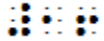


Kindergarten Nemeth Braille Code Curriculum  
Module 3: Nemeth Numbers 16-20, Mathematical Comma, and  
Punctuation Indicator

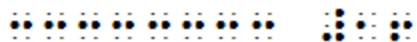
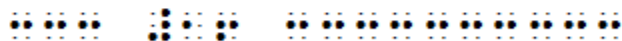
Whoosh go the bicycle tires! It's time for yet another cross country bicycle race! For the first leg of the race, let's explore the number 16.



The number 16 begins with the numeric indicator in the first braille cell. It is followed by a dot 2 in the second braille cell. It ends with dots 2-3-5 in the last braille cell. The digits in the Nemeth Code are placed in the bottom part of the cell.

Now it is your turn to find the number 16 in each line of braille. Move your fingers lightly across the line of braille from left to right and make a sound like a racing bicycle when you find the number 16!

**Note:** *If you are using a refreshable braille display, ensure that the child knows how to move to the next line of braille. Offer assistance as needed.*



Answer:

The student will make a sound like a racing bicycle each time he/she points to a number 16 at the following places:

Line 1: at the end of the line

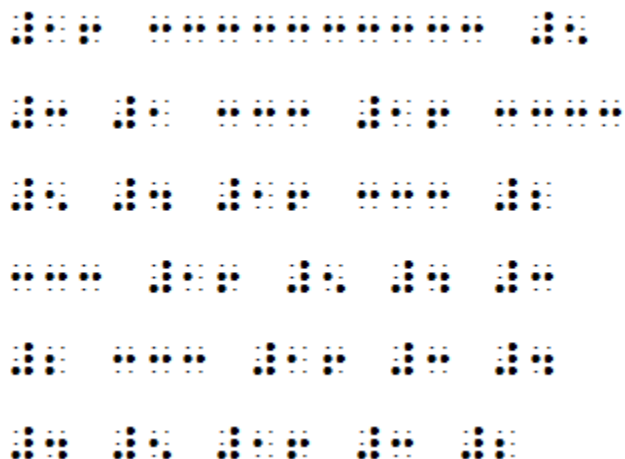
Line 2: toward the middle of the line

Line 3: toward the middle of the line

Line 4: at the beginning of the line



*stomping a foot. If you would prefer, the student can also place a small sticker on top of each number 16.*



Answer: 16

The student should point to a number 16 and say “on your mark” at the following places:

Line 1: at the beginning of the line

Line 2: toward the end of the line

Line 3: toward the middle of the line

Line 4: toward the middle of the line

Line 5: toward the middle of the line

Line 6: toward the middle of the line

Now read the number at the beginning of each line and then find its match on the line of braille. Remember to slightly curve your fingers and say “get set” when you find the match!



Answer:

The student will read the number at the beginning of each line, find its match, and say "get set" when he/she finds the match.

Line 1: 16 (3<sup>rd</sup> item on answer choices)

Line 2: 7 (2<sup>nd</sup> item on answer choices)

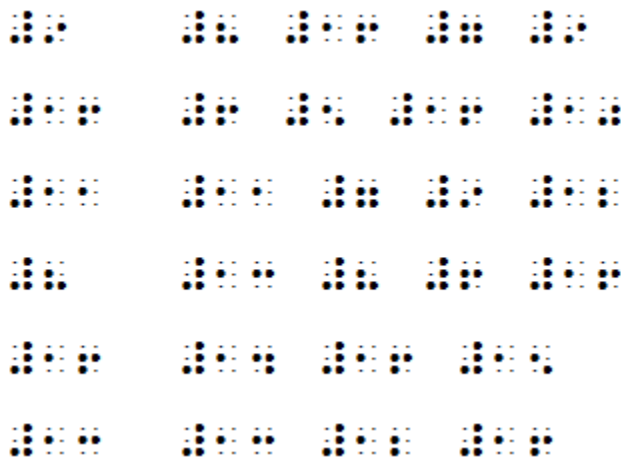
Line 3: 12 (last item on answer choices)

Line 4: 15 (1<sup>st</sup> item on answer choices)

Line 5: 10 (last item on answer choices)

**Fun fact:** The Tour de France lasts 23 days each year, and the race course is more than 1,500 miles long.

Let's try a few more!



Answer:

The student will read the number at the beginning of each line, find its match, and say "get set" when he/she finds the match.

Line 1: 9 (last item on answer choices)

Line 2: 16 (3<sup>rd</sup> item on answer choices)

Line 3: 11 (1<sup>st</sup> item on answer choices)

Line 4: 8 (2<sup>nd</sup> item on answer choices)

Line 5: 16 (2<sup>nd</sup> item on answer choices)

Line 6: 13 (1<sup>st</sup> item on answer choices)

**Activity time:** Use your flash cards and find all of the number 16s. Place all of the 16s in one stack and all of the other numbers in a different stack.

Do you think you can find all the number 16s even quicker? Shuffle the flash cards and try one more time! Good luck, bicyclist!

**Note:** *This would be a good time to use a sorting tray.*

Excellent reading, Nemeth super star! Continue to the next line of braille and practice reading the numbers 0-16.



Answer:

16 13 12 6 8

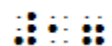
4 2 11 14 10

1 3 5 7 9 0

15 16 9

**Fun fact:** Bernard Hinault from France won the Tour de France five times. His nickname is "The Badger".

Reading braille numbers is lots of fun. Let's explore the number 17.



The number 17 begins with the numeric indicator in the first braille cell. It is followed by a dot 2 in the second braille cell. It ends with dots 2-3-5-6 in the last braille cell. The digits of numbers in the Nemeth Code are placed in the bottom part of the cell.

