

# **Second Grade Module 1**

## **Addition to 100 and the**

### **Carried Number Indicator**

#### **Teacher Script Answer Key**

## **Introduction**

- This check-up should be completed with hard copy braille and a braillewriter instead of a refreshable braille display.
- 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: Review Reading Spatial Addition Problems**

### **Section 1 Materials**

- Student Braille Document: G2-M1-Student-Materials.brf
- Optional: Unifix cubes, Digi-Blocks, or base ten blocks
- Activity 1
  - Flashcards available in braille within the curriculum
  - Optional: nonslip surface such as rubber shelf liner

### **Section 1 Teacher Note**

If needed, point out that braille page numbers are placed at the right margin on the last line. Also point out that braille page numbers are transcribed in Unified English Braille, not the Nemeth braille code.

### **Section 1 Teacher Script**

It's time to prepare for a ride in a car! Before we begin our journey, locate the title at the top of the page and read the title to me.

Yes, it says Second Grade Module 1 Addition to 100 and the Carried Number Indicator. Now that you are in second grade, the braille lines are single spaced. Do you know what that means?

Yes, it means that there is not a blank line after every line of braille. Now there will only be a blank line after special items such as titles and vertically aligned problems.

Move your hands down to the next line of braille. It begins in cell 5, and it says Section 1. Afterwards, there is a two-cell symbol.

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

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What is this symbol called and what is its purpose?

You got it! It is called an opening Nemeth Code indicator, and it tells us that we are going to read math or science.

### **Fun Fact 1**

A single car has about 30,000 parts, if we count every part down to the smallest screws.

For the first part of our adventure, let's review how to read addition problems that are vertically aligned. This format is very helpful when we calculate or compute the answer!

Directly below the opening Nemeth Code indicator, there is a problem for you to explore with your hands. One of the addends is greater than 20.

[Make sure the student is viewing the first problem on page 1 which is 23 plus 4 equals.]

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The first addend is written directly above the second addend in the problem. Math problems are considered to be in spatial format when the numbers are vertically aligned. When we read and write addition problems and equations in vertical alignment, we do not use numeric indicators.

The problem begins with what number in the first line?

That's right. It begins with the number 23. Now move your hands down to the next line. You will find a plus sign. Which dots make the plus sign?

You got it! Dots 3-4-6 make the plus sign. Notice that there is not a numeric indicator after the plus sign.

The plus sign is always spaced one cell to the left of the widest number in the spatially aligned addition problem. Since the addend on the first line contains two digits in this problem and the addend on the second line contains only one digit, there is a space between the plus sign and the second addend.

After the plus sign, there are the dots 2-5-6. What number is made with dots 2-5-6? Yes, the number 4 is made with dots 2-5-6.

So far our problem reads 23 plus 4. On the third line, there is a line of dots 2-5. Do you remember what this is called in Nemeth? That is correct. We call this a separation line. It begins one cell to the left of the plus sign and continues to the right one cell beyond the numbers.

So our problem reads twenty-three plus four equals.

There are different strategies that we can use when adding if we do not know the answer immediately. An effective strategy for this problem would be to count on. With this strategy, you begin with one of the addends and count on from that number. So this time let's begin with 23 and count on four more.

24, 25, 26, 27

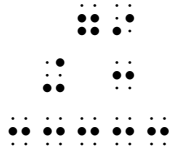
So what does 23+4 equal? Yes, 23+4 equals 27.

Read the last two vertically aligned addition problems on page 1 and then use the count on strategy to determine the sum.

[65 plus 2 equals and 79 plus 3 equals]

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Yes, that's right. The first of these problems is  $65+2$ . What is the line under the second addend called?

Outstanding work! It is called a separation line.

Use the count on strategy and then tell me what  $65+2$  equals. Yes, sixty-five plus two equals sixty-seven!

Now it is time to read the next problem. Yes, this problem is  $79+3$ . Use the count on strategy to determine what  $79+3$  equals. You got it! Seventy-nine plus three equals eighty-two.

Below the last problem, there is a Nemeth Code terminator.

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



Locate the braille page number at the bottom of the page. What page are we reading?

Yes, we are reading page 1.

## Fun Fact 2

Cars are sometimes called automobiles, and its history dates back to the 15th century when Leonardo da Vinci created designs and models for transport vehicles.

## Activity 1

Let's use flashcards to practice reading problems in vertical alignment and using the count on method to find the sum. Read each problem and then tell me the answer before moving to the next flashcard.

Good work, as always, Nemeth superstar!

