

Kindergarten Module 3

Numbers 16-20, Mathematical Comma, and Punctuation Indicator

Teacher Script Answer Key

Introduction

- All bracketed text should not be read aloud and is for reference only.
- The questions and answers have been numbered in this document to aid teachers and parents. However, the questions are not numbered the same way, if numbered at all, in the student documents.
- Throughout the script, it is assumed that the student is correct. The teacher may need to go off script if the student does not answer a question correctly.

Section 1: Reading Number 16

Section 1 Materials

- Student Braille Document: GK-M3-Student-Materials.brf
- Optional: grease marker or crayon
- Activity 1
 - Sorting tray with a 2-section divider
 - Timer
 - Five flashcards for each number from 0-16 shuffled

Section 1 Teacher Notes

- 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.
- If you are using hard copy braille, the student can do the following instead of saying "on your mark":
 - Stomp a foot
 - Underline or circle the number 16 with a grease marker or crayon
 - Place a small sticker on top of each number 16

Section 1 Teacher Script

Whoosh go the bicycle tires! It's almost time for another cross country bicycle race!

Find the first line of braille on page 1. It is at the top of the page. Softly glide your fingers across the line.

It says Module 3. Now move your hands down to the second line of braille on the page. There is just one symbol on the second line. It is on the left side of the page.

[dots 4-5-6, dots 1-4-6]

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Do you remember that this symbol is called an opening Nemeth Code indicator? It tells us that we are going to read math or science. Dots 4-5-6 are in the first cell, and dots 1-4-6 are in the second cell.

On your mark, get set, go! For the first leg of the race, let's explore the number 16. It is on the third line of braille.

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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.

Practice 1.1

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!

[Make sure the student is viewing the six lines of braille in the middle of page 1.]

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Answer 1.1

The student will make a sound like a racing bicycle each time they point 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

Line 5: toward the middle of the line

Line 6: at the end of the line

Practice 1.2

Sometimes a line of braille may have more than one number 16. Turn to page 2, move your fingers lightly across the lines of braille, and make a sound like a racing bicycle when you find the number 16s.

[Make sure the student is viewing the first five lines of braille on page 2.]

Answer 1.2



The student will make a sound like a racing bicycle each time they point to a number 16 at the following places:

Line 1: at the beginning of the line, toward the middle of the line, and at the end of the line

Line 2: twice at the end of the line

Line 3: at the beginning of the line and at the end of the line

Line 4: slightly before the middle of the line and slightly after the middle of the line

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

Fun Fact 1

The Tour de France, the most famous bicycle race in the world, began in 1903.

Practice 1.3

Let's find more number 16s. Say "on your mark" when you find the number 16 in each line. Be careful to make sure it is a number 16 and not a number 1, 2, 3, 4 or 5.

[Make sure the student is viewing the last six lines of braille on page 2.]



Answer 1.3

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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

Practice 1.4

Turn to page 3, 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!

[Make sure the student is viewing the first five lines of braille on page 3.]

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Answer 1.4

The student will read the number at the beginning of each line, find its match, and say “get set” when they find the match.

Line 1: 16 (third item on answer choices)

Line 2: 7 (second item on answer choices)

Line 3: 12 (last item on answer choices)

Line 4: 15 (first item on answer choices)

Line 5: 10 (last item on answer choices)

Fun Fact 2

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

Practice 1.5

Let's try a few more!

[Make sure the student is viewing the last six lines of braille on page 3.]

Answer 1.5

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

Line 1: 9 (last item on answer choices)

Line 2: 16 (third item on answer choices)

Line 3: 11 (first item on answer choices)

Line 4: 8 (second item on answer choices)

Line 5: 16 (second item on answer choices)

Line 6: 13 (first item on answer choices)

Activity 1

Use your flashcards 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 flashcards and try one more time! Good luck, bicyclist!

Excellent reading, Nemeth super star!

Practice 1.6

Turn to page 4 and practice reading the numbers 0-16.

[Make sure the student is viewing the four lines of braille at the top of page 4.]

