

# **Kindergarten Module 5**

## **Introduction to Addition and the Braille Hundreds Chart**

### **Teacher Script**

## **Introduction**

- All bracketed text should not be read aloud and is for reference only.
- The questions 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: Addition Using the Five Frame**

### **Section 1 Materials**

- Five counting bears (Alternatives: other objects, Unifix cubes, base ten unit blocks, magnetic counters) in a bowl or work tray
- Five frame available in braille within the curriculum (Alternative: Tactile Five and Ten Frames from the American Printing House for the Blind [APH])
- Five pennies in a work tray, bowl, or container (Alternatives: APH Tactile Tokens, small pieces of Wikki Stix®, magnetic counters)
- Optional: nonslip surface such as rubber shelf liner so the five frame will not move as much (Alternatives: cookie sheet, magnetic board)
- Activity 1
  - Braillewriter
  - Braille paper
  - Your choice of small objects, tactile stickers, textured paper
  - Optional: five frame, five pennies, nonslip surface such as rubber shelf liner, cookie sheet, magnetic board
- Activity 2
  - Timer
  - Five frame (Alternative: APH Tactile Five and Ten Frames)
  - Five pennies (Alternatives: APH Tactile Tokens, small pieces of Wikki Stix®, magnetic counters)
  - Sorting tray with a 2-section divider
  - Two flashcards for each number from 0-5 shuffled

## Section 1 Teacher Notes

- Allow the student time to explore the five frame before using it.
- There are two five frames in the braille document. It may be helpful for some students to cut around one five frame.
- The two textures on the Tactile Tokens can represent the two addends.
- You can use the shapes and line segments from the Picture Maker Wheatley Tactile Diagramming Kit to create the five frame.
- If preferred, you may begin with five small storage boxes and then transition to the five frame.
- For some questions there are several possible correct responses.
- Offer assistance if the student has difficulty using the five frame to determine how many bears are now sitting on the grass in the first set of problems.
- Activity 1
  - There are additional instructions about how to make up the addition story in the Teacher Guide.
  - Breaking numbers down into the addition of two numbers or pairs of addends is called decomposition in math. Learning how to decompose numbers allows students to think about numbers in flexible ways and helps students develop the understanding that smaller sets of objects exist within a larger set. This provides a foundation for learning basic math facts as well as regrouping (composing) in subtraction in later grades.
- Activity 2
  - If the student selects the number 5, then no additional pennies would be needed to make 5.
  - The length of time set on the timer should be based on the individual needs of the student. The length of time can be decreased each time in order to promote fluency.
  - If desired, this game can be played more than once.

## Section 1 Teacher Script

On your mark, get set, go! It's time for another adventure on a scooter! For the first part of our adventure, let's learn how to add groups together.

Reach into the bowl and tell me about what you find.

Yes, there are five counting bears. We will use them to act out a pretend story about bears. What does pretend mean? You got it! Pretend means make-believe or imaginary.

Two bears sat on the grass in the zoo. Let's get out 2 bears and pretend that they are sitting on the grass. Three more bears walked out of a cave and sat down on the grass. Get out 3 more bears and pretend that they are sitting on the grass too.

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

1 2 3 4 5

There are 5 bears sitting on the grass now. We have "added" the groups together.

Sometimes when we add groups together, we use a five frame. Use your hands to explore the five frame.

[Do not read the next two short paragraphs if the student is using a five frame without a title.]

Let's find the title and read it together. Where will we find the title?

That's right, scooter racer! The title is at the top of the page. The title is Five Frame.

Now use your hands to turn the paper on its side. Then use your hands to find the squares in a row. A row goes from the left to the right. Move your hands across the row of squares from left to right. Now count the squares. That is correct. There are five squares.

Let's go back to the bear story. There were 2 bears sitting on the grass. We can use pennies (or small pieces of Wikki Stix®) on the five frame to show the bears. Let's work together to place 2 bears on the five frame. We will only place 1 bear in each square, beginning with one on the far left and then moving to the right.

Then some more bears came. How many more bears came and sat on the grass? That's right. 3 more bears came to sit on the grass. Let's place 3 more bears on the five frame.

How can we use the five frame to find out how many bears are sitting on the grass now?

Excellent counting! There are 5 bears sitting on the grass!

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

There is 1 dog taking a walk in the park. How many pennies should we place on the five frame? That's right. We will place 1 penny on the five frame. Two more dogs have come to the park and are now walking in the park. How many more pennies should we place on the five frame? That is correct. We need to place 2 more pennies on the five frame.

How many dogs are walking in the park now? That's right! 3 dogs are walking in the park.

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

There are 4 turtles swimming in the pond. How many pennies should you place on the five frame? That's right. You will place 4 pennies on the five frame. Another turtle begins swimming in the pond too. How many more pennies should we place on the five frame? That is correct. We need to place 1 more penny on the five frame.

How many turtles are swimming in the pond now? You got it! 5 turtles are swimming in the pond.

### **Fun Fact 1**

Freestyle scooting is an extreme sport which involves using kick scooters to perform tricks.

### **Activity 1**

Now it is time for you to make up your own addition story within 5, and then we will work together to braille it. Then we will illustrate your story using a variety of small objects, tactile stickers, and paper with different textures.

Let's use our five frame to learn about different ways to make 5.

Begin by placing 4 pennies on the five frame. How many more pennies are needed to make 5? That's right! We need 1 more penny to make 5. How did you know that we need 1 more penny to make 5?

[When the student is answering how they know about the number needed to make 5, there are several possible correct responses. The student may indicate that they counted the empty squares on the five frame or counted in their head. The student may also place additional pennies on the five frame so that every square is filled.]

Remove the pennies from the five frame and place them back in the work tray. Now place 3 pennies on the five frame. How many more pennies are needed to make 5? That's right! We need 2 more pennies to make 5.

## **Activity 2**

Let's play a game called "Zoom to 5" with our five frame and pennies! We will also need a sorting tray and 2 flashcards for each number from 0-5.

Shuffle your flashcards and then draw a flashcard. Read the number on the flashcard and then use your five frame and pennies to tell me how many more are needed to make 5. As you read each number card, use a sorting tray to separate which cards you have read and which cards you have not read.

You will win the game if you can tell me how many more are needed to make 5 for all of the numbers before the timer goes off.

## **Section 2: The Plus Sign**

### **Section 2 Materials**

- Student Braille Document: GK-M5-Student-Materials.brf
- Optional: grease marker or crayon
- Braillewriter
- Braille paper
- Activity 3
  - Braillewriter
  - Braille paper
  - Optional: GK-M5-Writing-Answers.brf

### **Section 2 Teacher Note**

If you are using hard copy braille, the student can do the following instead of saying "scoot faster":

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

### **Section 2 Teacher Script**

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

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 5. 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.



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.

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



Great work, cyclist! Did you notice that the plus sign is made with the dots 3-4-6?

## Practice 2.1

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

[Five lines of dots 2-5 on page 1 with a plus sign inserted in each line.]





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

5 0 general omission symbol plus sign

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

### **Practice 2.5**

general omission symbol 1 4 plus sign general omission symbol

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

general omission symbol 1 4 plus sign general omission symbol

That was quick work, Nemeth superstar!

## **Section 3: The Equals Sign**

### **Section 3 Materials**

- Student Braille Document: GK-M5-Student-Materials.brf
- Optional: grease marker or crayon
- Braillewriter
- Braille paper
- Optional: GK-M5-Writing-Answers.brf
- Activities 4 and 5
  - Braillewriter
  - Braille paper
  - Optional: GK-M5-Writing-Answers.brf

### **Section 3 Teacher Notes**

- If you are using hard copy braille, the student can do the following instead of making their favorite scooter sound:
  - Stomp a foot
  - Underline or circle the equals sign with a grease marker or crayon
  - Place a small sticker on top of each equals sign
- Activities 4 and 5
  - 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 3 Teacher Script

For the third part of the adventure, let's learn about the equals sign. We also use this symbol when we are adding numbers in math.

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



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

## Practice 3.1

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

[Five lines of dots 2-5 at the bottom of page 2 with an equals sign inserted in each line.]



Let's learn how to write an equals sign in braille. It will take us two braille cells to write an equals sign. In the first braille cell, we need the dots 4-6. In the second cell, we need the dots 1-3.

## Practice 3.2

Place your fingers on the correct keys on your braillewriter. Then use your index and ring fingers on your right hand to write the first part of the equals sign. Practice writing dots 4-6 several times.

### **Practice 3.3**

Press the line spacing key twice. Afterwards use your index and ring fingers on your left hand to write the second part of the equals sign. Practice writing dots 1-3 several times.