## Section 2 Adding Multiples of 10

### Section 2 Materials

- Counting to 120 Chart available in braille within the curriculum (Although the single-spaced chart is recommended for most second graders, a double-spaced alternative chart is also available in the curriculum.)
- Student Braille Document: G2-M1-Student-Materials.brf
- Braillewriter
- Optional: G2-M1-Writing-Answers.brf
- Activity 2: same as materials used in the rest of Section 2

### Section 2 Teacher Notes

- For counting by 10s, beginning with a certain number, have the student keep their place on the first number with their left hand and move their right hand to the next row. As needed, have the student count to 10 with you each time.
- Make sure they notice that their right hand ends up directly under where they started. Don't give this away, but try to help them discover the pattern.
- Give the student time to discover this pattern on their own.
- If needed, remind the student to keep their place on the first number with their left hand and move their right hand to the next row.
- When writing the answers to the problems, provide assistance as needed. Also remind the student to move their fingers across the braille and check their work if needed.
- Activity 2
  - Provide assistance as needed.
  - Remind the student to move their fingers across the braille and check their work if needed.

### Section 2 Teacher Script

Before we start the car, it is time to carefully buckle your seat belt! Click, click! Now we are ready to start the engine and reverse out of the parking spot!

For the second part of the adventure, let's use what we know about skip counting and the Counting to 120 Chart to add within 100. Before we begin, let's skip count by 10s to 120 together.

10 20 30 40 50 60 70 80 90 100 110 120

Now let's use our Counting to 120 Chart as we skip count by 10s.

What pattern did you notice? Yes, all of the numbers for skip counting by 10s are in the same column. A column goes up and down.

What do you think will happen if I change the starting number to 3?

Will the patterns for skip counting by 10s remain the same or will it change?

Will all of the numbers be in the same column? How do you know?

Let's skip count by 10s beginning with 3, using our chart, and find out.

3 13 23 33 43 53 63 73 83 93 103 113

Notice how all of the numbers for skip counting by 10s beginning with 3 are in the same column again. The last digit for all of the numbers is 3.

Let's try one more together. Skip count by 10s beginning with 26, using our chart.

26 36 46 56 66 76 86 96 106 116

### Fun Fact 3

There are 300 million cars in the United States. That is more than any other country in the world.

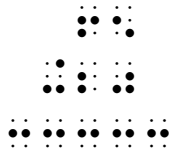
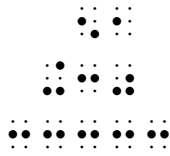
Turn to page 2 in your braille document and locate the name of the section and then the first addition problem. It is at the top of the page. Then read the problem to me.

49 + 10 =  
59

Yes, the problem is  $49 + 10$ . We can determine the sum by locating 49 on the Counting to 120 Chart and then skip counting by 10s using our column pattern.

That is correct! The sum is 59. Read the next two vertically aligned addition problems and then use what you know about skip counting and the Counting to 120 Chart to determine the sum.

[Make sure the student is viewing the second and third problems on page 2 which are 51 plus 30 equals and 65 plus 20 equals.]



Yes, that's right. The first of these problems is  $51+30$ . What is the sum?

Outstanding! Fifty-one plus thirty equals eighty-one! Now it is time to read the next problem.

That is correct! This problem is  $65+20$ . Use your Counting to 120 Chart and tell me the sum.

You got it! Sixty-five plus twenty equals eighty-five.

We have three more problems at the bottom of the page. This time, the problems are side-by-side.

We are going to read each problem, determine the sum, and write the answer before moving to the next problem. Please follow these specific instructions:

Begin by placing the page with the problems in the braillewriter, and then roll the paper into the braillewriter by using the knobs on either side of the braillewriter. The paper should stop automatically.

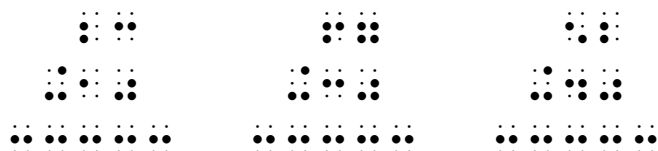
We will write the answer to each addition problem on the line that is below the separation line. So, use your line spacing key and find the row of problems toward the bottom of the page. Now press the line spacing key until the embossing head is on the line below the separation line.

Then we will use the space bar to line up the embossing head so that we can write the sum directly under the addends. You can see now how vertical aligned problems make it easier to calculate or compute the answer!

## Practice 2.1

Now read the first problem in the row at the bottom of page 2.

[23 plus 10 equals, 67 plus 30 equals, and 52 plus 40 equals]



You got it! The problem is 23+10. Use your chart and tell me the sum.

Yes, the sum of 23+10 equals 33. Now write your answer!

Excellent work! Now read the second problem.

That's correct. The second problem is 67+30. What is the sum?

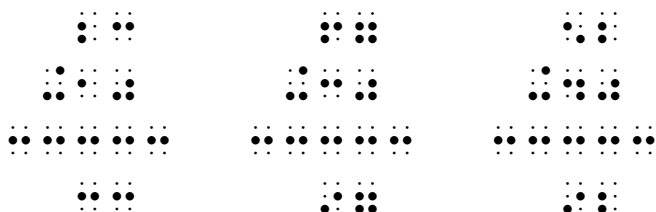
You are on a roll! The sum is 97. Write your answer!

Just one more problem to complete before the activity! Begin by reading the third problem and then tell me the sum.

Yes, the problem would be read as 52+40, and the sum is 92. Write your answer! You may now remove your paper from the braillewriter.

