 + 3 = 5
2 + 3 = 5
2 + 3 = 5
2 + 3 = 5
2 + 3 = 5
2 + 3 = 5
2 + 3 = 5

It's time for the fourth part of the adventure! The next line of braille contains an equation that includes a minus sign. Let's read it together.

2 - 1 = 1

Note: A numeric indicator is not used when a number follows a sign of operation without a space.

It begins with the numeric indicator followed by dots 2-3. What number is this? That's right. It's the number 2. Afterwards, there is a minus sign. Which dots make the minus sign? You got it! Dots 3-6 make the minus sign. Notice that there is not a numeric indicator after the minus sign. Also notice that there is not a space before or after the minus sign.

After the minus sign, there is a single dot 2. What number is made with the dot 2? Yes, the number is 1.

So far our equation reads 2-1. What follows the number 1? Yes, there is a space followed by an equals sign.

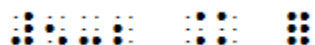
What follows the equals sign? That's right. The equals sign is followed by a space and then a general omission symbol. Dots 1-2-3-4-5-6 make a general omission symbol.

What number is the general omission symbol standing for in the equation? Let's use our Five Frame and pennies to find out.

Note: *Encourage the student to verbalize the process they use to determine what the general omission symbol is standing for. Provide assistance as needed.*

That's right! Two minus one equals one.

Try reading another equation. What does it begin with?



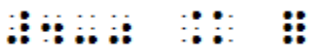
You got it! It begins with the number 5. What follows the number 5? Yes, there is a minus sign, followed by a 2. What dots make the minus sign? Yes, dots 3-6 make the minus sign. Did you remember that there is not a space before and after the minus sign?

Try reading the rest of the equation. You got it, Nemeth superstar! There is a space and then an equals sign. Afterwards, there is another space, followed by the general omission symbol.

What number is the general omission symbol standing for? Let's use our Five Frame and pennies to find out.

Note: *Encourage the student to verbalize the process they use to determine what the general omission symbol is standing for. Provide assistance as needed.*

That's right! Five minus two equals three. Let's try reading another equation together.



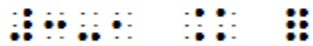
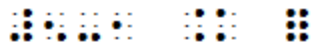
Yes, we would read the equation as 4 minus 0 equals what number. Let's use our Five Frame and pennies to find out what the general omission symbol is standing for.

How should we begin? Yes, we should place 4 pennies on the Five Frame. How many pennies should we remove from the Five Frame for the number 0? That is correct. We should not remove any pennies from the Five Frame because 0 means no objects.

So 4 minus 0 equals what number? Way to go! 4 minus 0 equals 4.

Note: *Encourage the student to verbalize the process they use to determine what the general omission symbol is standing for. Provide assistance as needed.*

Now read the equations below and tell me what number the general omission symbol stands for each time. Good luck, scooter racer!



Answer:

$$5-1 = ?$$

The general omission symbol stands for 4.

$$4-1 = ?$$

The general omission symbol stands for 3.

$$3-2 = ?$$

The general omission symbol stands for 1.

$$2-1 = ?$$

The general omission symbol stands for 1.

$$3-1 = ?$$

The general omission symbol stands for 2.

$$1-0 = ?$$

The general omission symbol stands for 1.

$$5-0 = ?$$

The general omission symbol stands for 5.

Fun fact: Electronic mobility scooters are often used for shopping, going on day trips, and visiting with friends and family.

Activity: Use flash cards to practice reading equations that have a minus sign. Afterwards, tell me what number the general omission symbol stands for. Once you can read all of the equations correctly, go back and time how quickly you can read the equations! Do you think you can read the equations even quicker? If so, try one more time!

Way to go, math superstar! For the fifth part of the adventure, let's learn how to write equations with a minus sign in braille. Place your fingers on the correct keys on either the Accessible Equation Editor or your braillewriter.

Begin by writing $3-1 = ?$

An answer key in braille is provided on page 3 of the document entitled "B3 Module 6_Answer Key for Writing Activities_K".

What should we braille first? Yes, we will begin by brailleing the number 3, followed by the minus sign.

How do we write a minus sign in braille? Yes, a minus sign is made with the dots 3-6. Remember that there will not be a space before or after the minus sign.