### **Practice 3.4**

Now we are ready to put the two parts together to write an equals sign. You will use your index and ring fingers on your right hand first and then your index and ring fingers on your left hand second. Practice writing the equals sign one time.

Great work, Nemeth superstar!

### **Practice 3.5**

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

So how many fingers are you using on your right hand when writing an equals sign? Yes, you are using two fingers on your right hand. How many fingers are you using on your left hand when writing an equals sign? Yes, you are using two fingers on your left hand too so 2 fingers equals 2 fingers and 2 dots equals 2 dots.

### **Fun Fact 3**

Another type of electric scooter is the self-balancing electric scooter that is sometimes called a hoverboard.

### **Activity 4**

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

### **Practice 3.6**

Listen and then braille what you hear and don't forget the numbers!

1. general omission symbol
2. equals sign
3. plus sign
4. 1, 3, 5

5. equals sign
6. 2, 4, 6

### Practice 3.7

Let's try some more!

7. plus sign
8. general omission symbol
9. numeric indicator
10. plus sign
11. equals sign

Turn to page 3 in your braille document and find the first line of braille on the page. Now let's read it together.

Yes, 5 equals 5. What is on the right is equal to what is on the left. This is called an equation in math. Practice saying the word equation with me. Try reading the equation on the next line of braille by yourself.

[Make sure the student is viewing the second line of braille on page 3.]

You got it! 2 equals 2. Let's try another one.

[Make sure the student is viewing the third line of braille on page 3.]

That is right! 4 equals 4. Once again, what is on the left is equal to what is on the right.

### Practice 3.8

Now use your braillewriter to braille  $3 = 3$ .

What would you begin with? That's right. We would begin with a numeric indicator, followed by the dots 2-5. Then we would need a space and an equals sign. Do you remember how to braille an equals sign?

Yes, we begin with dots 4-6 in the first braille cell. In the second cell, we need the dots 1-3. Afterwards we need another space.

Since an equals sign is a sign of comparison, we need a space before and after it. What should you braille after the space? Yes, you should braille another numeric indicator after the equals sign. It will be followed by dots 2-5.

### **Practice 3.9**

Now press your line spacer twice to move to the next line of braille. Then braille  $3 = 3$  again. Way to go, Nemeth superstar!

### **Activity 5**

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

### **Practice 3.10**

Listen and write the following equations: 1 equals 1, 5 equals 5, 2 equals 2, 4 equals 4, 3 equals 3, and 0 equals 0.

$$1 = 1$$

$$5 = 5$$

$$2 = 2$$

$$4 = 4$$

$$3 = 3$$

$$0 = 0$$

## **Section 4: Reading Addition Equations**

### **Section 4 Materials**

- Student Braille Document: GK-M5-Student-Materials.brf
- Five frame available in braille within the curriculum (Alternative: APH Tactile Five and Ten Frames)

- Five pennies (Alternatives: APH Tactile Tokens, small pieces of Wikki Stix®)
- Optional: cookie sheet or nonslip surface such as rubber shelf liner so the five frame will not move as much
- Activity 6
  - Timer
  - Flashcards with equations for sums 0-5 listed in the Teacher Guide

## Section 4 Teacher Notes

- The numeric indicator must be used before a number at the beginning of a braille line or following a space, but this is the first time we have encountered a number following an operation sign without a space.
- We are just learning that a space must not be left before or after a sign of operation in most situations. This new non-use of the numeric indicator and non-spacing before and after a sign of operation along with the equals sign introduces the student to how to braille horizontal equations – a new mathematical concept.
- Encourage the student to verbalize the process they use to determine what the general omission symbol is standing for. Provide assistance as needed.

## Section 4 Teacher Script

It's time for the fourth part of the adventure! Let's return to page 3 and find the fourth line of braille. It contains an equation about adding two groups together. Let's read it together.

[2 plus 1 equals what number]

It begins with the numeric indicator followed by dots 2-3. What number is this? That's right. It's the number 2. Afterwards, there is a 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. Also notice that there is not a space before or after the plus sign.

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

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

Did you remember that it takes 2 braille cells to write an equals sign? It is dots 4-6 in the first braille cell followed by dots 1-3 in the second braille cell.

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

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

That's right! Two plus one equals three.

Move your hands down to the next line of braille and try reading another equation.

[Make sure the student is viewing the fifth line of braille on page 3 which is 2 plus 3 equals what number.]

You got it! It begins with the number 2. What follows the number 2? Yes, there is a plus sign, followed by a 3. What dots make the plus sign? Yes, dots 3-4-6 make the plus sign. Did you remember that there is not a space before and after the plus sign?

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

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

That's right! Two plus three equals five. Let's try reading another equation together.

[Make sure the student is viewing the sixth line of braille on page 3.]

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

How should we begin? Yes, we should place 4 pennies on the five frame. How many more pennies should we place on the five frame for the number 0? That is correct. We should not place any more pennies on the five frame because 0 means no objects.

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

## Practice 4.1

Now move your hands to the next line of braille. Read the equations and tell me what number the general omission symbol stands for each time. Good luck, scooter racer!

[Make sure the student is viewing the set of five addition problems at the bottom of page 3.]

### Fun Fact 4

Some police officers ride a self-balancing electric scooter when patrolling indoors and outdoors. For example, police officers in some cities ride electric scooters when patrolling in subway stations and airports.

## Activity 6

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

Way to go, math superstar!





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

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

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

Super work, Nemeth superstar!

### **Practice 5.1**

Move to the next line by pressing the line spacing key twice. Practice writing  $3+1 = ?$  several times. You will need to press your line spacing key twice to move to the next line before brailleing the equation each time.

Let's practice brailleing another equation.

$$2+0 = ?$$

What should we braille first? Yes, we will begin by brailleing the number 2, followed by the plus sign. How do we write a plus sign in braille? Yes, a plus sign is made with the dots 3-4-6. Will we need a space before or after the plus sign? That's right. We will not need a space.

Next we will write the number 0. We do not need another numeric indicator because the number is coming after the plus sign. We would press dots 3-5-6 after the plus sign to write the number 0.

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

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

## Practice 5.2

Move to the next line by pressing the line spacing key twice. Practice writing  $2+0 = ?$  several times. You will need to press your line spacing key twice to move to the next line before braille the equation each time.

## Activity 7

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

## Practice 5.3

Listen and then braille the following equations: 1 plus 2 equals what number, 0 plus 5 equals what number, 4 plus 1 equals what number, and 2 plus 3 equals what number.

$$1+2 = ?$$

$$0+5 = ?$$

$$4+1 = ?$$

$$2+3 = ?$$

## Practice 5.4

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

Write number 1: 1 plus 3 equals what number, number 2: 4 plus 0 equals what number, number 3: 5 plus 0 equals what number, number 4: 3 plus 2 equals what number, and number 5: 2 plus 1 equals what number.

1.  $1+3 = ?$

2.  $4+0 = ?$

3.  $5+0 = ?$

4.  $3+2 = ?$

5.  $2+1 = ?$

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

## **Fun Fact 5**

Most electric scooters are charged by plugging them into an electrical power outlet.

# **Section 6: Number Pair Equations**

## **Section 6 Materials**

- Student Braille Document: GK-M5-Student-Materials.brf
- Braillewriter
- Braille paper
- Five frame available in braille within the curriculum (Alternative: APH Tactile Five and Ten Frames)
- Five pennies (Alternatives: APH Tactile Tokens, small pieces of Wikki Stix®)
- Optional: GK-M5-Writing-Answers.brf, cookie sheet or nonslip surface such as rubber shelf liner so the five frame will not move as much
- Activity 8
  - Braillewriter
  - Braille paper
  - Optional: GK-M5-Writing-Answers.brf

## **Section 6 Teacher Notes**

- If needed when building  $4+1$ , have the student remove the pennies from the five frame and build  $1+4$  as well to show that either equals 5.
- When asked for other ways to make the number 5, possible responses include 5 and 0 as well as 3 and 2. Provide assistance as needed.
- When making 4 with the five frame, provide assistance as needed. If the student struggles in naming the first pair of numbers that make 4, you might ask what if we begin with 3 pennies.
- Activity 8
  - Repeat saying each equation as many times as needed.
  - Remind the student to move their fingers across the braille and check their work if needed.

## **Section 6 Teacher Script**

For the sixth part of the adventure, let's learn to read and write the ways that we can make 5 in equation form.

Let's review different ways we can make 5 with our five frame and pennies. What if we begin with 4 pennies? How many more will you need to make 5? That's right. We will need 1 more to make 5 so  $4+1$  equals 5.

If  $4+1$  makes 5, does  $1+4$  make 5 too?

Can you think of another way to make the number 5?

