First Grade Nemeth Braille Code Curriculum
Module 5: Understanding Place Value and Numbers to 120

It's time to prepare for a ride in a glider! Before we begin our journey, let's review counting to 100 together.

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

Note: *If the student stops counting before reaching 100, it may be helpful to practice counting to 100 before moving to the next section.*

Way to go, number superstar! For the first part of the adventure, let's review how to use our Grid Board to build a hundreds chart.

Do you remember how many rows the Grid Board has? Yes, it 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 first column from top to bottom. Nice work! Now place your hands on the column on the far right of the Grid Board. Then move your hands down the last column from top to bottom. You got it!

Note: *Ensure that all numbers except 5, 8, 14, 17, 28, 29, 34, 42, 48, 53, 65, 67, 72, 77, 81, 86, 93 have been removed from the Grid Board before continuing.*

Now I am going to place 1 or 2 numbers on each row of the board. Scan the top row from left to right and find the first number.

What numbers did you find? Yes, the numbers are 5 and 8. Now find the numbers on the second row. What numbers did you find? That's right. The numbers are 14 and 17. What two numbers did you find on the third row? The numbers on the third row are 28 and 29.

Now find the fourth row. What number did you find? That is correct! The number is 34. Now find the fifth row. What numbers did you find? The numbers are 42 and 48. Find the sixth row. What number did you find? The number is 53. Excellent work, Nemeth superstar!

Now find the seventh row. What numbers did you find? The numbers are 65 and 67. Move down, find the next row, and then read the numbers. Yes, the numbers are 72 and 77. Only two more rows to go!

Move down, find the next row, and then read the numbers. Yes, the numbers are 81 and 86. Now find the bottom row. What number did you find? That's correct! The number is 93. Excellent work!

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

Note: *This would be an excellent time to use a sorting tray. If necessary, model how to separate the number cards into groups. This will make it easier to build the hundreds chart.*

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

Answer:

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

Fun fact: A glider is like an airplane, but it does not have an engine and its wings are much longer.

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.

Note: *If needed, provide a hard copy of numbers in order or the APH Number Board to use as a model. The APH Consumable Hundreds Chart can be used instead. It may also 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.*

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!

Answer:

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

Note: *This activity may be repeated as needed.*

Fun fact: Types of gliders include hang gliders, sailplanes, toy gliders, and space shuttles.

For the second part of the adventure, we will be learning about the numbers 101 to 120. Let's begin with counting aloud from 61 to 120.

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

101 102 103 104 105 106 107 108 109 110

111 112 113 114 115 116 117 118 119 120

Note: *Ensure that the student knows how the numbers over 100 are voiced. For example, 101 is voiced as one hundred one, and 115 is voiced as one hundred fifteen. Notice that the word "and" is not used when voicing whole numbers.*

If the student stops counting before reaching 120, it may be helpful to practice counting to 120 before moving to the next section. There are multiple counting songs available online if you would like to incorporate music into the overview of counting from 1-120.

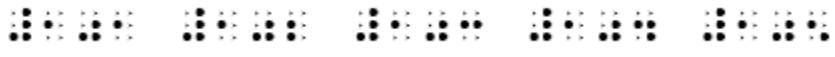
Before we begin reading numbers 101-120, locate the first line of braille on page 1. It is at the top of the page. Softly glide your fingers across the line. It says First Grade Nemeth. Now move your hands down to the second line of braille on the page. It says Curriculum Module 5. Now move your hands down to the third line of braille on the page.

There is just one symbol on the third line. It is on the left side of the page.

Do you remember what this symbol is called? You got it! It is called an opening Nemeth Code indicator! This symbol tells us that we are going to read math or science.

Now let's practice reading numbers 101-120 together.

101 102 103 104 105



106 107 108 109 110

111 112 113 114 115

116 117 118 119 120

That was excellent reading! Let read the numbers from 101 to 120 together once more.

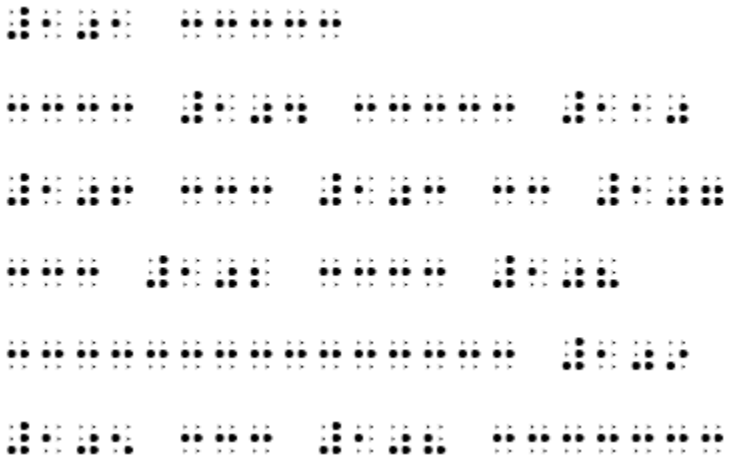
101 102 103 104 105

106 107 108 109 110

111 112 113 114 115

116 117 118 119 120

Find the top line of braille on page 2 and read just the numbers. All of the numbers will be from 101 to 110.