Answer 1.6

16 13 12 6 8

4 2 11 14 10

1 3 5 7 9 0

15 16 9

Fun Fact 3

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

Section 2: Reading Number 17

Section 2 Materials

- Student Braille Document: GK-M3-Student-Materials.brf
- Optional: grease marker or crayon
- Activity 2
 - Timer
 - Five flashcards for each number from 0-17 shuffled

Section 2 Teacher Notes

- 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.
- If you are using hard copy braille, the student can do the following instead of saying "wheeeeeeeee":
 - Stomp a foot
 - Underline or circle the number 17 with a grease marker or crayon
 - Place a small sticker on top of each number 17

Section 2 Teacher Script

Reading braille numbers is lots of fun. Let's explore the number 17 in the middle of page 4.

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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.

Practice 2.1

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!

[Make sure the student is viewing the last five lines of braille on page 4.]

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Answer 2.1

The student will make a sound like a bicycle tire each time they point to a number 17 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: toward the middle of the line

Practice 2.2

Sometimes a line of braille may have more than one number 17. Turn to page 5, move your fingers lightly across the lines of braille, and find all of the number 17s.

[Make sure the student is viewing the five lines of braille at the top of page 5.]

Figure 1 consists of four 3x3 grids of dots. The first grid has all dots black. The second grid has the top-left dot black and all other dots white. The third grid has all dots black. The fourth grid has the top-left dot black and all other dots white.

Answer 2.2

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

Line 1: toward the middle of the line and at the end of the line

Line 2: toward the end of the line

Line 3: twice toward the middle of the line

Line 4: at the beginning of the line, in the middle of the line, and at the end of the line

Line 5: at the beginning of the line and at the end of the line

Fun Fact 4

Each leg of the race is called a stage, and the leader of the last stage wears a yellow jersey during the next stage of the race.

Practice 2.3

Let's find more number 17s. Say "wheeeeeeeee" when you find the number 17 in each line. Be careful to make sure it is a number 17 and not a number 5, 6, 7, 8, or 9.

[Make sure the student is viewing the five lines of braille at the bottom of page 5.]

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Answer 2.3

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The student should point to a number 17 and say “wheeeeeeeee” at the following places:

Line 1: at the beginning of the line

Line 2: toward the end of the line

Line 3: slightly before the middle of the line and toward the end of the line

Line 4: toward the middle of the line and at the end of the line

Line 5: at the beginning of the line

That was super reading, Nemeth all-star!

Practice 2.4

Turn to page 6 and read just the numbers.

[Make sure the student is viewing the five lines of braille at the top of page 6.]

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Answer 2.4

17 13

12 15

14 11 16

17 10

10 14 16

Practice 2.5

Let's practice reading some numbers from 0-17 toward the bottom of page 6. There will be 3 numbers on each line.

Answer 2.5

17 3 8

9 6 17

11 17 10

1 5 4

Practice 2.6

Let's try some more at the top of page 7.

[Make sure the student is viewing the four lines of braille at the top of page 7.]

Answer 2.6

6 17 0

2 7 12

13 16 14

15 17 6

Activity 2

Use your flashcards 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!

Section 3: Reading Number 18

Section 3 Materials

- Student Braille Document: GK-M3-Student-Materials.brf
- Optional: grease marker or crayon
- Activity 3
 - Base ten blocks: units and rods in different containers, baskets, or bowls (Alternative: Digi-Blocks - a different type of base ten block that nests)
 - Place Value Chart 1 available in contracted and uncontracted braille within the curriculum (Alternative: two-compartment sorting tray with the right compartment labeled "ones" and the left compartment labeled "tens" in braille)

Section 3 Teacher Notes

- If you are using hard copy braille, the student can do the following instead of making their favorite bicycle sound, saying "ding, ding, ding":
 - Stomp a foot
 - Underline or circle the number 18 with a grease marker or crayon
 - Place a small sticker on top of each number 18

- Activity 3
 - The sorting tray may assist students in easily keeping their unit blocks and rods in the correct columns.
 - Depending on the child's response when building the numbers 16-18, questioning and modeling can be used to assist the child in determining additional ways to build the numbers. For example:
 - Can you represent the number using only one kind of block? If not, why not? If so, which one could you use to represent the number? How many do you need? Where would you place the blocks on the place value chart?
 - Can you represent the number using a rod and unit blocks? If so, how many of each kind do you need? If not, why not?

Section 3 Teacher Script

For the third leg of the race, let's explore the number 18. It is on a line by itself in the middle of page 7.

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.

Practice 3.1

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!