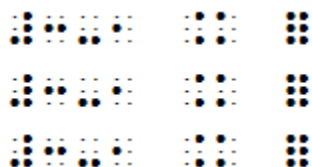
Next we will write the number 1. We will not need another numeric indicator. So we would press only the dot 2 after the minus sign to write the number 1.

We will need a space after the number 1 so we will press the space bar one time. How do we write the equals sign in braille? Yes, the equals sign begins with the dots 4-6, followed by the dots 1-3.

We will need another space after the equals sign. Then we will need to braille the general omission symbol. Dots 1-2-3-4-5-6 are used to write the general omission symbol.

Super work, Nemeth superstar! Move to the next line by pressing the line spacing key twice. Practice writing $3-1 = ?$ several times. You will need to press your line spacing key twice to move to the next line before brailleing the equation each time.

Answer: (The directions are to write $3-1 = ?$ several times, so there may be variation in how many times $3-1 = ?$ is written. Any number of times is considered correct.)



Note: Repeat saying the equation $3-1 = ?$ as many times as needed. Also remind the student to move his/her fingers across the braille and check his/her work if needed.

Let's practice braille another equation.

$$5-4 = ?$$

An answer key in braille is provided on page 3 of the document entitled "B3 Module 6_Answer Key for Writing Activities_K".

What should we braille first? Yes, we will begin by braille the number 5, followed by the minus sign. How do we write a minus sign in braille? Yes, a minus sign is made with the dots 3-6. Will we need a space before or after the minus sign? That's right. We will not need a space.

Next we will write the number 4. We do not need another numeric indicator because the number is coming after the minus sign. So we would press dots 2-5-6 after the minus sign to write the number 4.

What should we braille next? Yes, we need a space and then an equals sign. How do we write the equals sign in braille? Yes, the equals sign begins with the dots 4-6, followed by the dots 1-3.

Will we need another space after the equals sign? Yes, we will need a space before and after an equals sign in braille. Then we will end the equation with a general omission symbol. What dots are used to write a general omission symbol? Yes, dots 1-2-3-4-5-6 are used to write the general omission symbol in braille.

Move to the next line by pressing the line spacing key twice. Practice writing $5-4 = ?$ several times. You will need to press your line spacing key twice to move to the next line before braille the equation each time.

Answer: (The directions are to write $5-4 = ?$ several times, so there may be variation in how many times $5-4 = ?$ is written. Any number of times is considered correct.)

$$2-0 = ?$$

$$5-3 = ?$$

$$4-1 = ?$$

Fun fact: Some people who use an electronic mobility scooter also use a wheelchair.

Activity time: You will need the Accessible Equation Editor and/or your braillewriter and braille paper for this activity. Listen and then braille what you hear.

Note: Repeat saying each equation as many times as needed. Also remind the student to move his/her fingers across the braille and check his/her work if needed. An answer key in braille is provided on page 4 of the document entitled "B3 Module 6_Answer Key for Writing Activities_K".

$$2-0 = ?$$

$$5-3 = ?$$

$$4-1 = ?$$

$$3-2 = ?$$

Answer:

$$2-0 = 2$$

$$5-3 = 2$$

$$4-1 = 3$$

$$3-2 = 1$$

Let's try a few more. This time number the equations.

Note: If needed, remind the student how to number the equations, including the dot configuration for the punctuation indicator. Continue to repeat saying each equation as many times as needed.

1. $3-1 = ?$

2. $4-2 = ?$

3. $5-3 = ?$

4. $3-0 = ?$

5. $2-1 = ?$

Now go back to the equations that you wrote and tell me what number the general omission symbol is standing for each time.

Answer:

$3-2 = 1$

The general omission symbol stands for 2.

$3-1 = 2$

The general omission symbol stands for 2.

$2-2 = 0$

The general omission symbol stands for 2.

$2-1 = 1$

The general omission symbol stands for 3.

$1-1 = 0$

The general omission symbol stands for 1.

Fun fact: It is not known when the first chair with wheels was invented and used by individuals with disabilities. It was likely more than 1,000 years ago.

For the sixth part of our adventure, let's learn about shapes.

Note: Before beginning this section, you may want to listen to a song about shapes or read a book about shapes. The National Braille Press and Seedlings sell "DK Braille: Shapes" which includes tactile pictures of shapes.