### Answer 2.1

The student should read 23 plus 10 equals 33, 67 plus 30 equals 97, and 52 plus 40 equals 92. The student should also write each answer under the appropriate spatial problem. The student can also check their answers for Section 2 using pages 1-2 of the writing answers document.



## Fun Fact 4

On average, cars are parked 95% of the time.



## Activity 2

### Practice 2.2

You are going to place page 3 into your braillewriter, read each of the addition problems, use one of the addition strategies we have learned to determine the sum, and write the answer before moving to the next problem using the previous technique.

Some problems can be more easily answered using the count on strategy, and others can be more easily completed by using the Counting to 120 Chart. You can do it, Nemeth superstar!

[Make sure the student is viewing the first row of problems on page 3.]

$72 + 10$	$14 + 30$	$65 + 3$
$72 + 10 =$	$14 + 30 =$	$65 + 3 =$
$82$	$44$	$68$

### Answer 2.2

The student should read 72 plus 10 equals 82, 14 plus 30 equals 44, and 65 plus 3 equals 68. The student should also write each answer under the appropriate spatial problem.

$72 + 10$	$14 + 30$	$65 + 3$
$72 + 10 =$	$14 + 30 =$	$65 + 3 =$
$82$	$44$	$68$

### Practice 2.3

[Make sure the student is viewing the second row of problems on page 3.]

$72 + 10$	$14 + 30$	$65 + 3$
$72 + 10 =$	$14 + 30 =$	$65 + 3 =$
$82$	$44$	$68$

### Answer 2.3

The student should read 28 plus 20 equals 48, 89 plus 2 equals 91, and 90 plus 1 equals 91. The student should also write each answer under the appropriate spatial problem.

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### Practice 2.4

[Make sure the student is viewing the third row of problems on page 3.]

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### Answer 2.4

The student should read 51 plus 40 equals 91, 35 plus 5 equals 40, and 76 plus 10 equals 86. The student should also write each answer under the appropriate spatial problem.

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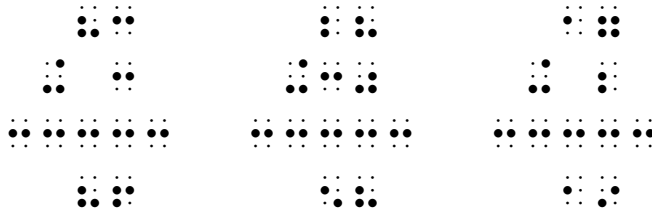
### Practice 2.5

[Make sure the student is viewing the last row of problems on page 3.]

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## Answer 2.5

The student should read 83 plus 3 equals 86, 28 plus 30 equals 58, and 17 plus 2 equals 19. The student should also write each answer under the appropriate spatial problem.



Did you notice that a Nemeth Code terminator below the last row of problems?

The car is on the road! Sometimes as a passenger in an automobile, you may be asked to help navigate. Do you know what that means?

Yes, it means that you may assist the driver of the car by using an online web mapping service on a smart phone or tablet. These apps can help you plan a route as well as know when to turn onto a different road or highway. These apps can also provide real-time information about traffic conditions! This means you can help the driver and you avoid sitting in a traffic jam!

## Section 3 Writing Spatial Addition Problems

### Section 3 Materials

- Braillewriter
- Braille paper
- Optional: G2-M1-Writing-Answers.brf

### Section 3 Teacher Notes

- Repeat saying each problem as many times as needed.
- Remind the student to move their fingers across the braille and check their work if needed.

### Section 3 Teacher Script

For the third part of the journey, let's review how to write spatially aligned problems.

**Practice 3.1**

We will begin by getting out a new piece of braille paper and writing 37 plus 21 equals.

$$\begin{array}{r} 37 \\ +21 \\ \hline \end{array}$$

In this problem, the addend in the first line will begin in cell 3 because the plus sign on the second line will begin in cell 2 and the separation line will begin in cell 1 on the third line. Place your fingers on the correct keys on your braillewriter, and let's get started. In order to braille the number 37 beginning in cell 3, press the space bar twice.

Then write the number. We will not need a numeric indicator since the problem is vertically aligned.

Press the line spacing key only once and move to the next line. The number 21 will be brailled directly below the addend in the first line. The digits should be aligned according to their place value.

Where will we braille the plus sign? Yes, we will place the plus sign one cell to the left of the number 21 on the second line. Use the backspace key to line up the embossing head so that we can write the plus sign one cell to the left of the number 21. Then press the line spacing key once and move to the next line.

Now you are ready to braille the separation line below the plus sign and number 21. How do you braille a separation line? Yes, we press the dots 2-5 five times to make the separation line. It will begin in cell 1 and continue one cell to the right of the numbers.

**Answer 3.1**

The student should write 37 plus 21 equals spatially. The student can also check their answers for Section 3 using pages 2-3 of the writing answers document.

$$\begin{array}{r} 37 \\ +21 \\ \hline \end{array}$$

Way to go, co-pilot!