Now it is your turn to find the number 17 in each line of braille. Keep your hands together and curve your fingers! Move your fingers lightly across the line of braille from left to right and make a sound like a bicycle tire when you find the number 17!

The student will make a sound like a bicycle tire each time he/she points to a number 17 at the following places:

Line 2: at the beginning of the line

Line 4: toward the middle of the line

Sometimes a line of braille may have more than one number 17. Move your fingers lightly across the lines of braille and find all of the number 17s.

The student will point to a number 17 at the following places:



Line 5: at the beginning of the line

The figure consists of a 4x4 grid of 16 small diagrams. Each diagram shows a 3x3 grid of dots, with some dots filled in black and others empty. The configurations are as follows:

- Row 1:
  - Diagram 1: Black dots at (1,1), (1,2), (1,3), (2,1), (2,2), (2,3), (3,1), (3,2), (3,3).
  - Diagram 2: Black dots at (1,1), (1,2), (1,3), (2,1), (2,2), (2,3), (3,1), (3,2), (3,3).
  - Diagram 3: Black dots at (1,1), (1,2), (1,3), (2,1), (2,2), (2,3), (3,1), (3,2), (3,3).
  - Diagram 4: Black dots at (1,1), (1,2), (1,3), (2,1), (2,2), (2,3), (3,1), (3,2), (3,3).
- Row 2:
  - Diagram 5: Black dots at (1,1), (1,2), (1,3), (2,1), (2,2), (2,3), (3,1), (3,2), (3,3).
  - Diagram 6: Black dots at (1,1), (1,2), (1,3), (2,1), (2,2), (2,3), (3,1), (3,2), (3,3).
  - Diagram 7: Black dots at (1,1), (1,2), (1,3), (2,1), (2,2), (2,3), (3,1), (3,2), (3,3).
  - Diagram 8: Black dots at (1,1), (1,2), (1,3), (2,1), (2,2), (2,3), (3,1), (3,2), (3,3).
- Row 3:
  - Diagram 9: Black dots at (1,1), (1,2), (1,3), (2,1), (2,2), (2,3), (3,1), (3,2), (3,3).
  - Diagram 10: Black dots at (1,1), (1,2), (1,3), (2,1), (2,2), (2,3), (3,1), (3,2), (3,3).
  - Diagram 11: Black dots at (1,1), (1,2), (1,3), (2,1), (2,2), (2,3), (3,1), (3,2), (3,3).
  - Diagram 12: Black dots at (1,1), (1,2), (1,3), (2,1), (2,2), (2,3), (3,1), (3,2), (3,3).
- Row 4:
  - Diagram 13: Black dots at (1,1), (1,2), (1,3), (2,1), (2,2), (2,3), (3,1), (3,2), (3,3).
  - Diagram 14: Black dots at (1,1), (1,2), (1,3), (2,1), (2,2), (2,3), (3,1), (3,2), (3,3).
  - Diagram 15: Black dots at (1,1), (1,2), (1,3), (2,1), (2,2), (2,3), (3,1), (3,2), (3,3).
  - Diagram 16: Black dots at (1,1), (1,2), (1,3), (2,1), (2,2), (2,3), (3,1), (3,2), (3,3).

```

17 13
12 15
14 11 16
17 10
10 14 16

```

17 3 8  
9 6 17  
11 17 10



1 5 4

Let's try some more.

⠠⠠⠠ ⠠⠠⠠⠠ ⠠⠠

⠠⠠⠠ ⠠⠠⠠ ⠠⠠⠠

⠠⠠⠠⠠ ⠠⠠⠠⠠ ⠠⠠⠠

⠠⠠⠠⠠ ⠠⠠⠠⠠ ⠠⠠

Answer:

6 17 0

2 7 12

13 16 14

15 17 6

**Activity time:** Use your flash cards to practice reading the numbers 0-17. Once you can read all of the numbers correctly, go back and time how quickly you can read the numbers! Do you think you can read the numbers even quicker? If so, try one more time! You can do it!


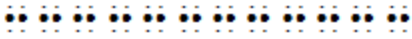



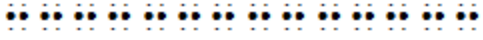




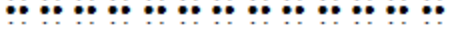

For the second leg of the race, let's explore the number 18 in Nemeth!


⠠⠠⠠

Notice that the number 18 is also three braille cells in length. What is in the first braille cell? That's right! The number 18 begins with the numeric indicator in the first braille cell just like the other numbers. What is in the second braille cell? You got it! The digit 1 is in the second cell. What is in the last braille cell? That's right! The digit 8 is in the last cell.

Now it is your turn to find the number 18 in each line of braille. Move your fingers lightly across the line of braille and make your favorite bicycle sound when you find the number 18!

**Note:** *If you are using hard copy braille, the student can underline or circle the number 18 instead of making his/her favorite bicycle sound. If you would prefer, the student can also place a small sticker on top of each number 18.*

Answer: 

The student will make his/her favorite bicycle sound each time he/she points to a number 18 at the following places:

Line 1: at the beginning of the line

Line 2: at the middle of the line






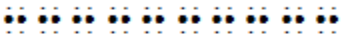











Line 3: at the end of the line


Line 4: toward the middle of the line

Line 5: at the end of the line

**Fun fact:** The Tour de France race track changes each year and often includes riding in steep mountains.

Sometimes a line of braille may have more than one number 18. Move your fingers lightly across the lines of braille and find all of the number 18s.

Answer: 

The student will point to a number 18 at the following places:



Now read the number at the beginning of each line and then find its match on the line of braille. Say "pedal around the corner" when you find the match!