[Make sure the student is viewing the last five lines of braille on page 7.]

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Answer 3.1

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The student will make their favorite bicycle sound each time they point 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 5

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

Practice 3.2

Sometimes a line of braille may have more than one number 18. Turn to page 8, move your fingers lightly across the lines of braille, and find all of the number 18s.

[Make sure the student is viewing the five lines of braille at the top of page 8.]

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Answer 3.2

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

Line 1: toward the middle of the line and at the end of the line

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

Line 3: at the end of the line

Line 4: toward the middle of the line and at the end of the line

Line 5: at the beginning of the line and twice at the end of the line

Practice 3.3

Let's find more number 18s. Say "ding, ding, ding" when you find the number 18 in each line. Be careful to make sure it is a number 18 and not another number.

[Make sure the student is viewing the last five lines of braille on page 8.]

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Answer 3.3

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The student should point to a number 18 and say "ding, ding, ding" at the following places:

Line 1: at the beginning of the line

Line 2: toward the end of the line

Line 3: slightly before the middle of the line

Line 4: at the end of the line

Line 5: at the beginning of the line

Practice 3.4

Turn to page 9, 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!

[Make sure the student is viewing the five lines of braille at the top of page 9.]

Answer 3.4

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

Line 1: 18 (last item on answer choices)

Line 2: 17 (second item on answer choices)

Line 3: 16 (third item on answer choices)

Line 4: 11 (first item on answer choices)

Line 5: 6 (last item on answer choices)

Excellent matching, Nemeth super star!

Practice 3.5

Let's try a few more!

[Make sure the student is viewing the last five lines of braille on page 9.]

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Answer 3.5

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

Line 1: 14 (last item on answer choices)

Line 2: 15 (last item on answer choices)

Line 3: 8 (second item on answer choices)

Line 4: 18 (last item on answer choices)

Line 5: 13 (third item on answer choices)

Fun Fact 6

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

Activity 3

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.

Let's look at the place value chart. 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 the tens. We place rods in the tens column and the unit blocks in the ones column.

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!

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!

Fun Fact 7

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

Section 4: Writing Numbers 16 through 18

Section 4 Materials

- Braillewriter
- Braille paper
- Activity 4: same materials used in Section 4 (Optional: GK-M3-Writing-Answers.brf)
- Activity 5: in addition to the other materials used in Section 4,
 - Timer
 - Student Braille Document: GK-M3-Student-Materials.brf
 - Optional: GK-M3-Writing-Answers.brf
- Activity 6: in addition to the other materials used in Section 4,
 - Student Braille Document: GK-M3-Student-Materials.brf
 - Optional: GK-M3-Writing-Answers.brf, nonslip surface such as a rubber shelf liner or a sorting tray so the numbers 0-18 will not move as much

Section 4 Teacher Notes

- If needed, remind the student that dots 3-4-5-6 make the numeric indicator.
- Activity 6
 - If needed, provide the student with a hard copy of numbers 0-18 in order.
 - You may use a strip of sticky back Velcro on the back side of each flashcard and then arrange the numbers on a long strip of Velcro on the student's desk.

Section 4 Teacher Script

Ding, ding, ding goes the bicycle bell! On the fourth 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.

Practice 4.1

On your mark, get set, go! Practice writing the number 16 now in the air and then on 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 4.1

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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. The student can check their answers for Section 4 using pages 1-2 of the writing answers document.

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.

Practice 4.2

Practice writing the number 17 now in the air and then on 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 4.2

⠠⠠⠠⠠⠠⠠ ⠠⠠⠠⠠⠠⠠ ⠠⠠⠠⠠⠠⠠ ⠠⠠⠠⠠⠠⠠ ⠠⠠⠠⠠⠠⠠

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 8

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 4

You will need 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.

Practice 4.3

16 5 8 17

Answer 4.3

The student should have written: 16 5 8 17

⠠⠠⠠⠠⠠⠠ ⠠⠠⠠⠠⠠⠠ ⠠⠠⠠⠠⠠⠠ ⠠⠠⠠⠠⠠⠠

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.

Practice 4.4

4 9 17 16 13

Answer 4.4

The student should have written: 4 9 17 16 13

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

4 9 17 16 13

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

Practice 4.5

17 10 12 16

Answer 4.5

The student should have written: 17 10 12 16

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 4.6

Practice writing the number 18 now in the air and then on 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 4.6

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 5

You will need your braillewriter and braille paper for this activity.