**Practice 3.2**

Let's write another problem together, but first press your line spacing key three times. The problem is 25 plus 14 equals.

$$\begin{array}{r} 25 \\ +14 \\ \hline \end{array}$$

What should we braille first? Yes, begin by brailleing the first addend on the first line. What cell will it begin in?

You got it! The number 25 will begin in the third cell in this problem. Place your fingers on the correct keys on your braillewriter and press the space bar twice so that we can write the number 25, beginning in the third cell.

We will not need a numeric indicator again since the problem is vertically aligned.

What should we do next?

That's correct. We need to press the line spacing key only once to go the next line and braille the plus sign and number 14. Just like in our last problem, the digits should be aligned according to their place value.

Also remember that the plus sign should be one cell to the left of the numbers.

Once you are finished, press the line spacing key only once and move to the next line. Now you are ready to braille the separation line below the plus sign and numbers. How do you braille a separation line? Yes, press the dots 2-5 to make the separation line. It will begin in cell 1 and continue one cell to the right of the numbers.

**Answer 3.2**

The student should write 25 plus 14 equals spatially.

$$\begin{array}{r} \dots \\ \dots \\ \dots \end{array}$$

**Fun Fact 5**

The first automobile used for transporting people was steam-powered. It was built by Nicolas-Joseph Cugnot in 1769.

**Practice 3.3**

Try writing an addition problem by yourself! Begin by pressing your line spacing key three times. Then write 47 plus 31 equals.

$$\begin{array}{r} 47 \\ + 31 \\ \hline \end{array}$$

Answer 3.3

The student should write 47 plus 31 equals spatially.

$$\begin{array}{r} \text{⠠⠠⠠⠠⠠⠠} \\ \text{⠠⠠⠠⠠⠠⠠} \\ \text{⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠⠠} \end{array}$$

**Practice 3.4**

Now it is time for you to write six more addition problems! After you write each problem, press your line spacing key three times. You will likely need another piece of braille paper.

Write the following problems spatially: 52 plus 17 equals, 68 plus 20 equals, 15 plus 64 equals, 87 plus 1 equals, 36 plus 43 equals, and 51 plus 26 equals.

$$\begin{array}{r} 52 \\ + 17 \\ \hline \end{array}$$

$$\begin{array}{r} 68 \\ + 20 \\ \hline \end{array}$$

$$\begin{array}{r} 15 \\ + 64 \\ \hline \end{array}$$

$$\begin{array}{r} 87 \\ + 1 \\ \hline \end{array}$$

$$\begin{array}{r} 36 \\ + 43 \\ \hline \end{array}$$

$$\begin{array}{r} 51 \\ +26 \\ \hline \end{array}$$

Answer 3.4

The student should write the following problems spatially: 52 plus 17 equals, 68 plus 20 equals, 15 plus 64 equals, 87 plus 1 equals, 36 plus 43 equals, and 51 plus 26 equals.

$$\begin{array}{r} 52 \\ +17 \\ \hline \end{array}$$

$$\begin{array}{r} 68 \\ +20 \\ \hline \end{array}$$

$$\begin{array}{r} 15 \\ +64 \\ \hline \end{array}$$

$$\begin{array}{r} 87 \\ +1 \\ \hline \end{array}$$

$$\begin{array}{r} 36 \\ +43 \\ \hline \end{array}$$

$$\begin{array}{r} 51 \\ +26 \\ \hline \end{array}$$

## **Fun Fact 6**

More than 50 million Toyota Corollas have been sold since 1966!

## **Section 4 Reading Spatial Problems with Multiple Addends**

### **Section 4 Materials**

- Student Braille Document: G2-M1-Student-Materials.brf
- Activity 3: Student Braille Document: G2-M1-Student-Materials.brf
- Optional:
  - Base ten units and rods in different containers, baskets, or bowls (Alternative: Digi-Blocks which is a different type of base ten blocks that nest)
  - Counting to 120 Chart available in braille within the curriculum
  - 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 4 Teacher Notes**

- When reading numbers in the ones column, have the student locate the numbers and then read them simultaneously with you.
- Encourage the student to verbalize the process they use to determine the sum. Provide assistance as needed.
- Remind the student to move their fingers across the braille and check their work if needed.
- If preferred, the teacher can have the student write the answers for the problems on page 5.

### **Section 4 Teacher Script**

Vrrooooo!! For the fourth part of the adventure, let’s learn how to read spatially aligned addition problems when there are three or four addends. Turn to page 4 in your braille document and find the section name and first addition problem.



[31 plus 42 plus 15 equals]

The problem begins with what number in the first line?

That's right. It begins with the number 31. Now move your hands down to the second line and read the second addend.

That is correct! The second number to add is 42. Now move your hands to the third line. What did you find?

You got it! It is a plus sign, followed by the number 15.

The plus sign is always spaced one cell to the left of the widest number in the spatially aligned addition problem. Since all of the addends contain two digits, there is not a space between the plus sign and the final addend.

On the following line, there is a separation line. So our problem reads thirty-one plus forty-two plus fifteen equals. Let's use manipulatives such as base ten blocks to figure out the answer to the problem.