Turn to page 4 in your braille document, and practice reading equations, beginning in the middle of the page. You will read a total of six equations.

$$5 = 1+4$$

$$5 = 4+1$$

$$\begin{array}{|c|c|c|c|} \hline \bullet & \bullet & \bullet & \bullet \\ \hline \bullet & \bullet & \bullet & \bullet \\ \hline \bullet & \bullet & \bullet & \bullet \\ \hline \bullet & \bullet & \bullet & \bullet \\ \hline \end{array}$$

$$\begin{array}{|c|c|c|c|} \hline \bullet & \bullet & \bullet & \bullet \\ \hline \bullet & \bullet & \bullet & \bullet \\ \hline \bullet & \bullet & \bullet & \bullet \\ \hline \bullet & \bullet & \bullet & \bullet \\ \hline \end{array}$$

$$5 = 2+3$$

$$5 = 3+2$$

$$\begin{array}{|c|c|c|c|} \hline \bullet & \bullet & \bullet & \bullet \\ \hline \bullet & \bullet & \bullet & \bullet \\ \hline \bullet & \bullet & \bullet & \bullet \\ \hline \bullet & \bullet & \bullet & \bullet \\ \hline \end{array}$$

$$\begin{array}{|c|c|c|c|} \hline \bullet & \bullet & \bullet & \bullet \\ \hline \bullet & \bullet & \bullet & \bullet \\ \hline \bullet & \bullet & \bullet & \bullet \\ \hline \bullet & \bullet & \bullet & \bullet \\ \hline \end{array}$$

$$5 = 5+0$$

$$5 = 0+5$$

$$\begin{array}{|c|c|c|c|} \hline \bullet & \bullet & \bullet & \bullet \\ \hline \bullet & \bullet & \bullet & \bullet \\ \hline \bullet & \bullet & \bullet & \bullet \\ \hline \bullet & \bullet & \bullet & \bullet \\ \hline \end{array}$$

$$\begin{array}{|c|c|c|c|} \hline \bullet & \bullet & \bullet & \bullet \\ \hline \bullet & \bullet & \bullet & \bullet \\ \hline \bullet & \bullet & \bullet & \bullet \\ \hline \bullet & \bullet & \bullet & \bullet \\ \hline \end{array}$$

What are the different ways we can make 4 with our five frame and pennies?

You got it! There are several ways we can make 4.

Let's read the ways that we can make 4 in equation form, beginning at the top of page 5.

$$4 = 4+0$$

$$4 = 0+4$$

$$\mathbf{4} = \mathbf{4} + \mathbf{0}$$

$$\mathbf{4} = \mathbf{0} + \mathbf{4}$$

$$4 = 3+1$$

$$4 = 1+3$$

$$\mathbf{4} = \mathbf{3} + \mathbf{1}$$

$$\mathbf{4} = \mathbf{1} + \mathbf{3}$$

$$4 = 2+2$$

$$\mathbf{4} = \mathbf{2} + \mathbf{2}$$

Let's practice writing  $4 = 2+2$ .

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

Will we need another space after the equals sign? Yes, we will need a space before and after an equals sign in braille. What should we write next? You got it! We will need a numeric indicator followed by the dots 2-3. This will be followed by the plus sign. How do we write a plus sign in braille? Yes, a plus sign is made with the dots 3-4-6. Will we need a space before or after the plus sign? That's right. We will not need a space.

Next we will write the number 2. We do not need another numeric indicator because the number is coming after the plus sign. We would press dots 2-3 after the plus sign to write the number 2.

### Practice 6.1

Move to the next line by pressing the line spacing key twice. Practice writing  $4 = 2+2$  several times. You will need to press your line spacing key twice to move to the next line before brailing the equation each time.

## Activity 8

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

### Practice 6.2

Listen and then braille the following equations: 3 equals 1 plus 2, 1 plus 2 equals 3, 2 plus 2 equals 4, 5 equals 0 plus 5, 5 plus 0 equals 5, 4 equals 3 plus 1, 2 equals 1 plus 1, and 2 plus 3 equals 5.

$$3 = 1+2$$

$$1+2 = 3$$

$$2+2 = 4$$

$$5 = 0+5$$

$$5+0 = 5$$

$$4 = 3+1$$

$$2 = 1+1$$

$$2+3 = 5$$

## Section 7 The Ten Frame

### Section 7 Materials

- Ten frame available in uncontracted and contracted braille within the curriculum (Alternative: APH Tactile Five and Ten Frames)
- Ten pennies in a bowl or container (Alternatives: APH Tactile Tokens, small pieces of Wikki Stix®, magnetic counters)
- Student Braille Document
- Braille Activity Document (either GK-M5-Ten-Frame-Activity-C.brf or GK-M5-Ten-Frame-Activity-UC.brf)
- Optional: nonslip surface such as rubber shelf liner so the ten frame will not move as much (Alternatives: cookie sheet, magnetic board)
- Activity 9: in addition to the other materials used in Section 7,
  - Timer
  - Two flashcards for each number from 0-10 shuffled
  - Sorting tray with a 2-section divider

## Section 7 Teacher Notes

- Allow the student time to explore the ten frame before using it.
- The two textures on the Tactile Tokens can represent the two addends.
- You can also use the shapes and line segments from the Picture Maker Wheatley Tactile Diagramming Kit to create the ten frame.
- Encourage the student to verbalize the process they use for placing the pennies on the ten frame. Provide assistance as needed.
- When looking at 7 on the ten frame, it may be helpful to point out that 7 is two more than 5.
- When using the Student Braille Document: GK-M5-Ten-Frame-Activity-C.brf or GK-M5-Ten-Frame-Activity-UC.brf, give a copy of the braille document page by page to the student.
- If preferred, each braille page may be cut into 2 so that there will only be one ten frame on each page.
- Encourage the student to verbalize the process they use to determine how many more are needed to make 10. There are several possible correct responses. The student may indicate that they can count the empty squares on the ten frame or count the number of full braille cells in their head. The student may also want to place additional objects on the ten frame until every square is filled. Provide assistance if needed.
- Activity 9
  - The length of time set on the timer should be based on the individual needs of the student. The length of time can be decreased each time in order to promote fluency.
  - If desired, this game can be played more than once.

## Section 7 Teacher Script

For the seventh part of the adventure, let's learn to use a chart similar to the five frame. It will help us learn about different ways to make 10. It is called a ten frame.

Now use your hands to turn the paper on its side and then explore the ten frame.

[Do not read the next two short paragraphs if the student is using a ten frame without a title.]

Let's find the title and read it together.

That's right! The title is at the top of the page. The title is ten frame.

Now use your hands to locate the top row. Then move your hands across the top row of squares from left to right. Afterward count the squares in the top row. That is correct. There are five squares.

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

When we use the ten frame, fill the top row up first, before moving to the bottom row.

Begin by placing 4 pennies on the ten frame. Good job! You remembered to begin by placing pennies on the top row, beginning on the far left. Remove the pennies from the ten frame and place them in a bowl. Now place 7 pennies on the ten frame.

Remove the pennies from the ten frame and place them in a bowl. Now as I call a number, place that many pennies on the ten frame. Remember to return the pennies to the bowl between numbers.

2

6

3

9

0

10

Nice work, math superstar!

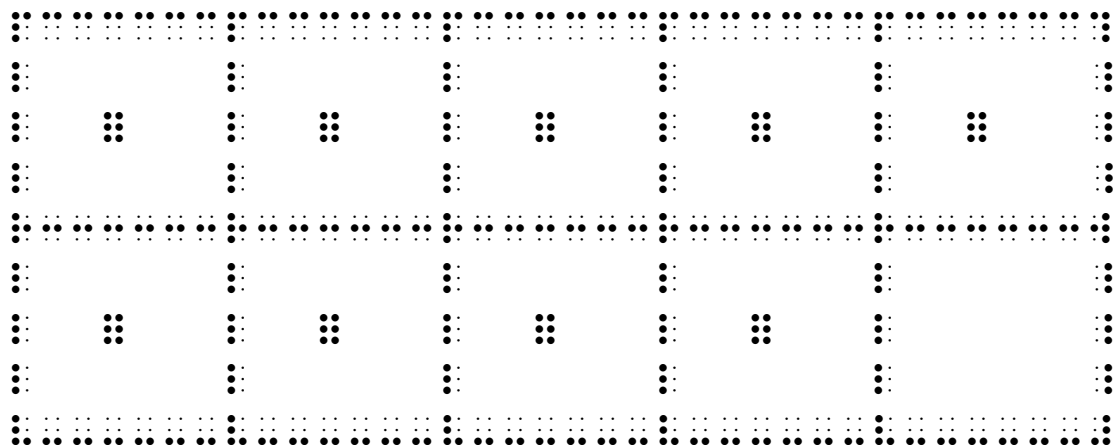
Sometimes we can use other objects or the general omission symbol instead of pennies with the ten frame. You will need your Ten Frame Activity document.