Practice 4.7

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!

Answer 4.7

The student should have written: 11 12 13 14 15 16 17 18
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 first line of braille on page 10 in your student braille document, 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 on the second line of braille, and then tell me the missing number.

Figure 1 shows five 4x4 dot patterns labeled (a) through (e). Each pattern consists of black dots on a grid of 16 possible positions. Pattern (a) has 10 dots. Pattern (b) has 10 dots. Pattern (c) has 10 dots. Pattern (d) has 6 dots. Pattern (e) has 10 dots.

That's right! The missing number is 14.

Activity 6

You will need your braillewriter and braille paper for this activity.

Practice 4.8

Find the general omission symbol in each line of braille and then write the missing number it is standing for. Space one time between the numbers.

[Make sure the student is viewing the five lines of braille in the middle of page 10.]

Answer 4.8

The student should have written: 4 18 10 15 17

That was excellent work, cyclist!

Section 5: Reading Number 19

Section 5 Materials

- Student Braille Document: GK-M3-Student-Materials.brf
- Optional: grease marker or crayon
- Activity 7
 - Sorting tray with a 2-section divider
 - Timer
 - Five flashcards for each number from 0-19 shuffled

Section 5 Teacher Note

If you are using hard copy braille, the student can do the following instead of making their favorite bicycle sound:

- Stomp a foot
- Underline or circle the number 19 with a grease marker or crayon
- Place a small sticker on top of each number 19

Section 5 Teacher Script

On the next legs of the race, let's learn about the numbers 19 and 20. Begin by finding the number 19 on the top line of page 11.

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.

Practice 5.1

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

[Make sure the student is viewing the five lines of braille starting on the second line on page 11.]

Answer 5.1



The student will make their favorite bicycle sound each time they point 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

Practice 5.2

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.

[Make sure the student is viewing the last five lines of braille on page 11.]



Answer 5.2



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 9

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

Practice 5.3

Let's find more number 19s. Turn to page 12 and 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.

[Make sure the student is viewing the first five lines on page 12.]

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:...: :...: :...: :...: :...:

Answer 5.3

:...:

The student should point to a number 19 and make their 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 7

Use your flashcards 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 flashcards and try one more time! Good luck, Nemeth superstar!

That was super reading!

Practice 5.4

Return to page 12 in your braille document and practice reading numbers from 0-19, beginning in the middle of the page. There will be 3 numbers on each line.

[Make sure the student is viewing the last seven lines of braille on page 12.]

Answer 5.4

9 19 16

18 3 17

2 7 10

19 0 11

1 13 19

16 5 18

8 4 19

Fun Fact 10

Captains, also called pilots, pedal in the front seat of tandem bicycles.

Section 6: Reading Number 20

Section 6 Materials

- Student Braille Document: GK-M3-Student-Materials.brf
- Optional: grease marker or crayon
- Base ten blocks: units and rods in different containers, baskets, or bowls (Alternative: Digi-Blocks - a different type of base ten block that nests)
- Place Value Chart 1 available in contracted and uncontracted braille within the curriculum (Alternative: two-compartment sorting tray with the right compartment labeled "ones" and the left compartment labeled "tens" in braille)
- Activity 8
 - Timer
 - Five flashcards for each number from 0-20 shuffled

Section 6 Teacher Notes

- If you are using hard copy braille, the student can do the following instead of saying "pedal faster":
 - Stomp a foot
 - Underline or circle the number 20 with a grease marker or crayon
 - Place a small sticker on top of each number 20
- Activity 8
 - The sorting tray may assist students in easily keeping their unit blocks and rods in the correct columns.

- Depending on the child's response when building the numbers 19 and 20, questioning and modeling can be used to assist the child in determining additional ways to build the numbers. For example:
 - Can you represent the number using only one kind of block? If so, which one could you use to represent the number? How many unit blocks do you need? If not, why not? If yes, where would you place the unit blocks on the place value chart?
 - Can you represent the number using a rod and unit blocks? If so, how many of each kind do you need? If not, why not?

Section 6 Teacher Script

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

Begin by finding the number 20 on the top line of page 13.

⠠⠠⠠⠠⠠⠠

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.