Begin by adding the ones. One plus two plus five equals what?

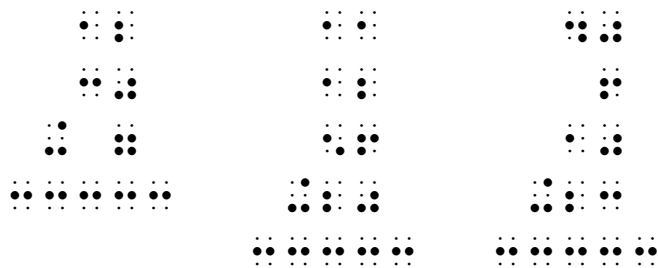
Good job! One plus two plus five equals eight. Now let's add the tens. Three ten blocks (rods) plus four ten blocks plus one ten block equals what?

Yes, it equals eight ten blocks or eighty. That means we have eight ten blocks and eight unit blocks. So the answer to the problem is what?

Good job! The answer is 88.

Let's complete three more problems together. They have been written side-by-side in braille. Some of the problems contain both one-digit and two-digit addends.

[Make sure the student is viewing the row of problems in the middle of page 4.]



Begin by reading the first problem.

Yes, the problem reads twelve plus thirty plus seven equals what? Now add the numbers in the ones column. Two plus zero plus seven equals what? You are welcome to use your base ten blocks or Counting to 120 Chart if you would like.

Yes, it equals nine. Now let's add the numbers in the tens column.

One ten block (rod) plus three ten blocks equals what?

That is correct! It equals four ten blocks or forty. That means we have four ten blocks and nine unit blocks. So the answer to the problem is what?

You got it! The answer is 49.

Now read the second problem.

Yes, the problem reads eleven plus twelve plus fifty-six plus twenty equals what?

What should we do next?

Excellent! We should add the numbers in the ones column. One plus two plus six plus zero equals what?

Perfect! It equals nine. Now let's add the numbers in the tens column.

One ten block (rod) plus one ten block plus five ten blocks plus two ten blocks equals what?

That is correct! It equals nine ten blocks or ninety. That means we have nine ten blocks and nine unit blocks. So the answer to the problem is what?

You got it! The answer is 99. Now read the third problem.

Yes, the problem is forty plus six plus ten plus twenty-three equals what number? Now add the numbers and then tell me the answer.

Way to go, Nemeth superstar! The answer is 79.

## Fun Fact 7

There are more cars than people in Los Angeles.

## Activity 3

### Practice 4.1

Read each of the numbered addition problems on page 5. Use the addition strategies we have learned and tell me the answer before moving to the next problem.

[Make sure the student is viewing the first row of problems on page 5.]

$  \begin{array}{r}  11 \\  23 \\  +35 \\  \hline  69  \end{array}  $	$  \begin{array}{r}  16 \\  3 \\  +40 \\  \hline  59  \end{array}  $
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Answer 4.1

The student should read number 1: 11 plus 23 plus 35 equals 69 and number 2: 16 plus 3 plus 40 equals 59.

$  \begin{array}{r}  11 \\  23 \\  +35 \\  \hline  69  \end{array}  $	$  \begin{array}{r}  16 \\  3 \\  +40 \\  \hline  59  \end{array}  $
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### Practice 4.2

[Make sure the student is viewing the second row of problems on page 5.]

$  \begin{array}{r}  11 \\  23 \\  +35 \\  \hline  69  \end{array}  $	$  \begin{array}{r}  16 \\  3 \\  +40 \\  \hline  59  \end{array}  $
---	--

Answer 4.2

The student should read number 3: 32 plus 10 plus 57 equals 99 and number 4: 20 plus 34 plus 4 equals 58.

$$\begin{array}{r} 3. \quad 32 \\ \quad 10 \\ + 57 \\ \hline 99 \end{array}$$

$$\begin{array}{r} 4. \quad 20 \\ \quad 34 \\ + \quad 4 \\ \hline 58 \end{array}$$

**Practice 4.3**

[Make sure the student is viewing the third row of problems on page 5.]

$$\begin{array}{r} \text{32} \\ \text{10} \\ + \text{57} \\ \hline \text{99} \end{array} \quad \begin{array}{r} \text{20} \\ \text{34} \\ + \text{4} \\ \hline \text{58} \end{array}$$

Answer 4.3

The student should read number 5: 56 plus 1 plus 31 equals 88 and number 6: 4 plus 14 plus 40 equals 58.

$$\begin{array}{r} 5. \quad 56 \\ \quad 1 \\ + 31 \\ \hline 88 \end{array}$$

$$\begin{array}{r} 6. \quad 4 \\ \quad 14 \\ + 40 \\ \hline 58 \end{array}$$

**Practice 4.4**

[Make sure the student is viewing the last row of problems on page 5.]

$$\begin{array}{r} \text{31} \\ \text{4} \\ + \text{13} \\ \hline \text{48} \end{array} \quad \begin{array}{r} \text{22} \\ \text{35} \\ + \text{31} \\ \hline \text{88} \end{array}$$