Begin by finding the top of page 1 and let's read the title together.



Yes, the title is Ten Frame. Now move your hands down to the first ten frame on page 1 and let's work together to determine how many more full braille cells are needed to make 10 on these partially filled ten frames.

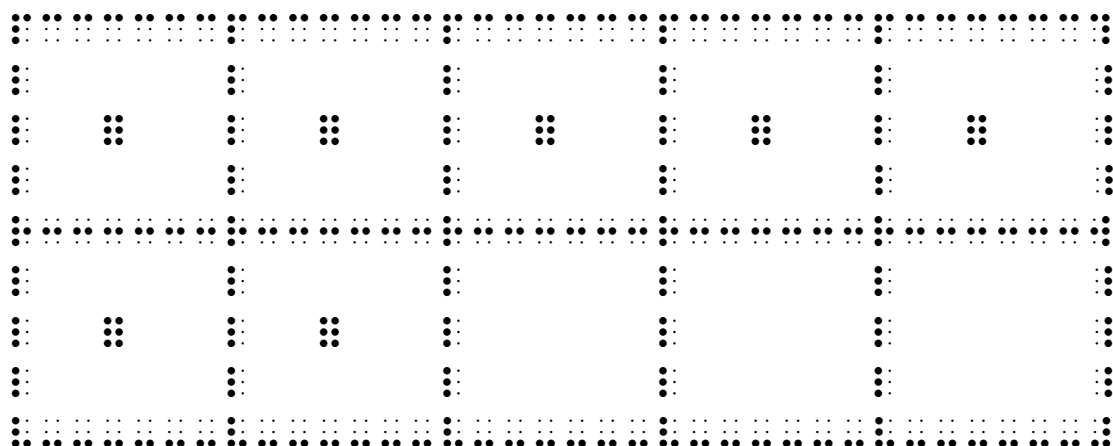
[Ten frame with 9 full braille cells, including 5 full braille cells in the top row and 4 full braille cells in the bottom row]



How can we find out how many more full braille cells are needed to make 10 in this ten frame?

That's right! We need 1 more full braille cell to make 10. How many more full braille cells are needed to make 10 in the next ten frame at the bottom of page 1?

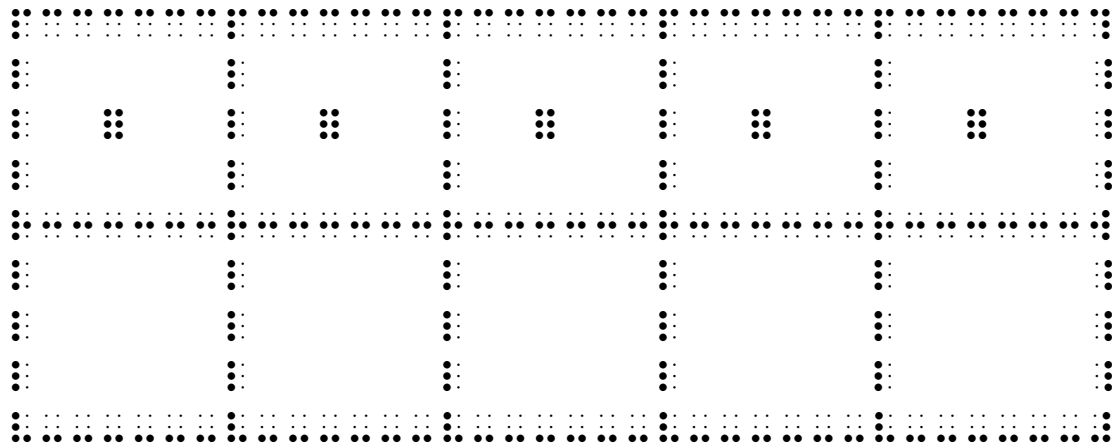
[Ten frame with 7 full braille cells, including 5 full braille cells in the top row and 2 full braille cells in the bottom row]



Way to go! We need 3 more full braille cells to make 10. How did you know that we need 3 more pennies to make 10?

Turn to page 2. How many more full braille cells are needed to make 10 in the ten frame at the top of the page?

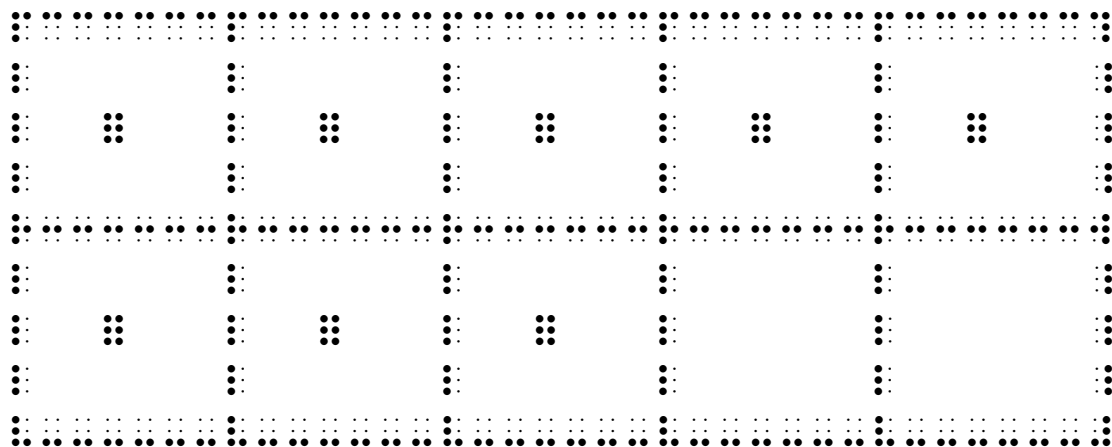
[Ten frame with 5 full braille cells, including 5 full braille cells in the top row and 0 full braille cells in the bottom row]



You got it! We need 5 more full braille cells to make 10. How did you know that we need 5 more pennies to make 10?

How many more full braille cells are needed to make 10 on the next ten frame? It is at the bottom of page 2.

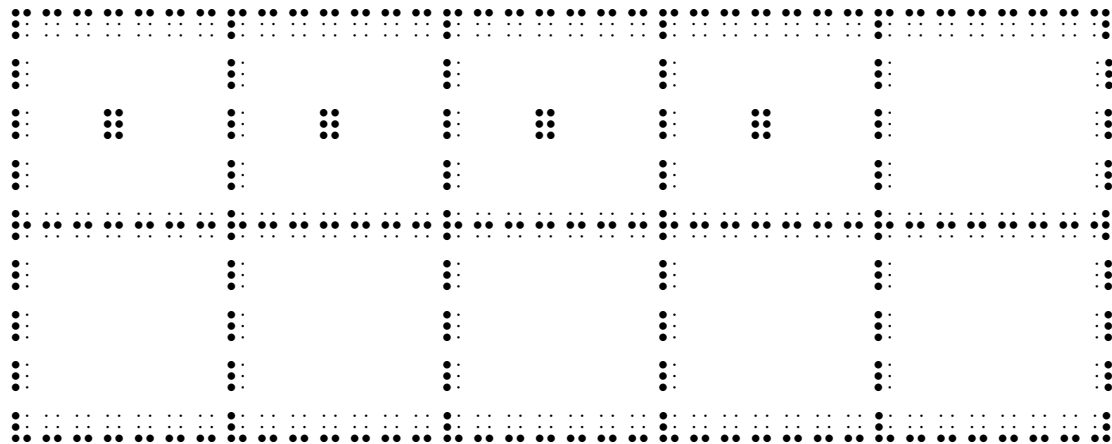
[Ten frame with 8 full braille cells, including 5 full braille cells in the top row and 3 full braille cells in the bottom row]



Yes, we need 2 more full braille cells to make 10. How did you know that we need 2 more pennies to make 10?

How many more full braille cells are needed to make 10 in the ten frame at the top of page 3?