In addition to a work tray, you will need several 2-dimensional circles, triangles, rectangles, and squares. Many of these manipulatives are available in the MathBuilders, Unit 1: Matching, Sorting, and Patterning Kit; MathBuilders, Unit 6: Geometry Kit; and the Focus in Math Kit available from the American Printing House for the Blind. If preferred, you can use textured paper to create the shapes. Feel 'n Peel Sheets: Carousel of Textures from American Printing House for the Blind has a variety of non-adhesive backed textured paper.

Give the student a manipulative of each shape as you introduce the associated term.

This is a circle. Take a minute and explore the circle with your hands. What did you notice about the circle? Yes, it is a perfectly round shape. There are no straight sides or corners on a circle.

Now sort the objects found in the work tray into two groups – circles and non-circles.

Very nice! Now place the objects back in the work tray.

This is a triangle. Take a minute and explore the triangle with your hands. What did you notice about the triangle? Yes, a triangle has 3 sides and 3 corners. Another word for corners is vertices.

1 2 3

Yes, a triangle has 3 sides.

Now sort the objects found in the work tray into two groups – triangles and non-triangles.

Very nice! Now place the objects back in the work tray.

Fun fact: Approximately 3.3 million people of all ages use a wheelchair in the United States.

This is a rectangle. Take a minute and explore the rectangle with your hands. What did you notice about this rectangle? Yes, it has 4 sides and 4 corners. All 4 corners are the same size. Let's count the sides of the rectangle.

1 2 3 4

Yes, a rectangle has 4 sides.

The opposite sides on a rectangle are equal in length. What does equal mean? That's right! Equal in length means that the opposite sides have the same length.

Note: *If needed, use hand-under-hand technique to show the student what is meant by opposite sides.*

Now sort the objects found in the work tray into two groups – rectangles and non-rectangles.

Note: *Do not include squares with the objects since a square is a special kind of rectangle.*

Very nice! Now place the objects back in the work tray.

This is a square. A square is a special kind of rectangle. Yes, it has 4 sides and 4 corners. All 4 corners are the same size. Let's count the number of sides together.

1 2 3 4

Take a minute and explore the square with your hands. What did you notice?

Yes, all 4 sides of a square are the same length. That is what makes it a special kind of rectangle!

Now sort the objects found in the work tray into two groups – squares and non-squares.

Very nice! Now place the objects back in the work tray.

Place all of the shapes into a work tray. Then pick up one shape at a time and tell me if it is a square, rectangle, triangle, or circle.

Activity: Let's go on a shape hunt. First, find 3 objects that are in the shape of a circle. Second, find 3 objects that are in the shape of a rectangle. Third, find 3 objects that are in the shape of a triangle. Fourth, find 3 objects that are in the shape of a square.

Note: *You could also use pentagons, hexagons, and octagons.*

Fun fact: Franklin D. Roosevelt, president of the United States from 1933-1945, was paralyzed and used a wheelchair.

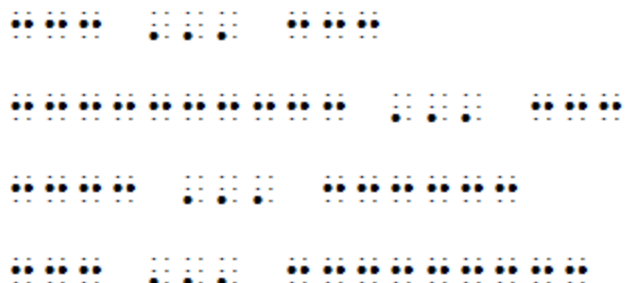
For the seventh part of the adventure, let's learn about the ellipsis. We sometimes use the ellipsis to stand for a missing number in math.

Softly glide your fingers across the line of braille. In the middle of the line, you will find an ellipsis. There is a line of dots 2-5 before and after the ellipsis.



Did you notice that the ellipsis is a three-cell symbol? In the Nemeth Code, an ellipsis is a dot 3, followed by another dot 3, followed by a third dot 3. In math, there is usually a space before and after the ellipsis.

Now it is your turn to find the ellipsis in each line of braille. Move your fingers lightly across the line of braille and make your favorite scooter sound when you find the ellipsis!