⠠⠠⠠	⠠⠠	⠠⠠	⠠⠠	⠠⠠
⠠⠠⠠	⠠⠠	⠠⠠⠠	⠠⠠	
⠠⠠⠠	⠠⠠	⠠⠠	⠠⠠⠠	⠠⠠
⠠⠠⠠	⠠⠠⠠	⠠⠠	⠠⠠	⠠⠠
⠠⠠	⠠⠠	⠠⠠⠠	⠠⠠	⠠⠠

Answer:

The student will read the number at the beginning of each line, find its match, and say "pedal around the corner" when he/she finds the match.

Line 1: 18 (last item on answer choices)

Line 2: 17 (2<sup>nd</sup> item on answer choices)

Line 3: 16 (3<sup>rd</sup> item on answer choices)

Line 4: 11 (1<sup>st</sup> item on answer choices)

Line 5: 6 (last item on answer choices)

Excellent matching, Nemeth super star! Let's try a few more!

⠠⠠⠠	⠠⠠	⠠⠠⠠	⠠⠠
⠠⠠⠠	⠠⠠	⠠⠠⠠	⠠⠠
⠠⠠	⠠⠠⠠	⠠⠠	⠠⠠⠠
⠠⠠⠠	⠠⠠	⠠⠠⠠	⠠⠠
⠠⠠⠠	⠠⠠	⠠⠠⠠	⠠⠠⠠

Answer:

The student will read the number at the beginning of each line, find its match, and say “pedal around the corner” when he/she finds the match.

Line 1: 14 (last item on answer choices)

Line 2: 15 (last item on answer choices)

Line 3: 8 (2<sup>nd</sup> item on answer choices)

Line 4: 18 (last item on answer choices)

Line 5: 13 (3<sup>rd</sup> item on answer choices)

**Fun fact:** Thousands of fans stand along different parts of the race course to watch the race in person each year.

**Activity time:** We will use base ten blocks (or Digi-Blocks) and a place value chart to help us build the numbers 16, 17, and 18. Do you remember what the small blocks are called? That’s right! They are called units. They are in the shape of a cube.

What are the long blocks called? That’s right again! They are called rods. They contain ridges. Let’s count how many squares are on each rod. There are ten squares on each rod. It takes ten little cubes or units to make a long one.

There is a line going down the middle of the place value chart. Find the column headings toward the top of the page, and let’s read them together. The column on the right is the ones, and the column on the left is tens. We place rods in the tens column and the unit blocks in the ones column.

**Note:** *A two-compartment sorting tray may be used as the place value chart. Label the right compartment “ones” and the left compartment “tens” in braille. The sorting tray may assist students in easily keeping their unit blocks and rods in the correct columns.*

Let’s work together to use the base ten blocks and place value chart to represent 16. There are two ways that we can build 16. Think about how we can use the unit blocks and rods to represent the number 16. You are right. One way is to count out 16 unit blocks. Another way is to exchange 10 of the units for a rod. Then we would need one rod and six units to represent 16.

Great work, math superstar! Let's work together to use the base ten blocks and place value chart to represent 17. Show me two different ways to represent the number 17. Don't forget to use your place value chart!

**Note:** *Depending on the child's response, the following questions may be needed. Can you represent 17 using unit blocks only? If so, how many? If not, why not? If yes, where would you place the unit blocks on the place value chart? Can you represent 17 using only one kind of block? If so, which one could you use to represent 17? If not, why not? If yes, where would you place the blocks on the place value chart?*

Let's try one more. Let's work together to use the base ten blocks and place value chart to represent 18. Show me two different ways to represent the number 18. Don't forget to use your place value chart!

**Note:** *Depending on the child's response, additional follow-up questions may be needed.*

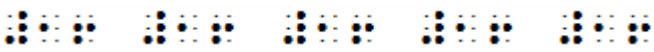
**Fun fact:** Thomas Stevens became the first person to travel around the world on a bicycle in 1887. It took him three years.

Ding, ding, ding goes the bicycle bell! On the third leg of the race, let's have fun with writing numbers.

What do numbers begin with? Yes, numbers begin with a numeric indicator. Tell me which dots make the numeric indicator. That's right! Dots 3-4-5-6 make the numeric indicator. Use your ring finger on your left hand and all three fingers on your right hand to write the numeric indicator.

It will take us three braille cells to write the number 16. Begin with a numeric indicator in the first braille cell. Next, in the second braille cell, use your middle finger on your left hand and press the dot 2. It ends with dots 2-3-5 in the third braille cell. Use the middle and ring fingers on your left hand as well as the middle finger on your right hand.

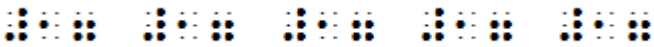
On your mark, get set, go! Practice writing the number 16 now in the air and then on the Accessible Equation Editor and/or your braillewriter. Space one time between your numbers. When you finish writing your numbers several times, move your fingers across the braille and check your work!

Answer:  (The directions are to write the number 16 several times, so there may be variation in how many times 16 is written. Any length of line is considered correct.)

It's time to move to the number 17. It begins with a numeric indicator. Next, in the second braille cell, use your middle finger on your left hand and press the dot 2. To finish the number 17 in the third cell, use your middle and ring fingers on your left and right hand and press the dots 2-3-5-6.

**Note:** *If needed, remind the student that dots 3-4-5-6 make the numeric indicator.*

Practice writing the number 17 now in the air and then on the Accessible Equation Editor and/or your braillewriter. Space one time between your numbers. When you finish writing your numbers several times, move your fingers across the braille and check your work!


Answer:  (The directions are to write the number 17 several times, so there may be variation in how many times 17 is written. Any length of line is considered correct.)

**Fun fact:** Annie Londonderry, a young mother of three children, was the first woman to bicycle around the world in 1894. It took her 15 months.

**Activity time:** You will need the Accessible Equation Editor and/or your braillewriter and braille paper for this activity. Listen as I read a number. Then write the number in braille. Space one time between the numbers.