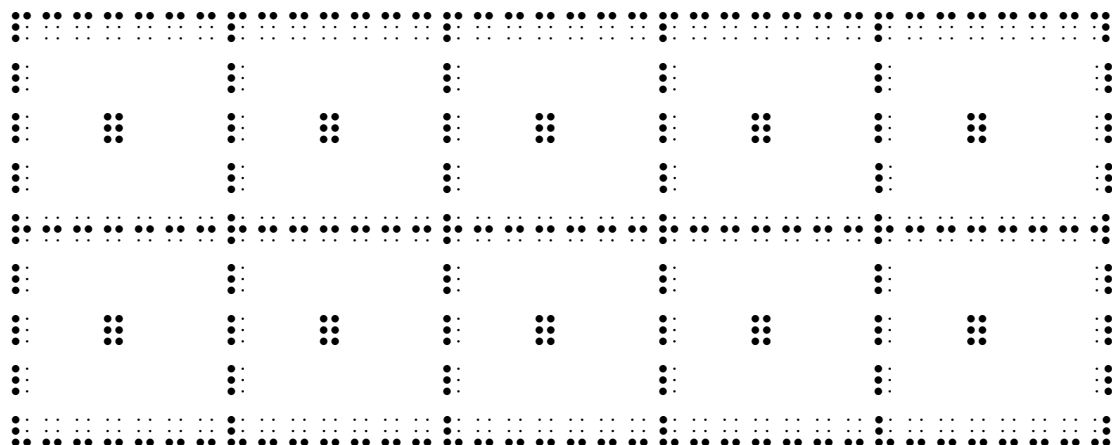
[Ten frame with 4 full braille cells, including 4 full braille cells in the top row and 0 full braille cells in the bottom row]



That's right! We need 6 more full braille cells to make 10. How did you know that we need 6 more pennies to make 10?

How many more full braille cells are needed to make 10 in the ten frame at the bottom of page 3?

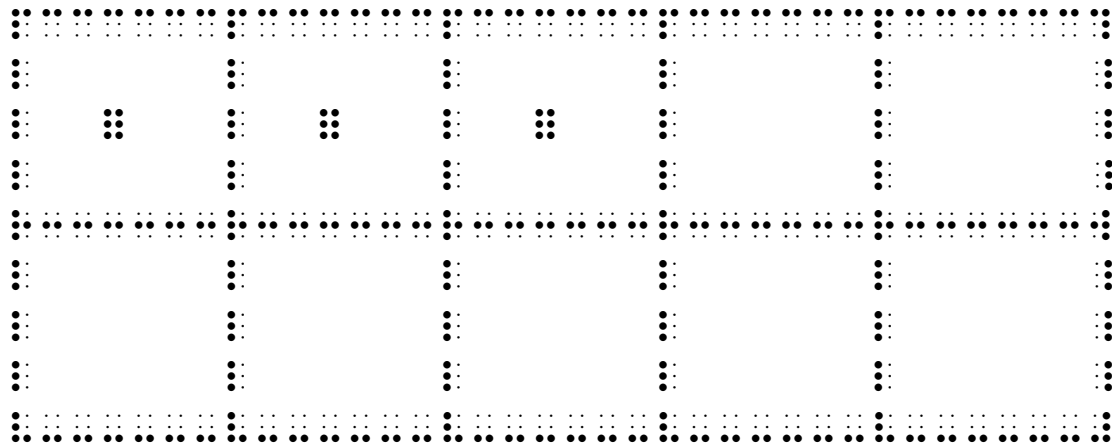
[Ten frame with 10 full braille cells, including 5 full braille cells in the top row and 5 full braille cells in the bottom row]



That's right! We do not need any more full braille cells to make 10. How do we know this? You got it! We already have 10!

Turn to page 4. How many more full braille cells are needed to make 10 in the ten frame at the top of the page?

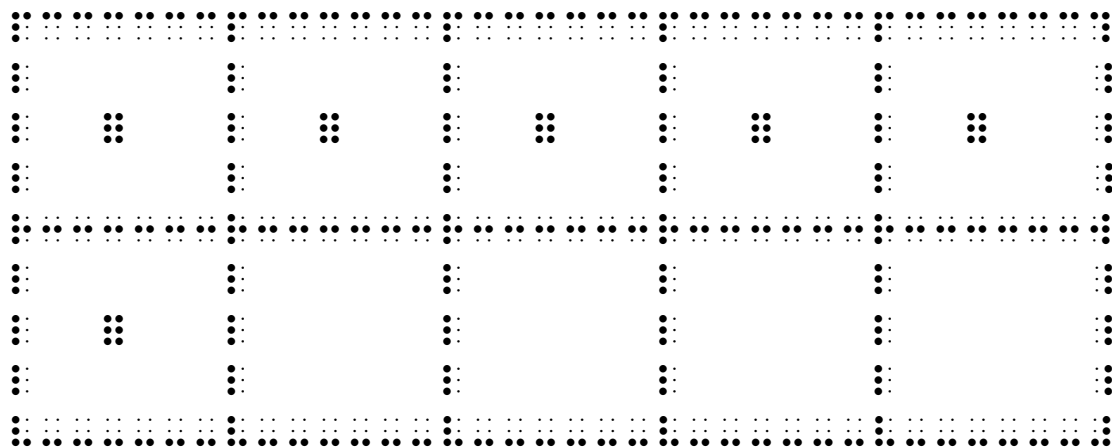
[Ten frame with 3 full braille cells, including 3 full braille cells in the top row and 0 full braille cells in the bottom row]



Yes, we need 7 more full braille cells to make 10. How did you know that we need 7 more pennies to make 1?

Just three more partially filled ten frames to go! How many more full braille cells are needed to make 10 in the ten frame at the bottom of page 4?

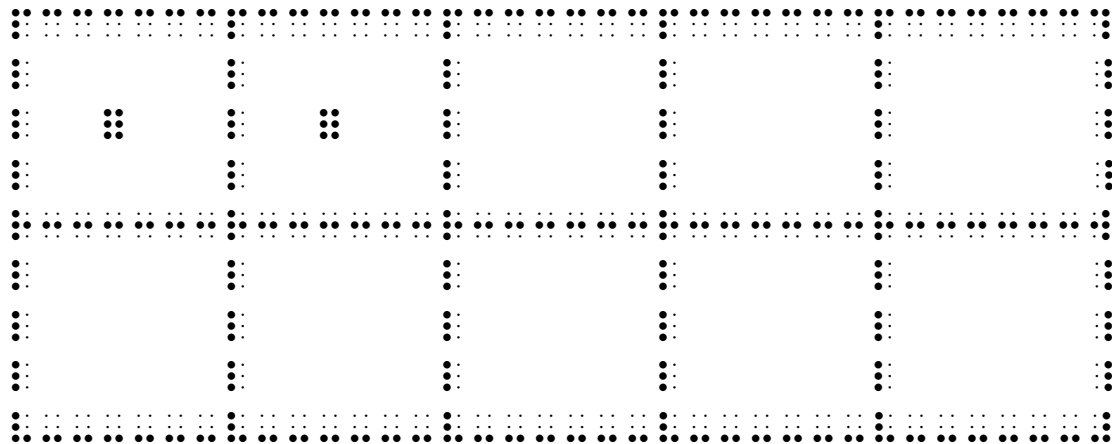
[Ten frame with 6 full braille cells, including 5 full braille cells in the top row and 1 full braille cell in the bottom row]



Yes, we need 4 more full braille cells to make 10. How did you know that we need 4 more pennies to make 10?

Turn to page 5. How many more full braille cells are needed to make 10 in the ten frame at the top of the page?

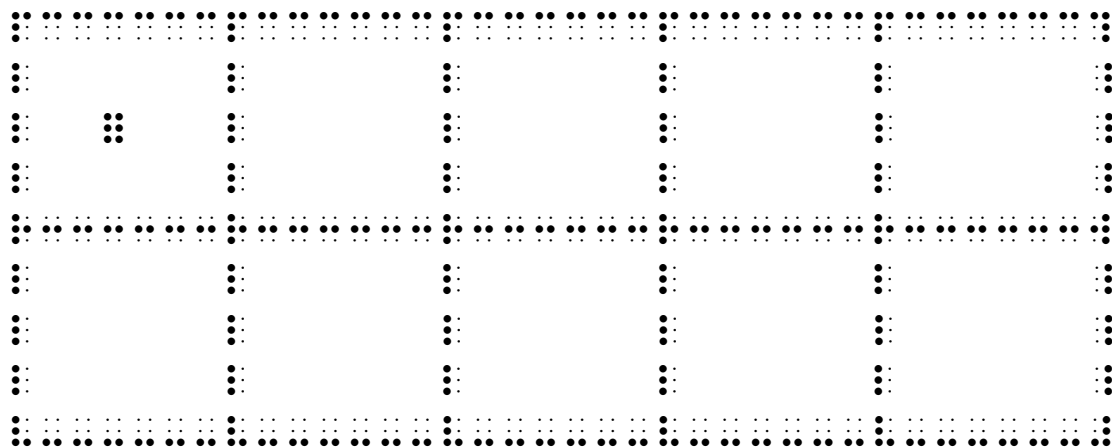
[Ten frame with 2 full braille cells, including 2 full braille cells in the top row and 0 full braille cells in the bottom row]



Yes, we need 8 more full braille cells to make 10. How did you know that we need 8 more pennies to make 10?