Practice 6.1

Now it is your turn to find the number 20 in each line of braille. Begin with the second line of braille on the page.

[Make sure the student is viewing the five lines of braille starting on the second line on page 13.]

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!

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Answer 6.1

The student will make their favorite bicycle sound each time they point 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!

Practice 6.2

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!

[Make sure the student is viewing the last five lines of braille on page 13.]

Answer 6.2

⠠⠠⠠⠠

The student will make their favorite bicycle sound each time they point 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

Practice 6.3

Turn to page 14, 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!

[Make sure the student is viewing the first five lines of braille on page 14.]

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Answer 6.3

The student will read the number at the beginning of each line, find its match, and say “pedal faster” when they find the match.

Line 1: 20 (last item on answer choices)

Line 2: 19 (last item on answer choices)

Line 3: 20 (first item on answer choices)

Line 4: 18 (second item on answer choices)

Line 5: 15 (last item on answer choices)

Great matching, Nemeth super star!

Practice 6.4

Let's try a few more!

[Make sure the student is viewing the last four lines of braille on page 14.]

Answer 6.4

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

Line 1: 14 (first item on answer choices)

Line 2: 17 (second item on answer choices)

Line 3: 16 (third item on answer choices)

Line 4: 20 (first item on answer choices)

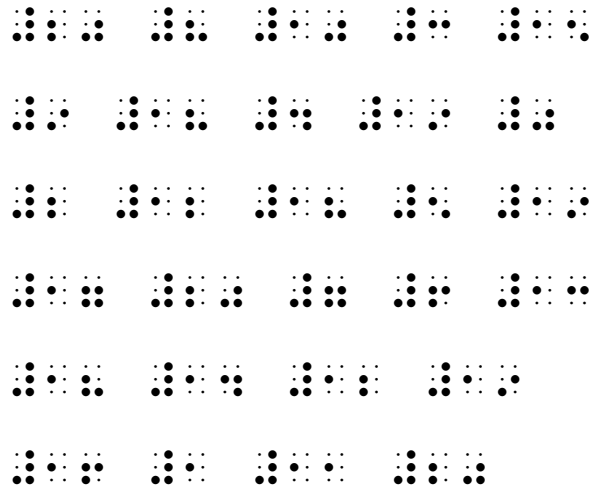
Fun Fact 11

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

Practice 6.5

Turn to page 15 and read numbers ranging from 0-20, beginning at the top of the page. Good luck, cyclist!

[Make sure the student is viewing the first six lines of braille on page 15.]



Answer 6.5

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 8

Use your flashcards 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!

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!

Fun Fact 12

There are Tandem Bicycle Clubs in many states.

Section 7: Writing Numbers 19 and 20

Section 7 Materials

- Braillewriter
- Braille paper
- Activity 9: same materials used in Section 7 (Optional: GK-M3-Writing-Answers.brf)
- Activity 10: in addition to the other materials used in Section 7,
 - Student Braille Document: GK-M3-Student-Materials.brf
 - Optional: GK-M3-Writing-Answers.brf

Section 7 Teacher Note

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

Section 7 Teacher Script

On the next 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.

Practice 7.1

Practice writing the number 19 now in the air and then on 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 7.1

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 student can check their answers for Section 7 using page 3 of the writing answers document.

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 your braillewriter.

Practice 7.2

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 7.2

⠠⠨⠠⠨⠠⠨⠠⠨

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 13

Captains are responsible for steering, shifting, and braking tandem bicycles.

Activity 9

You will need 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.

Practice 7.3

19 20 19 20

Answer 7.3

The student should have written: 19 20 19 20

⠠⠨⠠⠨⠠⠨⠠⠨

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.

Practice 7.4

17 18 19 20

Answer 7.4

The student should have written: 17 18 19 20

⠠⠠⠠⠠ ⠠⠠⠠⠠ ⠠⠠⠠⠠ ⠠⠠⠠⠠

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.

Practice 7.5

17 15 13 11 9

Answer 7.5

The student should have written: 17 15 13 11 9

⠠⠠⠠⠠ ⠠⠠⠠⠠ ⠠⠠⠠⠠ ⠠⠠⠠⠠ ⠠⠠⠠

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

17 15 13 11 9

Activity 10

You will need your braillewriter, braille paper, and braille document for this activity.