Answer 4.4

The student should read number 7: 31 plus 4 plus 13 equals 48 and number 8: 22 plus 35 plus 31 equals 88.

$$\begin{array}{r} 7. \quad 31 \\ \quad 4 \\ + 13 \\ \hline 48 \end{array}$$

$$\begin{array}{r} 8. \quad 22 \\ \quad 35 \\ + 31 \\ \hline 88 \end{array}$$

## Section 5 Writing Spatial Problems with Multiple Addends

### Section 5 Materials

- Braillewriter
- Braille paper
- Optional:
  - Base ten units and rods in different containers, baskets, or bowls (Alternative: Digi-Blocks which is a different type of base ten blocks that nest)
  - Counting to 120 Chart available in braille within the curriculum
  - 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)
  - G2-M1-Writing-Answers.brf
- Activity 4: same as materials used in the rest of Section 5

### Section 5 Teacher Notes

- Repeat saying each problem as many times as needed.
- Remind the student to move their fingers across the braille and check their work if needed.
- Provide assistance in lining up the embossing head with the addends as needed.
- Encourage the student to verbalize the process they use to determine the sum. Provide assistance as needed.

### Section 5 Teacher Script

For the fifth part of the adventure, let's learn to write the vertically aligned addition problems with three or more addends as well as the answer to the problems.

**Practice 5.1**

Place paper in the braillewriter, and then roll the paper into the braillewriter by using the knobs on either side of the braillewriter. The paper should stop automatically. Then push the line spacing key.

Begin by writing 25 plus 12 plus 41 equals.

$$\begin{array}{r} 25 \\ 12 \\ + 41 \\ \hline \end{array}$$

In this problem, the addend in the first line will begin in cell 3 because the plus sign on the third line will begin in cell 2 and the separation line will begin in cell 1 on the fourth line. Place your fingers on the correct keys on your braillewriter, and let's get started. In order to braille the number 25 beginning in cell 3, press the space bar twice.

Then write the number. We will not need a numeric indicator since the problem is vertically aligned.

Press the line spacing key only once and move to the next line. The number 12 will be brailled directly below the addend in the first line. The digits should be aligned according to their place value.

Press the line spacing key only once and move to the next line. The number 41 will be brailled directly below the addend in the second line. Once again, the digits should be aligned according to their place value.

Where will we braille the plus sign? Yes, we will place the plus sign one cell to the left of the number 41 on the third line. Use the backspace key to line up the embossing head so that we can write the plus sign one cell to the left of the number 41. Then press the line spacing key once and move to the next line.

Now you are ready to braille the separation line below the plus sign and number 41. How do you braille a separation line? Yes, we press the dots 2-5 five times to make the separation line. It will begin in cell 1 and continue one cell to the right of the numbers.

We are almost finished! Now add the numbers and write the answer on the following line.

## Answer 5.1

The student should write 25 plus 12 plus 41 equals 78 spatially. The student can also check their answers for Section 5 using pages 4-5 of the writing answers document.

$$\begin{array}{r}
 25 \\
 +12 \\
 +41 \\
 \hline
 78
 \end{array}$$

Way to go, navigator!

## Practice 5.2

Let's write 85 plus 3 plus 10 together.

$$\begin{array}{r}
 85 \\
 3 \\
 +10 \\
 \hline
 \end{array}$$

What should we braille first? Yes, begin by braille the first addend on the first line. What cell will it begin in?

You got it! The number 85 will begin in the third cell in this problem. Place your fingers on the correct keys on your braillewriter and press the space bar twice so that we can write the number 85, beginning in the third cell.

We will not need a numeric indicator again since the problem is vertically aligned. What should we do next?

That's correct. We need to press the line spacing key only once to go the next line and braille the next addend. Just like in our last problem, the digits should be aligned according to their place value. That means the 3 should be in the ones column, directly beneath the 5.

What is the next step?

Yes, we need to press the line spacing key again to go to the next line and braille the last addend and plus sign. Don't forget that the plus sign should be one cell to the left of the numbers.

Once you are finished, press the line spacing key only once and move to the next line. Now you are ready to braille the separation line below the plus sign and numbers. How do you braille a separation line? Yes, press the dots 2-5 to make the separation line. It will begin in cell 1 and continue one cell to the right of the numbers.

What should you do next?

You got it! Add the numbers and write the answer on the following line.

Answer 5.2

The student should write 85 plus 3 plus 10 equals 98 spatially.

```

      ⠠⠠⠠
      ⠠⠠
    ⠠⠠⠠⠠⠠
  ⠠⠠⠠⠠⠠⠠⠠
      ⠠⠠⠠
  
```

Now remove the page from your braillewriter!

### **Fun Fact 8**

The most popular car colors today are white, black, and silver.

### **Activity 4**

You will need your braillewriter and braille paper for the next activity.

### **Practice 5.3**

Listen as I read the vertically aligned addition problems and then braille what you hear. Some of the problems will have two addends and some will have three addends. After you write each problem, write the sum below the separation line and then press your line spacing key twice.