Just one more to go! How many more full braille cells are needed to make 10 in the last ten frame?

[Ten frame with 1 full braille cells, including 1 full braille cell in the top row and 0 full braille cells in the bottom row]



You got it! We need 9 more full braille cells to make 10. How did you know that we need 9 more pennies to make 10?

## **Activity 9**

Let's play a game called "Zoom to 10" with our ten frame and pennies! We will also need a sorting tray and 2 flashcards for each numbers from 0-10.

Shuffle your flashcards and then draw a flashcard. Read the number on the flashcard and then use your ten frame and pennies to tell me how many more are needed to make 10. As you read each number card, use a sorting tray to separate which cards you have read and which cards you have not read.

You will win the game if you can tell me how many more are needed to make 10 for all of the numbers before the timer goes off.

## **Section 8 Addition Word Problems**

### **Section 8 Materials**

- Ten frame available in uncontracted and contracted braille within the curriculum (Alternative: APH Tactile Five and Ten Frames)
- Ten pennies in a bowl or work tray (Alternatives: APH Tactile Tokens, small pieces of Wikki Stix®)
- Braillewriter
- Braille paper
- Optional: GK-M5-Writing-Answers.brf, cookie sheet or nonslip surface such as rubber shelf liner so the ten frame does not move as much

### **Section 8 Teacher Note**

Encourage the student to verbalize the process that they use to solve the problem. Provide assistance as needed.

### **Section 8 Teacher Script**

Now let's work together to solve word problems with our ten frame and pennies.

Adam made 3 goals during the soccer game, and Ravi made 4 goals. How many goals did they make altogether?

We can use pennies (or small pieces of Wikki Stix®) on the ten frame to show the goals. How many goals did Adam make?

Yes, that's right! He made 3 goals. We will need to place 3 pennies on the ten frame. We will only place 1 penny in each square, beginning with the one on the far left on the top row and then moving to the right.

How many goals did Ravi make? That's correct! Ravi made 4 goals, so let's place 4 more pennies on the ten frame. Place 4 more pennies on the ten frame, starting with the square just to the right of the first three pennies. Did you notice that you could only put two more pennies on the top row, and then you had to move to the bottom row to place the last two pennies? Did you remember to begin with the square on the far left?

How many goals did they make altogether? Let's count and find out.

Excellent counting! They made 7 goals.

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

There are 6 goats and a donkey resting in the pasture. How many animals are resting in the pasture altogether?

We can use pennies (or small pieces of Wikki Stix®) on the ten frame to show the animals. How many goats are resting in the pasture?

Yes, that's right! There are 6 goats. How many pennies should you place on the ten frame? That's right. You will place 6 pennies on the ten frame.

There is also a donkey resting in the pasture. How many more pennies should we place on the ten frame? That is correct. We need to place 1 more penny on the ten frame.

How many animals are resting in the pasture? You got it! There are 7 animals resting in the pasture.

### **Practice 8.1**

We can write an equation about the story problem.

How many pennies did you place on the ten frame originally? That's right! You placed 6 pennies on the ten frame since there were 6 goats resting in the pasture. What should you braille first? Yes, you will begin by brailleing the number 6.

Let me know when you are finished. What happened next? Yes, we added 1 more penny to the ten frame since there was also a donkey resting in the pasture. You should braille a plus sign and then the number 1 since you added 1 more penny to the ten frame.

How do you write an addition sign in braille? Yes, an addition sign is made with the dots 3-4-6. Remember that there will not be a space before or after the plus sign.

You will not need another numeric indicator after the plus sign. You will press only the dot 2 after the plus sign to write the number 1.

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

You will need another space after the equals sign. Then you will need to braille the answer. How many animals are resting in the pasture altogether? That's right! There are 7 animals, so you will write the number 7. Don't forget to write a numeric indicator since the 7 is after an equals sign.

$$6+1 = 7$$

Super work, Nemeth superstar!

## **Practice 8.2**

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

$$6+1 = 7$$

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

The boy checked out 5 books from the media center on Tuesday. On Wednesday, he checked out 4 more books. How many books did he check out on Tuesday and Wednesday altogether?

Since the boy checked out 5 books on Tuesday, how many pennies should you place on the ten frame? That's right. You will place 5 pennies on the ten frame. On Wednesday he checked out 4 more books. How many more pennies should we place on the ten frame? That is correct. We need to place 4 more pennies on the ten frame.

How many books did he check out on Tuesday and Wednesday altogether? Excellent counting! The boy checked out 9 books.



### Practice 8.3

Let's write an equation about this story problem.

How many pennies did you place on the ten frame originally? That's right! You placed 5 pennies on the ten frame since the boy checked out 5 books on Tuesday. What should you braille first? Yes, you will begin by brailleing the number 5.

Let me know when you are finished. What happened next? Yes, you placed 4 more pennies on the ten frame since the boy checked out 4 more books on Wednesday. What should you braille next? That's right, you will braille a plus sign and then the number 4 since you placed 4 more pennies on the ten frame.

How do you write a plus sign in braille? Yes, a plus sign is made with the dots 3-4-6. Remember that there will not be a space before or after the plus sign.

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

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

You will need another space after the equals sign. Then you will need to braille the answer. How many books did the boy check out altogether? That's right! He checked out 9 books, so you will write the number 9. Don't forget to write a numeric indicator since the 9 is after an equals sign.

$$5+4 = 9$$

### Practice 8.4

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

$$5+4 = 9$$

Now remove the pennies from the ten frame and place them back in the work tray.

Now it is your turn to solve five word problems using the ten frame and pennies by yourself. Use your braillewriter to write your answers. Don't forget to number the problems and use your line spacing key twice between each problem!

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

### **Practice 8.5**

1. Thomas and his stepsister found 5 seashells on the beach. His cousin found 3 more seashells. How many seashells do they have altogether?

### **Practice 8.6**

2. Sara helped her grandmother with the dishes. She washed 2 bowls and 4 plates. How many dishes did she wash altogether?

### **Practice 8.7**

3. Cassie has a new job. She bakes bagels and muffins every day for the bagel shop. She baked 6 onion bagels and 4 blueberry muffins yesterday. How many items did she bake altogether?

### **Practice 8.8**

4. Tony and his daughter collect baseball cards, so they visited a new baseball card shop together. Tony purchased 2 baseball cards, and his daughter purchased 5 baseball cards. How many baseball cards did they purchase altogether?

### **Practice 8.9**

5. There are 7 red-eyed tree frogs and 3 waxy monkey frogs in the rainforest. How many frogs are there altogether in the rainforest?

## **Section 9 Reading Numbers 50-75**

### **Section 9 Materials**

Student Braille Document: GK-M5-Student-Materials.brf

### **Section 9 Teacher Notes**

- If the student stops counting before reaching 100, it may be helpful to practice counting to 100 before continuing.
- If a student reads any numbers incorrectly, tell the student the correct way to read the number.

## Section 9 Teacher Script

Let's continue the ninth part of the adventure by counting to 100 together.

[Numbers 1 to 100]

1 2 3 4 5 6 7 8 9 10  
11 12 13 14 15 16 17 18 19 20  
21 22 23 24 25 26 27 28 29 30  
31 32 33 34 35 36 37 38 39 40  
41 42 43 44 45 46 47 48 49 50  
51 52 53 54 55 56 57 58 59 60  
61 62 63 64 65 66 67 68 69 70  
71 72 73 74 75 76 77 78 79 80  
81 82 83 84 85 86 87 88 89 90  
91 92 93 94 95 96 97 98 99 100

That was super counting! Before we use the Grid Board to build a chart to 100, let's practice reading numbers together.

Turn to page 6 in your braille document and begin reading the numbers at the top of the page.

51      52      53      54  
⠠⠼⠑⠠⠼⠑⠠⠼⠑⠠⠼⠑  
55      56      57      58  
⠠⠼⠑⠠⠼⠑⠠⠼⠑⠠⠼⠑  
59      60      61      62  
⠠⠼⠑⠠⠼⠑⠠⠼⠑⠠⠼⠑

63      64      65      66  
⠠⠠⠠⠠   ⠠⠠⠠⠠   ⠠⠠⠠⠠   ⠠⠠⠠⠠

67      68      69      70  
⠠⠠⠠⠠   ⠠⠠⠠⠠   ⠠⠠⠠⠠   ⠠⠠⠠⠠

71      72      73      74      75  
⠠⠠⠠⠠   ⠠⠠⠠⠠   ⠠⠠⠠⠠   ⠠⠠⠠⠠   ⠠⠠⠠⠠

That was excellent reading! Move your hands down to the next line of braille and let's read the numbers from 51 to 75 together once more.