Practice 7.6

Return to page 15 in your braille document and move your hands down to the second half of the page. Then 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.

[Make sure the student is viewing the last five lines of braille on page 15.]

Answer 7.6

The student should have written: 15 10 4 16 20

Practice 7.7

Let's try some more. Move to the next line on your braillewriter by pressing the line spacing key twice. Then turn to page 16 in your braille document.

[Make sure the student is viewing the first five lines of braille on page 16.]

Answer 7.7

The student should have written: 10 14 1 17 20

Section 8: Counting Tally Marks

Section 8 Materials

- Student Braille Document: GK-M3-Student-Materials.brf
- Activity 11: in addition to the other materials used in Section 8,
 - Braillewriter
 - Braille paper
 - Optional: GK-M3-Writing-Answers.brf

Section 8 Teacher Script

For the eighth leg of the race, let's practice counting tally marks together when there are more than 15 tally marks. Begin by finding the first line of braille on page 17.

Notice how there are three groups of five tally marks followed by a space. Afterwards there is one more tally mark. Try counting them by yourself now.

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That's right. There are 16 tally marks.

Let's try two more. How many tally marks are on the second line of braille?

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

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You got it! There are 20 tally marks.

Fun Fact 14

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

Activity 11

Practice 8.1

Count the number of tally marks on each line. Then write the number using your braillewriter. Space one time between your answers.

[Make sure the student is viewing the four lines of braille in the middle of page 17.]

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Answer 8.1

The student should have written: 15 17 16 20
They can check their answers for Section 8 using page 4 of the writing answers document.

⠠⠠⠠⠠ ⠠⠠⠠⠠ ⠠⠠⠠⠠ ⠠⠠⠠⠠

Practice 8.2

Let's try some more on page 18. Move to the next line on your braillewriter by pressing your line spacing key twice.

[Make sure the student is viewing the first five lines of braille on page 18.]

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Answer 8.2

The student should have written: 16 18 20 19 15

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Section 9: The Mathematical Comma

Section 9 Materials

- Student Braille Document: GK-M3-Student-Materials.brf
- Braillewriter
- Braille paper
- Activity 12
 - Braillewriter
 - Braille paper
 - Optional: GK-M3-Writing-Answers.brf

Section 9 Teacher Note

Activity 12: As you read, include commas and spaces (i.e. for the first line of the activity you would read "11 comma space 12 comma space...").

Section 9 Teacher Script

For the ninth 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 first line of braille on page 19. 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!

Practice 9.1

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

[Make sure the student is viewing the four lines of braille in the middle of page 19. These are the last lines of braille on the page.]

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Answer 9.1

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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 15

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

Practice 9.2

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

Answer 9.2

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The directions are to write the mathematical comma several times, so there may be variation in how many times the mathematical comma is written. Any length of line is considered correct. The student can check their answers for Section 9 using page 4 of the writing answers document.

Activity 12

You will need your braillewriter and braille paper for this activity. Listen and then braille what you hear. There will be a comma after each of the first three numbers and then a space.

Practice 9.3

11, 12, 13, 14

Answer 9.3

The student should have written: 11, 12, 13, 14

⠠⠠⠨⠠⠠⠨⠠⠠⠢⠠⠠⠨⠠⠠⠢⠠⠠⠨⠠⠠⠢⠠⠠⠨⠠⠠⠤

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.

Practice 9.4

2, 4, 6, 8

Answer 9.4

The student should have written: 2, 4, 6, 8

⠠⠠⠨⠠⠠⠢⠠⠠⠨⠠⠠⠢⠠⠠⠨⠠⠠⠢⠠⠠⠨⠠⠠⠢

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!

Section 10: Numbered Math Problems

Section 10 Materials

- Student Braille Document: GK-M3-Student-Materials.brf
- Braillewriter
- Braille paper
- Activity 13
 - Braillewriter
 - Braille paper
 - Optional: GK-M3-Writing-Answers.brf, nonslip surface such as a rubber shelf liner or a sorting tray so the numbers 1-20 will not move as much

Section 10 Teacher Notes

- If needed, provide the student with manipulatives or a hard copy of numbers from 1-20 in order to use as a model.
- You may use a strip of sticky back Velcro on the back side of each flashcard and then arrange the flashcards on a long strip of Velcro on the student's desk.
- Activity 13
 - Repeat saying the problem as many times as needed.
 - Remind the student to move their fingers across the braille and check their work if needed.