**Note:** *An answer key in braille is provided on page 1 of the document entitled "B3 Module 3\_Answer Key for Writing Activities\_K".*

16 5 8 17


Answer: 

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

16 5 8 17

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


4 9 17 16 13

Answer: 

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

4 9 17 16 13

17 10 12 16


Answer: 

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

17 10 12 16

Let's learn to write the number 18. It begins with a numeric indicator. Next, in the second braille cell, use your middle finger on your left hand and press the dot 2. To finish the number 18 in the third cell, use the middle and ring fingers on your left hand as well as the ring finger on your right hand and press dots 2-3-6.

Practice writing the number 18 now in the air and then on the Accessible Equation Editor and/or your braillewriter. Space one time between your numbers. When you finish writing your numbers several times, move your fingers across the braille and check your work!

Answer:  (The directions are to write the number 18 several times, so there may be variation in how many times 18 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. Write the numbers from 11 to 18. Space one time between the numbers.

Do you think you can write the numbers from 11 to 18 even quicker? If so, try one more time! You can do it!

**Note:** An answer key in braille is provided on page 1 of the document entitled "B3 Module 3\_Answer Key for Writing Activities\_K".

Answer: (The braille version of this answer has been split between two lines to accommodate for 18 cell braille displays.)

Ding, ding, ding goes the bicycle bell! On the next line of braille, you will find a general omission symbol. It is standing for a missing number in a series of numbers. Read the numbers and try to figure out what number is missing.



Super work, bicycle racer! The missing number is 17. Let's try one more. First, find the general omission symbol, and then tell me the missing number.

That's right! The missing number is 14.

**Note:** *If needed, provide the student with a hard copy of numbers in order. It may help to place the flash cards on a nonslip surface such as rubber shelf liner so they will not move as the student is reading the cards. You may also use a strip of sticky back Velcro on the back side of each flash card and then arrange the flash cards on a long strip of Velcro on the student's desk.*

**Activity time:** You will need the Accessible Equation Editor and/or your braillewriter and braille paper for this activity. Find the general omission symbol in each line of braille and write the missing number it is standing for. Space one time between the numbers.

**Note:** An answer key in braille is provided at the top of page 2 of the document entitled "B3 Module 3\_Answer Key for Writing Activities\_K".

Answer:

The figure consists of five 3x3 grids, each representing a cross-section of a 3x3x3 cube. The grids show the progression of the cube's construction from a single corner to the full cube. The first grid shows a single corner (1x1x1). The second grid shows a 2x2x2 cube. The third grid shows a 3x3x3 cube. The fourth grid shows a 4x4x4 cube. The fifth grid shows a 5x5x5 cube.

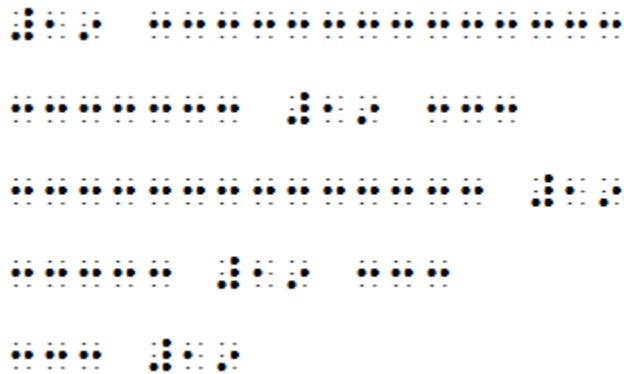
That was excellent work, cyclist! On the fourth leg of the race, let's learn about the numbers 19 and 20.


Notice that the number 19 is also three braille cells in length. What is in the first braille cell? That's right! The number 19 begins with the numeric indicator in the first braille cell. What is in the second braille cell? You got it,

bike racer! The digit 1 is in the second cell. What is in the last braille cell? That's right! The digit 9 is in the last cell.

Now it is your turn to find the number 19 in each line of braille. Move your fingers lightly across the line of braille and make your favorite bicycle sound when you find the number 19!

**Note:** *If you are using hard copy braille, the student can underline or circle the number 19 instead of making his/her favorite bicycle sound. If you would prefer, the student can also place a small sticker on top of each number 19.*



Answer: 

The student will make his/her favorite bicycle sound each time he/she points to a number 19 at the following places:

Line 1: at the beginning of the line


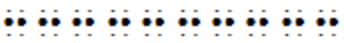

Line 2: toward the end of the line

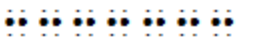

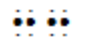
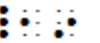
Line 3: at the end of the line



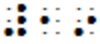
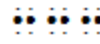
Line 4: toward the middle of the line

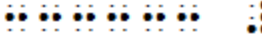
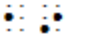
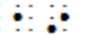
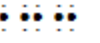
Line 5: at the end of the line

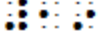
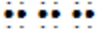

Move your fingers lightly across the line of braille and find all of the number 19s. This time there may be more than one number 19 in a line. Remember to use a light touch and keep your fingers slightly curved.

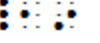






Answer: 

The student will point to a number 19 at the following places:

Line 1: at the beginning of the line and at the end of the line

Line 2: toward the middle of the line and at the end of the line




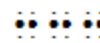
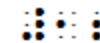
Line 3: at the beginning of the line and toward the middle of the line



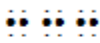
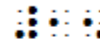
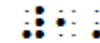
Line 4: twice toward the middle of the line


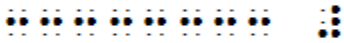

Line 5: at the beginning of the line, toward the middle of the line, and at the end of the line



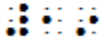
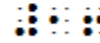
**Fun fact:** Veronica and Colin Scargill were the first couple to ride around the world on a tandem bicycle in 1975.