Answer: 11 dots

The student will make his/her favorite scooter sound each time he/she points to a plus sign at the following places:

Line 1: in the middle of the line

Line 2: toward the end of the line

Line 3: toward the middle of the line

Line 4: toward the beginning of the line

You will find an ellipsis at the end of the following line. It is standing for the next numbers in a pattern. Let's read the line of braille together.



It begins with the numeric indicator followed by dot 2. What number is this? That's right. It's the number 1. What comes after the number 1? Yes, there is a mathematical comma next. Which dot makes the mathematical comma? You got it! Dot 6 makes the mathematical comma.

Next there is a space. After the space, there is another number. What number is this? That's correct. It's the number 2. What follows the number? You got it! It is another mathematical comma.

What comes next in the line? Yes, a space followed by the number 3 comes next. What follows the number 3? You got it! It is another mathematical comma, followed by a space.

What comes next? Yes, it is an ellipsis. Which dots make an ellipsis? Yes, three dot 3s make an ellipsis.

Do you see the pattern? Yes, these are just the numbers we use when we are counting. The ellipsis is asking us for the next counting numbers in the pattern. What is the next counting number after 3?

100 100 100 100 100
 100 100 100 100 100
 100 100 100 100 100
 100 100 100 100 100
 100 100 100 100 100

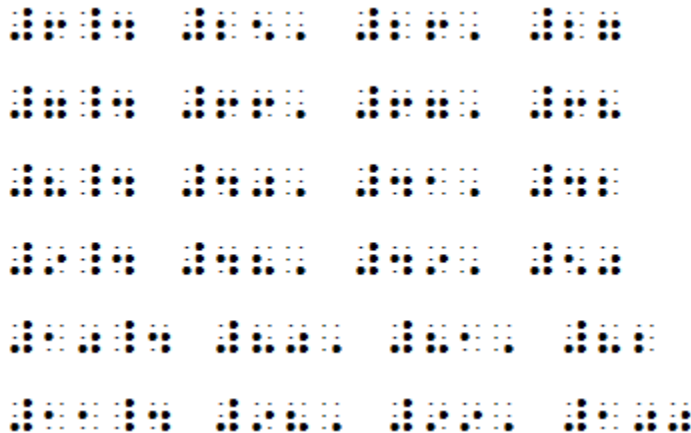
Answer:

100 100 100 100
 100 100 100 100
 100 100 100 100
 100 100 100 100
 100 100 100 100

Let's try some more. Move to the next line on your braillewriter or Accessible Equation Editor. This time use your braille hundreds chart to help you figure out the first three missing numbers in the pattern of numbers represented by the ellipsis.

100 100 100 100 100
 100 100 100 100 100
 100 100 100 100
 100 100 100 100 100
 100 100 100 100
 100 100 100 100 100

Answer:



Fun fact: Folding steel wheelchairs were invented in the early 1900s. Wheelchairs that fold can be taken place to place and fit in the trunk of most cars.

Let's learn how to write an ellipsis in braille. It will take us three braille cells to write an ellipsis. In the first braille cell, we need a dot 3. In the second braille cell, we need another dot 3. In the third braille cell, we will need another dot 3.

Place your fingers on the correct keys on either the Accessible Equation Editor or your braillewriter. How many times will you need to press the dot 3 key? Yes, that's right. You will need to press the dot 3 key three times. Now use your ring finger on your left hand to write the ellipsis. When you finish, move your fingers across the braille and check your work!

Answer: ⠠⠠⠠

Then press the line spacing key twice and practice writing the ellipsis again.

Answer: ⠠⠠⠠

Note: Remind the student to move his/her fingers across the braille and check his/her work if needed.

Great work, Nemeth superstar! Move to the next line and practice writing the ellipsis one more time.

Answer: ⠠⠠⠠

Fun fact: Most public buses have a wheelchair accessible ramp.

Activity time: You will need the Accessible Equation Editor and/or your braillewriter and braille paper for this activity. Listen and then braille what you hear. All of the problems will be numbered, beginning with 1.

Note: Repeat saying the problem as many times as needed. Also remind the student to move his/her fingers across the braille and check his/her work if needed. An answer key in braille is provided on page 6 of the document entitled "B3 Module 6_Answer Key for Writing Activities_K".