Section 10 Teacher Script

For the tenth leg of the bicycle cross country trip, let's learn how to number math problems. Softly guide your fingers across the first line of braille on page 20. 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.

The second 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 on the third line of braille. 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.

Practice 10.1

Move your hands down to the fourth line of braille. Now read the math problems about "one more" and tell me what number the general omission symbol stands for. Good luck, cyclist!

[Make sure the student is viewing the last six lines of braille on page 20.]

Answer 10.1

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 first two math problems on page 21. This time the general omission symbol stands for "one less". After reading the first problem, tell me what number the general omission symbol stands for.

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 on the second line of braille.

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.

Practice 10.2

Beginning with the third line of braille on page 21, read the math problems about “one less”, and tell me what number the general omission symbol stands for.

[Make sure the student is viewing the last eight lines of braille on page 21.]

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 ?

Answer 10.2

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.



On the line below the last problem, there is a special symbol called a Nemeth Code terminator. It tells us that we are done reading math or science. Dots 4-5-6 are in the first cell, and dots 1-5-6 are in the second cell.

Fun Fact 16

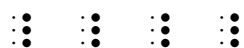
Riding a bike is a healthy activity! If you ride your bike regularly, it will help you become strong and fit!

Let's learn how to write math problems in braille.

Practice 10.3

Place your fingers on the correct keys on 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 10.3



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. They can check their answers for Section 10 using page 5 of the writing answers document.

Way to go!

Practice 10.4

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 your braillewriter.

Answer 10.4

⠠⠠⠠⠠

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 13

You will need your braillewriter and braille paper for this activity.

Practice 10.5

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.

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 10.5

The student should write the following problems in Nemeth Code:

Number 1, punctuation indicator, period, 3, general omission symbol

⠠⠠⠠⠠⠠⠠⠠⠠

Number 2, punctuation indicator, period, 10, general omission symbol

⠠⠠⠠⠠ ⠠⠠⠠⠠ ⠠⠠⠠⠠ ⠠⠠

Number 3, punctuation indicator, period, 15, general omission symbol

⠠⠠⠠⠠ ⠠⠠⠠⠠ ⠠⠠⠠⠠ ⠠⠠

Number 4, punctuation indicator, period, 11, general omission symbol

⠠⠠⠠⠠ ⠠⠠⠠⠠ ⠠⠠⠠⠠ ⠠⠠

Number 5, punctuation indicator, period, 19, general omission symbol

⠠⠠⠠⠠ ⠠⠠⠠⠠ ⠠⠠⠠⠠ ⠠⠠

Number 6, punctuation indicator, period, 16, general omission symbol

⠠⠠⠠⠠ ⠠⠠⠠⠠ ⠠⠠⠠⠠ ⠠⠠

Section 11: Review

Section 11 Materials

Activity 14

- Bingo card available in contracted and uncontracted braille within the curriculum
- Braillewriter
- Index cards cut into halves
- Small stickers or pieces of Wikki Stix® for markers (Alternatives: pushpins on a cork board or magnets on a cookie sheet)
- Sorting tray with a 2-section divider (Alternative: two small storage boxes)

Section 11 Teacher Notes

Activity 14

- You will need 2 or more players for this game.
- If you use Wikki Stix® pieces, roll them into a ball with your hand so that they will stick to the paper more easily.
- A Bingo card template and instructions for making the Bingo cards are included in the Teacher Guide.

- Your number cards for 0-20 can be used instead of creating new flashcards if preferred.
- If needed, explain how you win Bingo by having five in a row down, across, or diagonally.
- It may be helpful to point out the Nemeth Code switch indicators on the Bingo card. The opening Nemeth Code indicator has been placed immediately before the beginning of the card, and the Nemeth Code terminator has been placed at the end of the card.
- 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 flashcards and Bingo cards.

Section 11 Teacher Script

Activity 14

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

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.

Use your hands to explore the Bingo card, beginning with the title at the top of the page. Below the title, you will find the Bingo card. It is made up of 25 squares. There are five rows of squares, and each row is made up of five squares.

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 flashcards. You will take turns drawing one flashcard 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.

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!