[Make sure the student is viewing the last six lines of braille on page 6.]

51      52      53      54  
⠠⠠⠠⠠   ⠠⠠⠠⠠   ⠠⠠⠠⠠   ⠠⠠⠠⠠

55      56      57      58  
⠠⠠⠠⠠   ⠠⠠⠠⠠   ⠠⠠⠠⠠   ⠠⠠⠠⠠

59      60      61      62  
⠠⠠⠠⠠   ⠠⠠⠠⠠   ⠠⠠⠠⠠   ⠠⠠⠠⠠

63      64      65      66  
⠠⠠⠠⠠   ⠠⠠⠠⠠   ⠠⠠⠠⠠   ⠠⠠⠠⠠

67      68      69      70  
⠠⠠⠠⠠   ⠠⠠⠠⠠   ⠠⠠⠠⠠   ⠠⠠⠠⠠

71      72      73      74      75  
⠠⠠⠠⠠   ⠠⠠⠠⠠   ⠠⠠⠠⠠   ⠠⠠⠠⠠   ⠠⠠⠠⠠

That was super reading, Nemeth all-star!

## Practice 9.1

Turn to page 7 and read just the numbers in the first six lines of braille. All of the numbers will be from 51 to 75.

Figure 1 displays five 3x3 grids, each containing a unique pattern of filled (black) and empty (white) cells. The patterns are as follows:

- Grid 1:** Filled cells at (1,1), (2,1), (2,2), (2,3), (3,1), (3,2), (3,3). Empty cells at (1,2), (1,3), (3,1).
- Grid 2:** Filled cells at (1,1), (1,2), (2,1), (2,2), (2,3), (3,1), (3,2), (3,3). Empty cells at (1,3), (2,3), (3,3).
- Grid 3:** Filled cells at (1,1), (1,2), (2,1), (2,2), (2,3), (3,1), (3,2), (3,3). Empty cells at (1,3), (2,3), (3,3).
- Grid 4:** Filled cells at (1,1), (1,2), (2,1), (2,2), (2,3), (3,1), (3,2), (3,3). Empty cells at (1,3), (2,3), (3,3).
- Grid 5:** Filled cells at (1,1), (1,2), (2,1), (2,2), (2,3), (3,1), (3,2), (3,3). Empty cells at (1,3), (2,3), (3,3).

### Fun Fact 6

Scooters were invented almost 200 years ago in Germany.

## Practice 9.2

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

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

Excellent matching, Nemeth super star!

### Practice 9.3

Turn to page 8 and let's try a few more! Remember to say "scooter" when you find the match!

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

### Practice 9.4

Let's practice reading numbers between 1 and 75. There will be 3 numbers on each line.

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

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

That was super reading!

### Practice 9.5

Turn to page 9 and let's try a few more.

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

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

### Fun Fact 7

Many kick scooters are made of aluminum, just like soda cans.

## Section 10 Reading Numbers 76-100

### Section 10 Materials

- Student Braille Document: GK-M5-Student-Materials.brf
- Activity 10
  - Timer
  - Five flashcards for each number from 51-100 shuffled

### Section 10 Teacher Note

If a student reads any numbers incorrectly, tell the student the correct way to read the number.

### Section 10 Teacher Script

Now we are ready to practice reading numbers 76-100 together.

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

76      77      78      79  
⠠⠠⠠⠠ ⠠⠠⠠⠠ ⠠⠠⠠⠠ ⠠⠠⠠⠠  
80      81      82      83  
⠠⠠⠠⠠ ⠠⠠⠠⠠ ⠠⠠⠠⠠ ⠠⠠⠠⠠

84      85      86      87  
⠠⠠⠠⠠   ⠠⠠⠠⠠   ⠠⠠⠠⠠   ⠠⠠⠠⠠

88      89      90      91  
⠠⠠⠠⠠   ⠠⠠⠠⠠   ⠠⠠⠠⠠   ⠠⠠⠠⠠

92      93      94      95  
⠠⠠⠠⠠   ⠠⠠⠠⠠   ⠠⠠⠠⠠   ⠠⠠⠠⠠

96      97      98      99      100  
⠠⠠⠠⠠   ⠠⠠⠠⠠   ⠠⠠⠠⠠   ⠠⠠⠠⠠   ⠠⠠⠠⠠⠠

That was excellent reading! Turn to page 10 and read the numbers from 76 to 100 together with me once more.

76      77      78      79  
⠠⠠⠠⠠   ⠠⠠⠠⠠   ⠠⠠⠠⠠   ⠠⠠⠠⠠

80      81      82      83  
⠠⠠⠠⠠   ⠠⠠⠠⠠   ⠠⠠⠠⠠   ⠠⠠⠠⠠

84      85      86      87  
⠠⠠⠠⠠   ⠠⠠⠠⠠   ⠠⠠⠠⠠   ⠠⠠⠠⠠

88      89      90      91  
⠠⠠⠠⠠   ⠠⠠⠠⠠   ⠠⠠⠠⠠   ⠠⠠⠠⠠

92      93      94      95  
⠠⠠⠠⠠   ⠠⠠⠠⠠   ⠠⠠⠠⠠   ⠠⠠⠠⠠

96      97      98      99      100  
⠠⠠⠠⠠   ⠠⠠⠠⠠   ⠠⠠⠠⠠   ⠠⠠⠠⠠   ⠠⠠⠠⠠⠠



## Practice 10.1

Continue to the next line of braille and read just the numbers. All of the numbers will be from 76 to 100.

[Make sure the student is viewing the last six lines of braille on page 10.]

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

## Practice 10.2

Turn to page 11 and let's practice reading numbers from 76-100. There will be 3 numbers on each line.

: : : : : : : : : : : :  
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On the last line of braille, 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.

## **Activity 10**

Use your flashcards to practice reading the numbers 51-100. 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!

Congratulations! You are a Nemeth champion!

## **Fun Fact 8**

Some scooters designed for young children are made of plastic.

# **Section 11 Building the Hundreds Chart to 100**

## **Section 11 Materials**

- Grid board (either the Grid Board from the Hundreds Board and Manipulatives Kit from the APH or one that you create from 1-inch graph paper, graphic art tape, and/or braille paper)
- Number cards from 1-100 that fit onto the grid board (either the Numbers Set from the APH Hundreds Board and Manipulatives Kit or a set of number cards that you create with a braillewriter and 1-inch pieces of index cards)
- Sorting tray with 5-section divider
- Optional: hard copy of numbers in order, APH Number Board, or APH Consumable Hundreds Chart to use as a model; nonslip surface such as a rubber shelf liner or sorting tray so numbers will not move as much
- Activity 11: Grid board with numbers 1-100 placed on the board (Alternatives: APH number board, APH Consumable Hundreds Chart)

## **Section 11 Teacher Notes**

- The student will use a Grid Board to create a number chart. If you do not have a Grid Board and Numbers Set from APH, you can use 1-inch graph paper to create a Grid Board. You can use a braillewriter and 1-inch pieces of index cards to create the number cards. Another option is to use the APH Feel 'n Peel Stickers: Nemeth Braille-Print Numbers to create the number cards.
- If preferred, you can use graphic art tape and braille paper to create a Grid Board. Another option is to use flashcards, Velcro, and a large piece of construction paper to create the charts.

- If necessary, model how to separate the number cards into groups. This will make it easier to build the hundreds chart.
- Have the student begin by locating the numbers on the chart and reading them. Then build the chart together with the student. At first, model placing a few of the numbers and explaining how you know where the numbers fit. Then encourage the student to place some of the numbers and explain how they know where the numbers fit.
- Once you have completed building the chart together, have the student touch each number and read it. This process can easily be completed multiple times if the student requires additional practice.
- If needed, provide a hard copy of numbers in order or the APH Number Board to use as a model. You may also use an APH Consumable Hundreds Chart.
- It may help to place the numbers on a nonslip surface such as a rubber shelf liner or a work tray so they will not move as much.
- Afterwards, have the student help you remove the numbers and then build the chart by themselves. It may be helpful to take notes about how quickly the student can place numbers and how well they can explain how they know where the numbers fit.
- Building the hundreds chart may be repeated as needed.

## **Section 11 Teacher Script**

For the eleventh part of the adventure, let's use our Grid Board again to build a hundreds chart together. This time we will be building to 100. We will use all of the rows, similar to how we built charts to 10, 20, 30 and 50.

The Grid Board contains 10 rows. Place your hands on the top row of the Grid Board. A row goes from the left to the right. Move your hands across the row from left to right. Now place your hands on the bottom row of the Grid Board. Move your hands across the bottom row from left to right. You got it!