1. ellipsis
2. 1, 2, 3, ...
3. 7, 8, 9, ...
4. 15, 16, ...
5. equals sign
6. minus sign

Answer:

Figure 1 displays 16 different spatial arrangements of black dots on a 3x3 grid. Each arrangement is a unique configuration of 1 to 8 dots, totaling 16 different patterns. The patterns are arranged in a 4x4 grid. The first row shows patterns with 1, 2, 3, and 4 dots. The second row shows patterns with 5, 6, 7, and 8 dots. The third and fourth rows show patterns with 1, 2, 3, and 4 dots, respectively, in a different sequence.

Let's try some more.

7. 12, 13, ...
8. plus sign
9. 8, 9, 10, ...
10. general omission symbol
11. 13, 14, 15 ...

Answer:

1. $3 + 2 = 5$
 2. $5 - 1 = 4$
 3. $4 + 3 = 7$
 4. $7 - 2 = 5$
 5. $6 + 1 = 7$

It is time for the last part of our adventure. On the next two lines of braille, there are math problems. One is an addition problem, and the other one is a subtraction problem. Begin by finding the plus sign.

1. $3 + 2 = 5$
 2. $5 - 1 = 4$

That is right! There is a plus sign in the first problem. Now read the equation and tell me the answer.

Note: *Encourage the student to verbalize the process they use to determine what the general omission symbol is standing for. Provide assistance as needed.*

You got it! $3 + 2 = 5$.

Now read the same two lines of braille very carefully and find the minus sign. Excellent! There is a minus sign in the second problem. Now read the equation and tell me the answer. That is right! $5 - 1 = 4$.

Fun fact: Dr. Stephen Hawking is a famous physicist that uses a wheelchair.

Now read the equations below and tell me what number the general omission symbol stands for each time. Remember to read each equation carefully because some will have a plus sign and some of them will have a minus sign. Good luck, Nemeth superstar!

$0+3=$	$5+0=$	$5-0=$
$3+1=$	$4-2=$	$5-3=$
$5+0=$	$5-0=$	$5-3=$
$3+1=$	$4-2=$	$5-3=$
$5+0=$	$5-0=$	$5-3=$
$3+1=$	$4-2=$	$5-3=$

Answer:

$$0+3 = 3$$

$$5+0 = 5$$

$$5-0 = 5$$

$$3+1 = 4$$

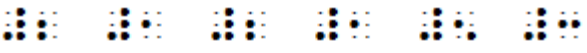
$$4-2 = 2$$

$$5-3 = 2$$

Let's try some more. This time record your answers using either the Accessible Equation Editor and/or your braillewriter and braille paper. Space one time between your answers.

An answer key in braille is provided on page 7 of the document entitled "B3 Module 6_Answer Key for Writing Activities_K".

$0+3=$	$5+0=$	$5-0=$
$3+1=$	$4-2=$	$5-3=$
$5+0=$	$5-0=$	$5-3=$
$3+1=$	$4-2=$	$5-3=$
$5+0=$	$5-0=$	$5-3=$
$3+1=$	$4-2=$	$5-3=$

Answer: 

Activity: Use flash cards to practice reading equations. Some of them will have a plus sign, and some of them will have a minus sign. Afterwards, tell me what number the general omission symbol stands for. Once you can read all of the equations correctly, go back and time how quickly you can read the equations! Do you think you can read the equations even quicker? If so, try one more time!

For the last part of the adventure, let's use a Ten Frame to help us solve subtraction word problems. Use your hands to explore the Ten Frame. Do you remember where the title is located? Let's read it together.

Note: *Show the Ten Frame (available in uncontracted and contracted braille within the curriculum) to the student. It may help to place the Ten Frame on a nonslip surface such as a rubber shelf liner. You may also place the Ten Frame on a cookie sheet or magnetic board and use magnetic counters instead of pennies. The Tactile Tokens from APH fit perfectly into the Ten Frame and the two textures can represent the two addends. You can also use the shapes and line segments from the Picture Maker Wheatley Tactile Diagramming Kit to create the Ten Frame. It may be helpful to use a bowl to hold your counters/pennies.*

That's right! The title is at the top of the page. The title is Ten Frame. Now use your hands to locate the top row. Then move your hands across the top row of squares from left to right. Afterwards count the squares in the top row. That is correct. There are five squares.