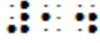



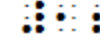
Let's find more number 19s. Make your favorite bicycle sound when you find the number 19 in each line. Be careful to make sure it is a number 19 and not a number 13, 14, 15, 16, or 17.

Answer: 

The student should point to a number 19 and make his/her favorite bicycle sound at the following places:

Line 1: in the middle of the line

Line 2: at the beginning of the line and at the end of the line

Line 3: at the end of the line

Line 4: in the middle of the line

Line 5: toward the end of the line

**Activity time:** Use your flash cards and find all of the number 19s. Place all the 19s in one stack and all of the other numbers in a different stack.

Do you think you can find all the number 19s even quicker? Shuffle the flash cards and try one more time! Good luck, Nemeth superstar!

**Note:** *This would be a good time to use a sorting tray.*

That was super reading! Let's practice reading numbers from 0-19. There will be 3 numbers on each line.

⠠⠨ ⠠⠑⠒ ⠠⠑⠒

⠠⠨⠒ ⠠⠑ ⠠⠑⠒

⠠⠑ ⠠⠑⠒ ⠠⠑⠒

⠠⠑⠒ ⠠⠑⠒ ⠠⠑⠒

⠠⠑ ⠠⠑⠒ ⠠⠑⠒

⠠⠑⠒ ⠠⠑ ⠠⠑⠒

⠠⠑ ⠠⠑⠒ ⠠⠑⠒

Answer:

9 19 16

18 3 17

2 7 10

19 0 11

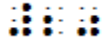
1 13 19

16 5 18

8 4 19

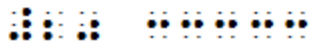
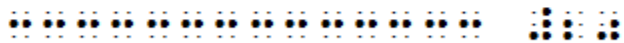
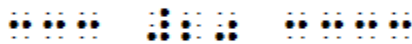
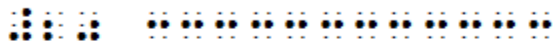
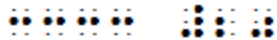
**Fun fact:** Captains, also called pilots, pedal in the front seat of tandem bicycles.

Ding, ding, ding goes the bicycle bell! Time to learn about the number 20!



Notice that the number 20 is also three braille cells in length. What is in the first braille cell? That's right! The number 20 begins with the numeric indicator in the first braille cell like all of the other numbers we have learned about. What is in the second braille cell? You got it, BMX racer! There is a digit 2 in the second cell. What is in the last braille cell? That's right! The digit 0 is in the last cell.

Now it is your turn to find the number 20 in each line of braille. Move your fingers lightly across the line of braille and make your favorite bicycle sound when you find the number 20! On your mark, get set, go!



Answer:

The student will make his/her favorite bicycle sound each time he/she points to a number 20 at the following places:

Line 1: at the end of the line

Line 2: at the beginning of the line

Line 3: toward the middle of the line

Line 4: at the end of the line

Line 5: at the beginning of the line

Way to find the number 20s, math champion! Sometimes a line of braille may have more than one number 20. Move your fingers lightly across the lines of braille and find all of the number 20s. You can do it, BMX racer!

Answer: 

The student will make his/her favorite bicycle sound each time he/she points to a number 20 at the following places:

Line 1: twice at the end of the line

Line 2: at the beginning of the line and at the end of the line

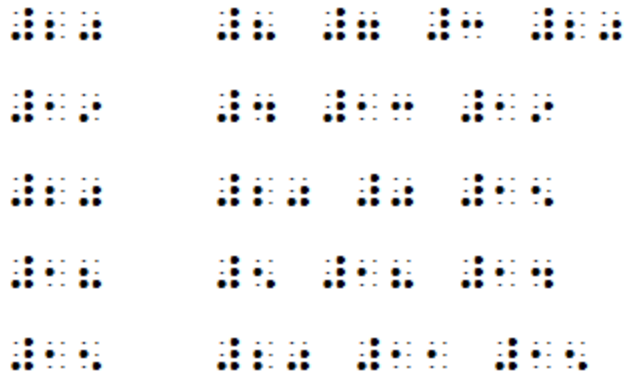
Line 3: toward the middle of the line and at the end of the line

Line 4: twice toward the middle of the line

Line 5: at the beginning of the line, in the middle of the line, and at the end of the line

Read the number at the beginning of each line and then find its match on the line of braille. Say "pedal faster" when you find the match!

**Note:** *If you are using hard copy braille, the student may also underline or circle the answer with a grease marker or crayon. Placing a small sticker on top of the answer is another option.*



Answer:

The student will read the number at the beginning of each line, find its match, and say "pedal faster" when he/she finds the match.

Line 1: 20 (last item on answer choices)

Line 2: 19 (last item on answer choices)

Line 3: 20 (1<sup>st</sup> item on answer choices)

Line 4: 18 (2<sup>nd</sup> item on answer choices)

Line 5: 15 (last item on answer choices)

Great matching, Nemeth super star! Let's try a few more!



Answer:

The student will read the number at the beginning of each line, find its match, and say "pedal faster" when he/she finds the match.

Line 1: 14 (1<sup>st</sup> item on answer choices)

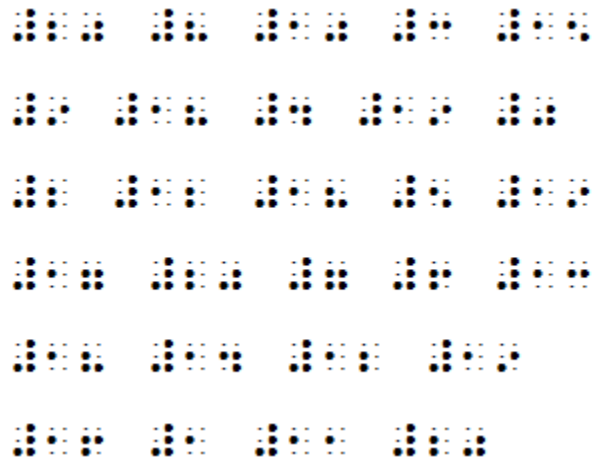
Line 2: 17 (2<sup>nd</sup> item on answer choices)

Line 3: 16 (3<sup>rd</sup> item on answer choices)

Line 4: 20 (1<sup>st</sup> item on answer choices)

**Fun fact:** Stokers pedal from the rear seat of the tandem. By pedaling, stokers add power, making the bike go faster and farther.