The Grid Board also contains 10 columns. A column goes from the top to the bottom. Place your hands on the column on the far left of the Grid Board. Move your hands down the column from top to bottom. Nice work! Now place your hands on the column on the far right of the Grid Board. Move your hands down the column from top to bottom. You got it!

[Ensure that the numbers 4, 8, 11, 13, 27, 28, 32, 37, 45, 49, 51, 53, 64, 67, 71, 77, 82, 86, 91, and 96 are placed on the Grid Board before continuing.]

I have placed 2 numbers on each row of the board. Scan the top row from left to right and find the numbers.

What numbers did you find? Yes, the numbers are 4 and 8. Now find the number on the second row. What numbers did you find? That's right. The numbers are 11 and 13. What two numbers did you find on the third row? The numbers on the third row are 27 and 28.

Now find the fourth row. What numbers did you find? That is correct! The numbers are 32 and 37. Now find the fifth row. What numbers did you find? The numbers are 45 and 49. Find the sixth row. What numbers did you find? The numbers 51 and 53. Excellent work, Nemeth superstar!

Now find the seventh row. What numbers did you find? The numbers were 64 and 67. Move down, find the next row, and then read the numbers. Yes, the numbers are 71 and 77. Only two more rows to go!

Move down, find the next row, and then read the numbers. Yes, the numbers are 82 and 86. Now find the bottom row. What numbers did you find? That's correct! The numbers are 91 and 96. Excellent work!

### **Practice 11.1**

Now let's work together to place the rest of the numbers from 1 to 100 on the Grid Board.

Great work! Now read the numbers on the chart, beginning with 1. Ready, set, go!

Help me remove 5 numbers from each row of the Grid Board so that you can build the chart to 100 by yourself. You get to choose which numbers you remove.

Now try to build the chart to 100 by yourself! You did it! Way to go! Now remove all of the numbers and try to build the chart to 100 by yourself. On your mark, get set, go!

We can use our chart to help us begin counting with any number. For example, if we want to count beginning with 71 we would use our fingers to find 71 and what number is next to it on the hundreds chart. Find 71 on the chart. What number is next to it? That's right. 72 is next to 71. We are ready to count beginning with 71. Stop counting when you reach 100.

[Hundreds chart numbers 71-100]

71 72 73 74 75 76 77 78 79 80

81 82 83 84 85 86 87 88 89 90

91 92 93 94 95 96 97 98 99 100

That was excellent counting! Now let's use our chart to count beginning with 58. What is the first step? That is correct. Begin by finding 58 on the chart. What is the next step? Find the number that is next to 58. You got it! 59 is next to 58.

You are ready to use the chart and count beginning with 58.

[Hundreds chart numbers 58 to 100]

58 59 60

61 62 63 64 65 66 67 68 69 70

71 72 73 74 75 76 77 78 79 80

81 82 83 84 85 86 87 88 89 90

91 92 93 94 95 96 97 98 99 100

### **Activity 11**

Use your chart and count beginning with the following numbers. You can stop counting each time when you reach 100.

#### **Practice 11.2**

First, count beginning with 43. Second, count beginning with 17. Third, count beginning with 84. Fourth, count beginning with 60.

## **Section 12: One More, One Less, and Skip Counting**

### **Section 12 Materials**

- Grid board with numbers 1-100 placed on the board (Alternatives: APH number board, APH Consumable Hundreds Chart)
- Activity 12: same materials used in Section 12

## Section 12 Teacher Notes

### Activity 12

- Repeat saying each problem if needed. Also assist the student in locating the number on the chart as needed.
- When counting by 10s beginning with 10, have the student move their hands to the next row and count to 10 with you each time.
- When counting by 10s beginning with 5, have the student move their hands from left to right and count to 10 with you each time.

## Section 12 Teacher Script

For the next part of our adventure, let's practice using our chart to 100 to help us solve problems about "one more" and "one less". Tell me what number is one more than 73. That's right! 74 is one more than 73. What number is one more than 64? You got it now! 65 is one more after 64. What number is one more than 80? Yes, 81 is one more than 80.

Let's try a couple more. What number is one more than 38? That is correct! 39 is one more than 38. What number is one more than 91? You got it! 92 is one more than 91. Now give me an example about "one more".

Now let's try some problems about "one less". What number is one less than 72? You got it! 71 is one less than 72. What number is one less than 38? You got it! 37 is one less than 38.

Let's try another one. What number is one less than 56? You got it! 55 is one less than 56. Now give me an example about "one less".

### Fun Fact 9

It is important to wear a helmet when riding a scooter!

### Activity 12

You will not need any new materials for this activity. Listen carefully as I read each problem, and then use your chart to answer the questions aloud.

#### Practice 12.1

1. What number is one less than 94?

#### Practice 12.2

2. What number is one more than 76?

**Practice 12.3**

3. What number is one less than 47?

**Practice 12.4**

4. What number is one more than 71?

**Practice 12.5**

5. What number is one less than 83?

Let's try a few more.

**Practice 12.6**

6. What number is one less than 61?

**Practice 12.7**

7. What number is one more than 30?

**Practice 12.8**

8. What number is one more than 52?

**Practice 12.9**

9. What number is one less than 88?

**Practice 12.10**

10. What number is one less than 94?

That was excellent work! Now let's practice skip counting by 10s to 100 together.

10 20 30 40 50 60 70 80 90 100

Now let's use our hundreds 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 5? 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 5, using our chart, and find out.

5 15 25 35 45 55 65 75 85 95

Notice how all of the numbers for skip counting by 10s beginning with 5 are in the same column again. The last digit for all of the numbers is 5.

Way to go! Now let's skip count by 10s using our column pattern. Begin with 2 and go down the column on the chart.

2 12 22 32 42 52 62 72 82 92

Let's try one more! Skip count by 10s beginning with 7, using our chart.

7 17 27 37 47 57 67 77 87 97

## **Section 13: Review**

### **Section 13 Materials**

- Activity 13: Grid board with numbers 1-100 placed on the board (Alternatives: APH number board, APH Consumable Hundreds Chart)
- Activity 14
  - Grid board with numbers 1-100
  - Sorting tray with 5-section divider
  - Optional: hard copy of numbers in order, APH Number Board, or APH Consumable Hundreds Chart to use as a model; nonslip surface such as a rubber shelf liner or sorting tray so numbers will not move as much

### **Section 13 Teacher Notes**

- Activity 13
  - Offer assistance if the student has difficulty developing clues about their special number.
  - If desired, the student can develop clues for additional numbers.
- Activity 14
  - Pause at the end of each sentence to allow the student time to complete each step in the process. If the student seems to struggle, model the process for the student.
  - This activity could easily be completed with peers as long as each student has a chart to 100.



## Section 13 Teacher Script

### Activity 13

Let's play "Guess My Special Number" again. The only thing you will need is your chart. Listen carefully to my clues so that you can guess my special number. Do you remember what a clue is? It is information that gives you a hint about my special number.

Here we go. My special number is on the bottom row, and it is one more than 98. What is my number?

That's right! My special number is 99. Let's try another. My special number is ten more than 60.

You got it! My special number is 70. Let's try another. My special number is ten less than 83.

My special number is 73. Listen carefully because this time I will be sharing two clues about my next special number.

My number is a two-digit number. It is one more than 87. Do you know what my special number is?

Excellent work, math detective! My number is 88. Let's try two more. My special number is a two-digit number, and it is ten more than 55. What is my special number?

Way to go! My number is 65. My special number is in the last column on the right and is one more than 59. What is my special number?

Yes, my special number is 60. Now it is your turn to give me clues so that I can figure out your special number.

### Activity 14

Begin by making sure the grid board is now empty and then use the Grid Board, numbers, and sorting tray to re-create the chart to 100. Then see if you can follow the directions to my special number.

Let's practice together the first time.

Begin by finding the number 63. Next move down two rows. What is my number?

That is right! My number is 83.

Let's try another one together.

Begin by finding the number 40. Move up three rows. Now move three to the left. What is my number?

Perfect! My number is 13.

Now you try one by yourself. Here are the directions:

Begin by finding number 73. Move up one row. Now move to the left two numbers. Next move down two rows. What number are you on?

Excellent work with the 100s chart! My special number was 81.

Let's see if you can follow the directions to another special number.

Begin by finding number 38. Move up three rows. Now move to the right one number. Next move down five rows. Finally move to the left two numbers. What is my special number?

You got it! My special number is 57.

Follow the directions to find my last special number.

Begin by finding number 88. Move up four rows. Now move to the left two numbers. Next move down two rows. What is my special number?

You got it! My special number is 66.

Now it is your turn to give me directions to a special number!

Now you are ready for the last stop: module 5 check-up! Thank you for all of your hard work! You are a Nemeth all-star!