Next find the bottom row. Then move your hands across the bottom row from left to right. You got it! Afterwards count the squares in the bottom row. That is correct. There are five squares.

When we use the Ten Frame, fill the top row up first, before moving to the bottom row.

Begin by placing 8 pennies on the Ten Frame. Good job! You remembered to place pennies on the top row first, beginning on the far left.

Remove the pennies from the Ten Frame and place them in a bowl. Now place 7 pennies on the Ten Frame.

Note: *Encourage the student to verbalize the process they use for placing the pennies on the Ten Frame. Provide assistance as needed. It may be helpful to point out that 7 is two more than 5.*

Remove the pennies from the Ten Frame and place them in a bowl. Now as I call a number, place that many pennies on the Ten Frame.

6

8

3

9

7

10

Nice work, math superstar!

Fun fact: The first wheelchair was patented in 1869 in the United States.

Now let's work together to solve word problems with our Ten Frame and pennies.

Javier's mother made 10 tacos. Javier and his family ate 5 of the tacos for supper. How many tacos are left?

We can use pennies (or small pieces of Wikki sticks) on the Ten Frame to show the tacos. How many tacos did Javier's mother make?

Yes, that's right! She made 10 tacos. So we will need to place 10 pennies on the Ten Frame.

Let's work together to place 10 pennies on the Ten Frame. We will only place 1 penny in each square, beginning with one on the far left on the top row and then moving to the right. Then we will move to the bottom row, beginning with one on the far left.

Then the family ate 5 of the tacos. Let's take away 5 pennies from the Ten Frame and place them in the work tray.

How many tacos are left now? Excellent counting! There are 5 tacos.

Before we read another word problem, remove the pennies from the Ten Frame and place them back in the work tray.

A teacher has 8 pencils. She loaned 4 of the pencils to students. How many pencils does she have now?

How many pennies should you place on the Ten Frame? That's right. You will place 8 pennies on the Ten Frame. The teacher loaned 4 of her pencils to

students. How many pennies should we take away from the Ten Frame? That is correct. We need to take 4 pennies off of the Ten Frame.

How many pencils does the teacher have now? You got it! She has 4 pencils.

We can write an equation about the story problem.

An answer key in braille is provided on page 7 of the document entitled "B3 Module 6_Answer Key for Writing Activities_K".

How many pennies did you place on the Ten Frame originally? That's right! You placed 8 pennies on the Ten Frame since the teacher had 8 pencils. So what should you braille first? Yes, you will begin by brailing the number 8.

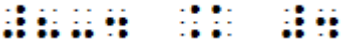
Let me know when you are finished. What happened next? Yes, you took away 4 pennies from the Ten Frame since the teacher loaned 4 of her pencils to students. So should you braille a minus sign or a plus sign next? That's right, you will braille a minus sign and then the number 4 since you took away 4 pennies from the Ten Frame.

How do you write a minus sign in braille? Yes, a minus sign is made with the dots 3-6. Remember that there will not be a space before or after the minus sign.

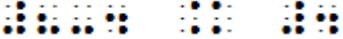
You will not need another numeric indicator after the minus sign. So you will press only the dots 2-5-6 after the minus sign to write the number 4.

Then you will need a space and an equals sign, so press the space bar one time. How do you write the equals sign in braille? Yes, the equals sign begins with the dots 4-6, followed by the dots 1-3.

You will need another space after the equals sign. Then you will need to braille the answer. How many pencils did she have left? That's right! She had 4, so you will write the number 4. Don't forget to write a numeric indicator since the 4 is after an equals sign.

Answer: 

Super work, Nemeth superstar! Go to the next line and write the equation once more!

Answer: 

Let's try another one. Before we read another word problem, remove the pennies from the Ten Frame and place them back in the work tray.

The farmer has 9 chickens. She gave 2 of the chickens to her neighbor. How many chickens does she have now?

How many pennies should you place on the Ten Frame? That's right. You will place 9 pennies on the Ten Frame. The farmer gave 2 of the chickens to her neighbor. How many pennies should we take away from the Ten Frame? That is correct. We need to take 2 pennies off of the Ten Frame.

How many chickens does the farmer have now? You got it! She has 7 chickens.

Let's write an equation about this story problem.