Now read numbers ranging from 0-20. Good luck, cyclist!



Answer:

20 8 10 3 15

9 18 4 19 0

2 12 18 5 19

17 20 7 6 13

18 14 12 19

16 1 11 20

**Activity time:** Use your flash cards to practice reading the numbers 0-20. Once you can read all of the numbers correctly, go back and time how quickly you can read the numbers! Do you think you can read the numbers even quicker? If so, try one more time! You can do it!

Great work, math superstar! Let's work together to use the base ten blocks and place value chart to build 19. Begin by showing me two different ways to represent the number 19. Don't forget to use your place value chart!

**Note:** Depending on the child's response, the following questions may be needed. Can you represent 19 using units only? If so, how many? If not, why not? If yes, where would you place the unit blocks on the place value chart? Can you represent 19 using only one kind of block? If so, which one could you use to represent 19? If not, why not? If yes, where would you place the blocks on the place value chart?



Let's try one more. Let's work together to use the base ten blocks and place value chart to represent 20. Show me two different ways to represent the number 20. Don't forget to use your place value chart!

**Note:** *Depending on the child's response, additional follow-up questions may be needed.*


**Fun fact:** There are Tandem Bicycle Clubs in many states.

On the fifth leg of the race, let's have fun with writing numbers 19 and 20 on the braillewriter!

It will take us three braille cells to write the number 19. Begin with a numeric indicator in the first braille cell. Next, in the second braille cell, use your middle finger on your left hand and press the dot 2. The number 19 ends with dots 3-5 in the third braille cell. Use the ring finger on your left hand as well as the middle finger on your right hand.


**Note:** *If needed, remind the student that dots 3-4-5-6 make the numeric indicator.*

Practice writing the number 19 now in the air and then on the Accessible Equation Editor and/or your braillewriter. Space one time between your numbers. When you finish writing your numbers several times, move your fingers across the braille and check your work!

Answer:  (The directions are to write the number 19 several times, so there may be variation in how many times 19 is written. Any length of line is considered correct.)

The number 20 also begins with a numeric indicator. Next, in the second braille cell, use your middle and ring fingers on your left hand and press the dot 2. To finish the number 20 in the third cell, use your ring finger on your left hand and your middle and ring fingers on your right hand and press the dots 3-5-6. You try it now in the air and then on the Accessible Equation Editor and/or your braillewriter.

Practice writing the number 20 several times. Space one time between your numbers. When you finish writing the number 5 several times, move your fingers across the braille and check your work!

Answer:  (The directions are to write the number 20 several times, so there may be variation in how many times 20 is written. Any length of line is considered correct.)

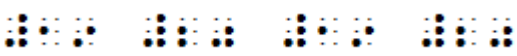
That was super writing, math all-star!

**Fun fact:** Captains are responsible for steering, shifting, and braking tandem bicycles.

**Activity time:** You will need the Accessible Equation Editor and/or your braillewriter and braille paper for this activity. Listen as I read a number. Then write the number in braille. Space one time between the numbers.

**Note:** *An answer key in braille is provided on page 2 of the document entitled "B3 Module 3\_Answer Key for Writing Activities\_K".*

19 20 19 20


Answer: 

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

19 20 19 20

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

17 18 19 20

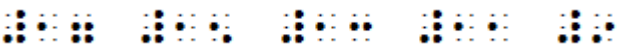
Answer: 

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

17 18 19 20

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

17 15 13 11 9

Answer: 

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

17 15 13 11 9

**Activity time:** You will need the Accessible Equation Editor and/or your braillewriter and braille paper for this activity. Find the general omission symbol in each line of braille and write the missing number it is standing for. Space one time between the numbers.



That is super work, cyclist! There are 18 tally marks. How many tally marks are on the next line?

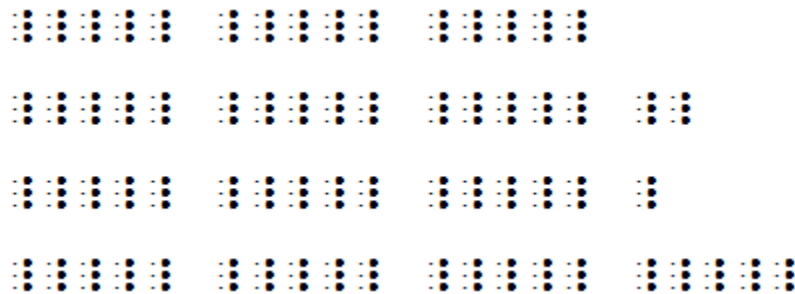


You got it! There are 20 tally marks.


**Fun fact:** Both the captain and stoker on a tandem bicycle should carry an identification card, contact information, and a phone.


**Activity time:** Count the number of tally marks on each line. Then write the number using the Accessible Equation Editor and/or your braillewriter. Space one time between your answers.


**Note:** An answer key in braille is provided toward the bottom of page 2 of the document entitled “B3 Module 3\_Answer Key for Writing Activities\_K”.