Now write the following problems: 62 plus 30 plus 7 equals, 28 plus 71 equals, 13 plus 40 plus 5 equals, 24 plus 21 plus 13 equals, 52 plus 30 plus 17 equals, and 58 plus 41 equals.

```

  62
 30
+ 7
  
```



$$\begin{array}{r} 28 \\ + 71 \\ \hline \end{array}$$

$$\begin{array}{r} 13 \\ 40 \\ + 5 \\ \hline \end{array}$$

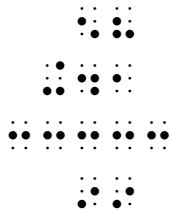
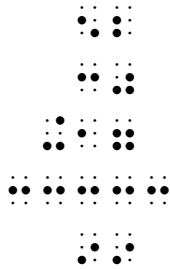
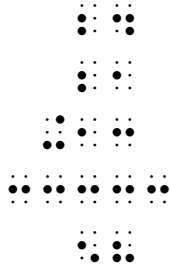
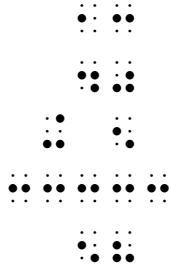
$$\begin{array}{r} 24 \\ 21 \\ + 13 \\ \hline \end{array}$$

$$\begin{array}{r} 52 \\ 30 \\ +17 \\ \hline \end{array}$$

$$\begin{array}{r} 58 \\ + 41 \\ \hline \end{array}$$

### Answer 5.3

The student should write the following problems spatially: 62 plus 30 plus 7 equals 99, 28 plus 71 equals 99, 13 plus 40 plus 5 equals 58, 24 plus 21 plus 13 equals 58, 52 plus 30 plus 17 equals 99, and 58 plus 41 equals 99.



Good job, Nemeth superstar!

## Section 6: The Carried Number Indicator

### Section 6 Materials

- Braillewriter
- Student Braille Document: G2-M1-Student-Materials.brf

- Optional:
  - Base ten units and rods in different containers, baskets, or bowls (Alternative: Digi-Blocks which is a different type of base ten blocks that nest)
  - Counting to 120 Chart available in braille within the curriculum
  - 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)
  - G2-M1-Writing-Answers.brf
- Activity 5: same as materials used in the rest of Section 6 plus an extra sheet of braille paper

## Section 6 Teacher Notes

Offer assistance as needed if the student has difficulty explaining the process or determining the sum.

## Section 6 Teacher Script

The car is on the interstate! While we drive the last few miles to our final destination, let's learn about the carried number indicator by talking through an example problem together.

## Practice 6.1

Begin by finding the third line of the addition problem at the top of page 6. Read the problem, ignoring the first two lines of the problem for now.

A 5x5 grid of dots. The dots are arranged in a pattern where some dots are missing. The missing dots are at positions (1,3), (2,1), (2,4), (3,2), (3,5), (4,1), (4,4), and (5,3). The remaining dots form a shape that resembles a stylized letter 'A' or a similar abstract figure.

Yes, that's right. The addition problem is 63 plus 29.

Now let's go back and explore the first two lines. Did you notice the line of dots 2-3-5-6 above the first addend? This is called a carried number indicator, and it is the same length as the separation line.

Above the carried number indicator, there is a one in the tens column. This is a carried number.

Carried numbers are more commonly called renamed numbers. They are placed above the carried number indicator in braille.

Carried number indicators and renamed numbers are sometimes used in vertically arranged addition problems, especially in example problems in math textbooks and worksheets.

Now, let's figure out together why we need the carried number indicator and a renamed number in this problem. Begin by putting the page in the braillewriter.

The second step to solving this problem is adding the ones. What is 3 ones plus 9 ones?

Yes, it is 12 ones, so we will need to regroup. When we regroup, we name a whole number in a different way.

12 ones equals 1 ten and 2 ones. We will write 2 in the ones column together. The 1 in the tens column above the carried number indicator represents the one ten in 12.

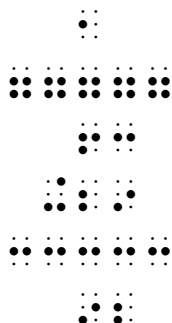
The third step is to add the tens. Don't forget that we have one ten above the carried number indicator.

One ten plus six tens plus two tens equals nine tens or ninety. Now write a 9 in the tens column. So 63 plus 29 equals 92.

Answer 6.1

The student should write 92 below 63 plus 29 equals. The student can also check their answers for Section 6 using pages 6-7 of the writing answers document.

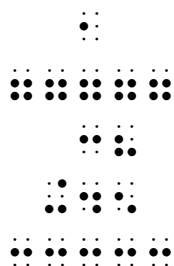
$$\begin{array}{r} 1 \\ 63 \\ +29 \\ \hline 92 \end{array}$$



## Practice 6.2

Find the next addition problem and let's read it together.

[Make sure the student rolls the paper down carefully to reveal the second problem on page 6.]



Good job! The problem is  $38 + 45$ . What is the line of dots 2-3-5-6 above the first addend called?