An answer key in braille is provided on page 7 of the document entitled "B3 Module 6_Answer Key for Writing Activities_K".

How many pennies did you place on the Ten Frame originally? That's right! You placed 9 pennies on the Ten Frame since the farmer had 9 chickens. So what should you braille first? Yes, you will begin by brailing the number 9.

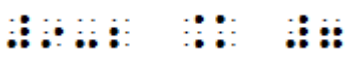
Let me know when you are finished. What happened next? Yes, you took away 2 pennies from the Ten Frame since the farmer gave 2 of her chickens to her neighbor. So should you braille a minus sign or a plus sign next? That's right, you will braille a minus sign and then the number 2 since you took away 2 pennies from the Ten Frame.

How do you write a minus sign in braille? Yes, a minus sign is made with the dots 3-6. Remember that there will not be a space before or after the minus sign.

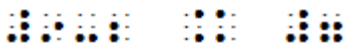
You will not need another numeric indicator when you write 2. So you will press only the dots 2-3 after the minus sign to write the number 2.

You will need a space after the number 2 so you will press the space bar one time. How do you write the equals sign in braille? Yes, the equals sign begins with the dots 4-6, followed by the dots 1-3.

You will need another space after the equals sign. Then you will need to braille the answer. How many chickens did she have left? That's right! She had 7, so you will write the number 7. Don't forget to write a numeric indicator since the 7 is after an equals sign.

Answer: 

Go to the next line and write the equation once more!

Answer: 

Now remove the pennies from the Ten Frame and place them back in the work tray. Now it is your turn to solve five word problems using the Ten Frame and pennies by yourself.

Use your braillewriter or Accessible Equation Editor to write your answers. Don't forget to number the problems and use your line spacing key twice between each problem!

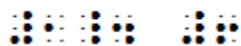
If you want to challenge yourself, write the equation instead of just your answer! I know you can do it!

Note: *Encourage the student to verbalize the process they use to solve the problem. Continue to provide assistance if needed. An answer key in braille is provided on page 7-8 of the document entitled "B3 Module 5_Answer Key for Writing Activities_K".*

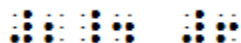
1. Demetri found 9 seashells on the beach. He shared 3 of the shells with his sister. How many seashells does he have now?
2. There are 7 bananas in the fruit bowl. Shelly ate 1 banana. How many bananas are left in the fruit bowl?
3. Jimmy and his friend are selling boxes of popcorn. They began with 10 boxes of popcorn. Then they sold 8 of the boxes. How many boxes of popcorn do they have left?
4. Hallie picked 9 flowers from the garden. She gave 6 of the flowers to her grandmother. How many flowers does she have left?
5. There were 6 butterflies sitting on a tree branch. Two of the butterflies flew away. How many butterflies are sitting on the branch now?

Answer:

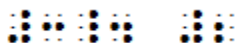
1. 6



2. 6



3. 2



The figure consists of a 5x4 grid of 20 small diagrams. Each diagram shows a 3x3 grid of dots, with some dots filled (black) and others empty (white). The diagrams represent different spatial arrangements of 1 to 5 dots. The first row shows 4 diagrams with 1, 2, 3, and 4 dots respectively. The second row shows 4 diagrams with 1, 2, 3, and 4 dots respectively. The third row shows 4 diagrams with 1, 2, 3, and 4 dots respectively. The fourth row shows 4 diagrams with 1, 2, 3, and 4 dots respectively. The fifth row shows 4 diagrams with 1, 2, 3, and 4 dots respectively.

Did you notice that the maze does not have a title? Not all charts and games will have a title.

Now trace the path of the maze with your hands. You will begin with the box that has the word "start" in it.

You are now ready to work your way through the addition and subtraction problems to complete the maze. You will record your answers using either the Accessible Equation Editor and/or your braillewriter and braille paper. Space one time between your answers.

If it would be helpful, you can place a small piece of a Wikki stick in the box that you are working on to help you keep your place more easily! When you move to the next subtraction problem, move the piece of Wikki stick to the next box.

Good luck, Nemeth superstar!

An answer key in braille is provided on page 8 of the document entitled "B3 Module 6_Answer Key for Writing Activities_K".

Answer: ⠠⠠⠠⠠⠠⠠⠠⠠⠠