Answer:

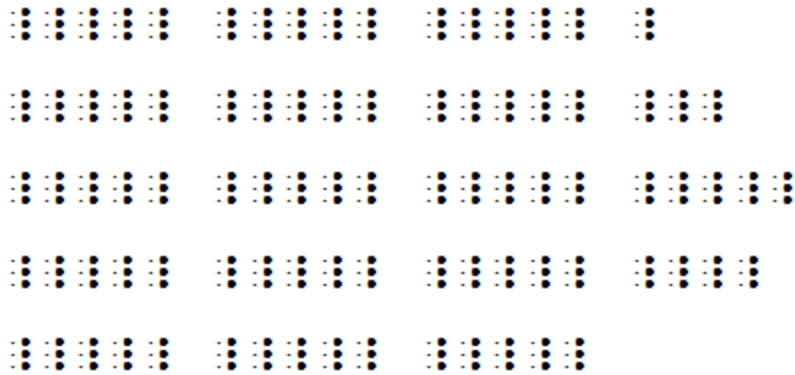
Line 1:  (15)

Line 2:  (17)


Line 3:  (16)


Line 4:  (20)


Let's try some more. Move to the next line on your braillewriter or Accessible Equation Editor.





Answer:

Line 1:  (16)

Line 2:  (18)

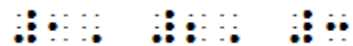
Line 3:  (20)

Line 4:  (19)

Line 5:  (15)

For the seventh leg of the bicycle cross country trip, let's learn about the mathematical comma. Sometimes when we write a series of numbers in math, we use the mathematical comma.

The dot 6 makes a mathematical comma. Softly guide your fingers across the line of braille. Notice that there is a mathematical comma after the numbers 1 and 2. Also notice that there is a space after each comma.



Great work, cyclist! Now it is your turn to find the mathematical commas in each line of braille. Move your fingers lightly across the line of braille and make your favorite bicycle racing sound when you find the mathematical commas!

Answer:

- Line 1: (in the last cell for the first two items listed – two in total)
- Line 2: (in the last cell for the first two items listed – two in total)
- Line 3: (in the last cell for the first four items listed – four in total)
- Line 4: (in the last cell for the first three items listed – three in total)

**Fun fact:** When riding a bike, avoid busy roads and pay attention to what is around you!

Let's learn how to write a mathematical comma in braille. Place your fingers on the correct keys on either the Accessible Equation Editor or your brailewriter. Then use your ring finger on your right hand to write the mathematical comma. Practice writing the mathematical comma several times.

**Activity time:** You will need the Accessible Equation Editor and/or your brailewriter and braille paper for this activity. Listen and then braille what you hear. There will be a comma after each number and then a space.

**Note:** *As you read, remember to include commas and spaces (i.e. for the first line you would read "11 comma space 12 comma space..."). An answer key in braille is provided at the top of page 3 of the document entitled "B3 Module 3\_Answer Key for Writing Activities\_K".*

11, 12, 13, 14

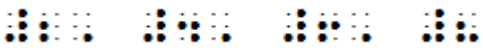
Answer:

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

11, 12, 13, 14

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

2, 4, 6, 8

Answer: 

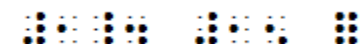
Now move your fingers across the braille and check your work as I say the numbers again.

2, 4, 6, 8

That was quick work, cyclist! For the last leg of the bicycle cross country trip, let's learn how to number math problems. Softly guide your fingers across the next line of braille. It is a math problem. The line of braille begins with a number 1 followed by a punctuation indicator and then a period.

Since punctuation marks and Nemeth digits are placed lower in the braille cell, we need a punctuation indicator so that we do not confuse the period with a number. The dots 4-5-6 make a punctuation indicator and the dots 2-5-6 make a period.

Notice that there is a space after the period. What follows the space? That's right. It is followed by the number 15, another space and a general omission symbol.



This time the general omission symbol is standing for the number that is "one more" than 15. What number is that? That's right! 16 is "one more" than 15.

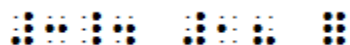
**Note:** *If needed, provide the student with manipulatives or a hard copy of numbers from 1-20 in order to use as a model. It may also help to place the flash cards on a nonslip surface such as rubber shelf liner so they will not move as much. You may also use a strip of sticky back Velcro on the back side of each flash card and then arrange the flash cards on a long strip of Velcro on the student's desk.*

The next line of braille contains another math problem about "one more" too. It begins with the number 2 followed by a punctuation indicator and then a period. Dots 4-5-6 make a punctuation indicator and dots 2-5-6 make a period. There is a space after the period. What follows the space? It is followed by the number 8, another space and a general omission symbol.



What number is the general omission symbol standing for? You got it! 9 is one more than 8.

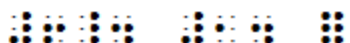
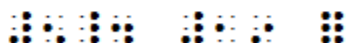
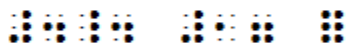
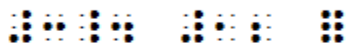
Try reading another math problem. What does it begin with?



That's right! It begins with a number 3 followed by a punctuation indicator and a period. Try reading the rest of the problem. You got it, Nemeth superstar! It is followed by the number 18, another space, and a general omission symbol.

What number is the general omission symbol standing for? Way to go! It is standing for 19.

Now read the math problems below about "one more" and tell me what number the general omission symbol stands for. Good luck, cyclist!



Answer:

1. 1 ?

The general omission symbol stands for 2.

2. 6 ?

The general omission symbol stands for 7.

3. 12 ?

The general omission symbol stands for 13.

4. 17 ?



The general omission symbol stands for 18.

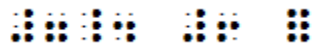
5. 19 ?

The general omission symbol stands for 20.

6. 14 ?

The general omission symbol stands for 15.

Now read the math problems below. This time the general omission symbol stands for "one less". After reading the problem, tell me what number the general omission symbol stands for.