You got it! It is called a carried number indicator. What is the one ten above the carried number indicator called?

Yes, it is called a renamed number. Let's determine the sum. The first step is to add the ones. What numbers should we add?

Way to go! Eight ones plus five ones equals what?

Yes, math superstar! That equals 13 ones. What is the next step?

Yes, we need to write 3 in the ones column. In addition, the one in the tens column above the carried number indicator represents the one ten in 13.

The second step is to add the tens. Don't forget that we have one ten above the carried number indicator.

One ten plus three tens plus four tens equals eight tens or eighty. Now write 8 in the tens column.

So 38 plus 45 equals 83.

### Answer 6.2

The student should write 83 below 38 plus 45 equals.

$$\begin{array}{r} 1 \\ 38 \\ + 45 \\ \hline 83 \end{array}$$

### Practice 6.3

Move to the last problem on page 6 and read it. Afterwards, talk through the process you use to figure out the sum.

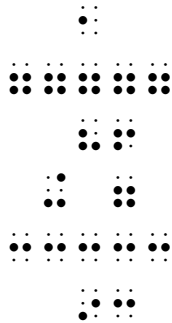
[illegible]

Excellent! The problem is  $86 + 7$ , and the answer is 93.

### Answer 6.3

The student should write 93 below 86 plus 7 equals.

$$\begin{array}{r} 1 \\ 86 \\ + 7 \\ \hline 93 \end{array}$$



## Fun Fact 9

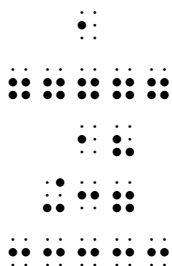
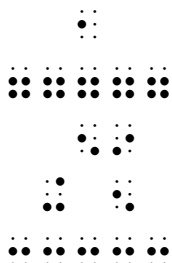
The inventor, Ralph Teetor, who developed cruise control for automobiles, was blind. He filed a patent for his newly created speed control device in 1945.

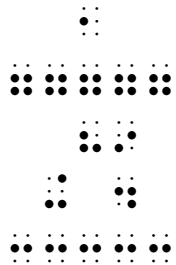
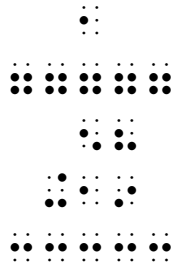
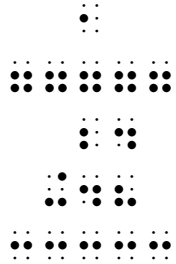
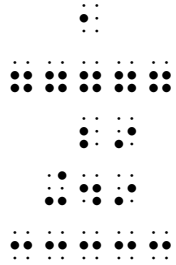
## Activity 5

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

## Practice 6.4

Silently read each of the addition problems that include a carried number indicator on pages 7-8. Write each answer on another piece of paper, using your braillewriter, before moving to the next problem. Leave one space between your answers.





### Answer 6.4

The student should write: 64 55 78 72 77 93



Below the last problem, there is a Nemeth Code terminator.





This symbol tells us that we are almost finished with our math adventure. Sometimes this symbol comes at the end of a braille document, just like it is this time. This symbol can also be used in other places within a document to tell us that we are finishing math content and are moving to literary material.

### **Fun Fact 10**

Ford Motor Company builds between 8,000 and 10,000 cars each day. In contrast, Ferrari only produces a maximum of 14 cars per day.

## **Section 7: Review**

### **Section 7 Materials**

#### **Activity 6**

- Tic-Tac-Toe Game Cards – four different game cards are available in contracted and uncontracted braille within the curriculum
- Five each of two tactually different markers (Alternatives: small stickers, pieces of Wikki Stix®, pushpins on a cork board, magnets on a cookie sheet)

### **Section 7 Teacher Notes**

#### **Activity 6**

- If you use Wikki Stix® pieces, roll them into a ball with your hand so that they will stick to the paper more easily.
- Additional directions are included in the Teacher Guide.

### **Section 7 Teacher Script**

Now that we have taken our exit off of the interstate, we are almost finished with our journey. Let's finish our adventure with an activity.

#### **Activity 6**

We are going to play a new game for two players called Tic-Tac-Toe. We will need a Tic-Tac-Toe game card and two different types of markers such as small pieces of Wikki Stix® or stickers.

The first player to get 3 markers in a row wins the game! Each time you determine the sum for a problem, you will earn the right to place a marker on the problem. Once you have 3 markers horizontally in a row, vertically in a column, or going diagonally, call out Tic-Tac-Toe.

Let's get started by using your hands to explore the Tic-Tac-Toe game card. You will find the title centered on the first line. Afterwards there will be 3 rows with 3 problems on each row.

Begin by deciding who will go first. Then the first player will select one of the addition problems to solve. If the first player correctly determines the sum, then they can place one of their markers on top of the problem.

Then the second player will select one of the addition problems to solve. If the second player correctly determines the sum, then they can place one of their markers on top of the problem.

We will continue alternating turns until a winner gets 3 markers in a row and calls out Tic-Tac-Toe.