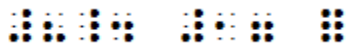


**Note:** *If needed, provide the student with manipulatives or a hard copy of numbers from 1-20 in order to use as a model. It may also help to place the flash cards on a nonslip surface such as rubber shelf liner so they will not move as much. You may also use a strip of sticky back Velcro on the back side of each flash card and then arrange the flash cards on a long strip of Velcro on the student's desk.*

That's right! It begins with a number 7 followed by a punctuation indicator and a period. Try reading the rest of the problem.

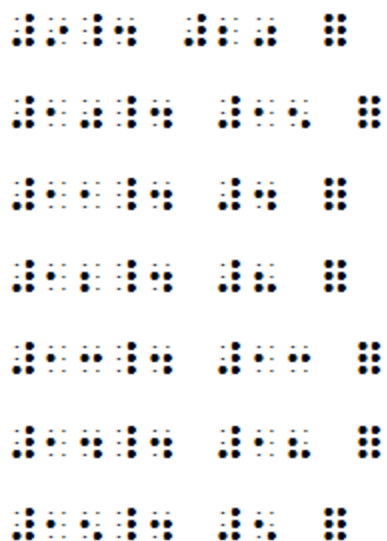
Way to go! It is followed by the number 6, another space, and a general omission symbol. What number is the general omission symbol standing for? It is standing for 5.

Read the next problem.



Super work, Nemeth superstar! The general omission symbol is standing for the number that is "one less" than 17. What number is that? That's right! 16 is "one less" than 17.

Now read the math problems below about "one less" and tell me what number the general omission symbol stands for.



Answer:

9. 20 ?

The general omission symbol stands for 19.

10. 15 ?

The general omission symbol stands for 14.

11. 4 ?

The general omission symbol stands for 3.

12. 8 ?

The general omission symbol stands for 7.

13. 13 ?

The general omission symbol stands for 12.

14. 18 ?

The general omission symbol stands for 17.

15. 5 ?

The general omission symbol stands for 4.

**Fun fact:** Riding a bike is a healthy activity! If you ride your bike regularly, it will help you become strong and fit!

Let's learn how to write math problems in braille. Place your fingers on the correct keys on either the Accessible Equation Editor or your braillewriter. A

punctuation indicator is made with dots 4-5-6. Use all three fingers on your right hand to write the punctuation indicator. Then practice writing the punctuation indicator several times.

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

Way to go! Now let's learn how to write the period. A period is made with dots 2-5-6. Use the middle finger on your left hand as well as the middle and ring fingers on your right hand. You try it now in the air and then on the Accessible Equation Editor and/or your braillewriter.

Answer: ⠠⠠⠠⠠ (The directions are to write the period several times, so there may be variation in how many times the period 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.

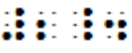
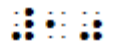

Listen carefully as I read each problem about "one more" for you to write. You will need a space after the period. You will also need to press your line spacing key twice to move to the next line before brailing a new problem each time.

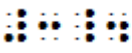
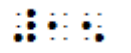

**Note:** Repeat saying the problem as many times as needed. Also remind the student to move his/her fingers across the braille and check his/her work if needed. An answer key in braille is provided on page 3 of the document entitled "B3 Module 3\_Answer Key for Writing Activities\_K".

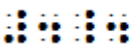
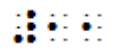

1. 3 general omission symbol
2. 10 general omission symbol
3. 15 general omission symbol
4. 11 general omission symbol
5. 19 general omission symbol
6. 16 general omission symbol

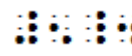
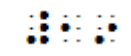

Answer:

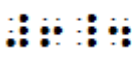
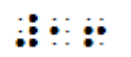

Line 1: ⠠⠠⠠⠠ ⠠⠠ ⠠

Line 2:   

Line 3:   

Line 4:   

Line 5:   

Line 6:   

Great work, cyclist! Now you are ready for a pit stop: module 3 check-up! Thank you for all of your hard work! You are a Nemeth all-star!

### Follow-up activity:

We are going to play a new game called math bingo. Some people call it math “Braille-o”. We will need Bingo cards, notecards cut into halves, a two-compartment sorting tray, and markers. Small stickers or pieces of Wikki sticks can be used for markers.

**Note:** *You will need 2 or more players for this game. If you use Wikki stick pieces, roll them into a ball with your hand so that they will stick to the paper more easily. Another option is using pushpins on a cork board or magnets on a cookie sheet.*

Before we begin the activity, we will need to make the Bingo number/symbol cards. Use the index cards and your braillewriter to create a set of number cards from 0-20. Then make cards for the general omission symbol and numeric indicator. Afterwards, make a card with 3 tally marks.

**Note:** *A bingo card template and instructions for making the bingo cards are included in the teacher reference materials. Your number cards for 0-20 can be used instead of creating new flash cards if preferred. If you do not have a two-compartment sorting tray, use two small storage boxes. If needed, explain how you win Bingo by having five in a row down, across, or diagonally.*

Use your hands to explore the Bingo card. Notice that each column is labeled at the top. The column on the far left is labeled B, the second column is labeled I, the middle column is labeled N, the fourth column is labeled G, and the fifth column is labeled O. Each column is made up of five squares below the title.

The center square is a "free space" in the middle so place a marker on it. Then as each number or symbol is read, quickly scan your Bingo card and place a marker on the number or symbol that was called. We will play until a winner calls out "Bingo" or "Braille-o".

Now shuffle the flash cards. You will take turns drawing one flash card and reading the number or symbol. As you read each number/symbol card, use a two-compartment sorting tray to separate which cards you have read and which cards you have not read.

**Note:** *This activity can easily be completed with several students who read print or braille. If some of the players read print, add print to each of the flash cards and Bingo cards.*