Answer:

101

104 110

106 103 107

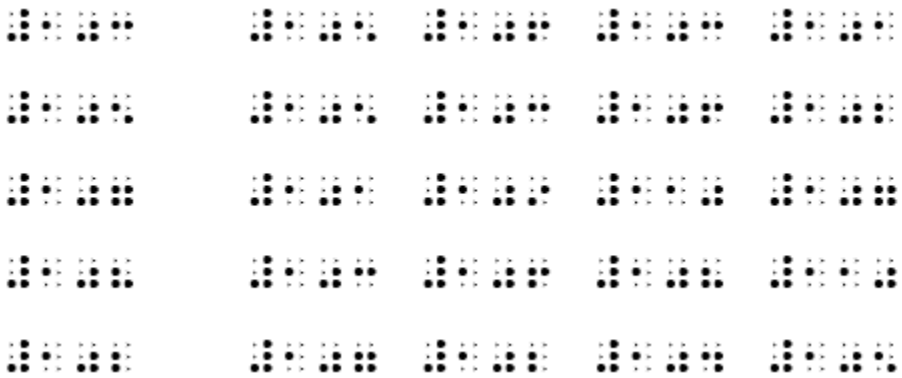
102 108

109

105 108

Fun fact: A paper airplane is a small and inexpensive glider. When you throw a paper airplane, it moves through the air.

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



Answer:

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

Line 1: 103 (3rd item on answer choices)

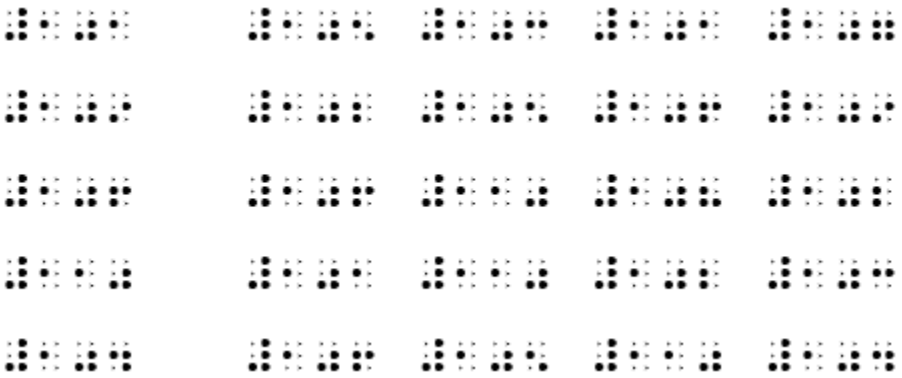
Line 2: 105 (1st item on answer choices)

Line 3: 107 (last item on answer choices)

Line 4: 108 (3rd item on answer choices)

Line 5: 102 (2nd item on answer choices)

Excellent matching, Nemeth super star! Now turn to page 3 and let's try a few more! Remember to say "glide" when you find the match!



Answer:

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

Line 1: 101 (3rd item on answer choices)

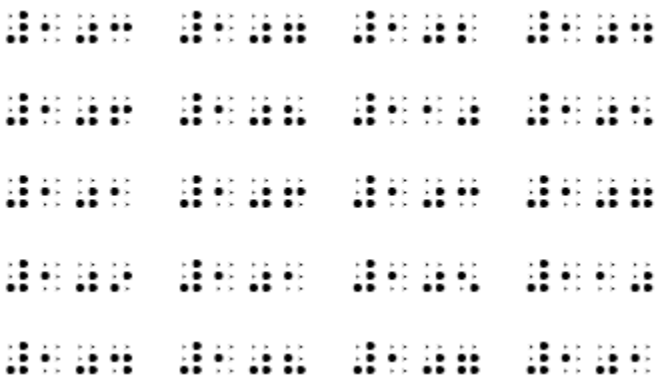
Line 2: 109 (last item on answer choices)

Line 3: 106 (1st item on answer choices)

Line 4: 110 (2nd item on answer choices)

Line 5: 104 (last item on answer choices)

Now practice reading numbers from 101-110. There will be 4 numbers on each line.



Answer:

103 107 102 104

106 108 110 105

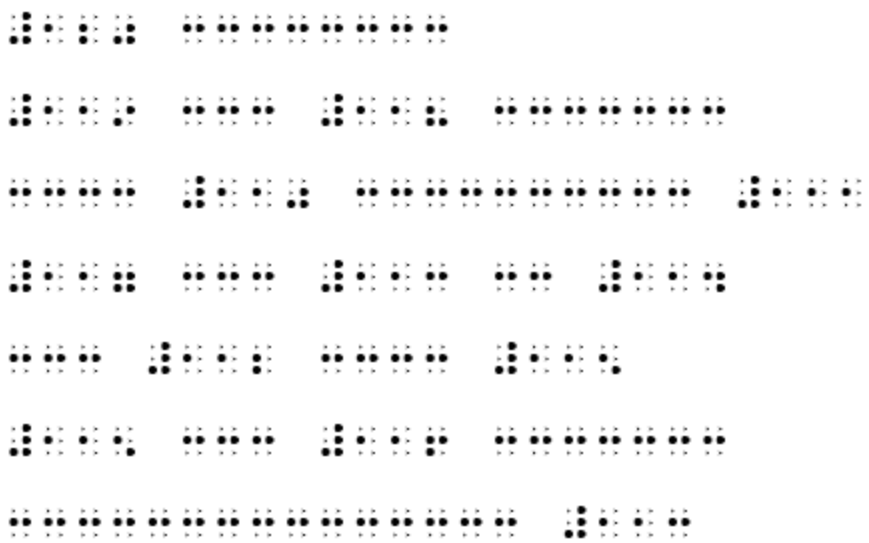
101 106 103 107

109 101 105 110

104 108 107 101

Fun fact: Hang gliders are piloted aircraft that have wings made of cloth.

Continue to the next page of braille and find the top line of braille. Then read just the numbers. For this activity, all of the numbers will be from 111 to 120.



Answer:

120

119 118

110 111

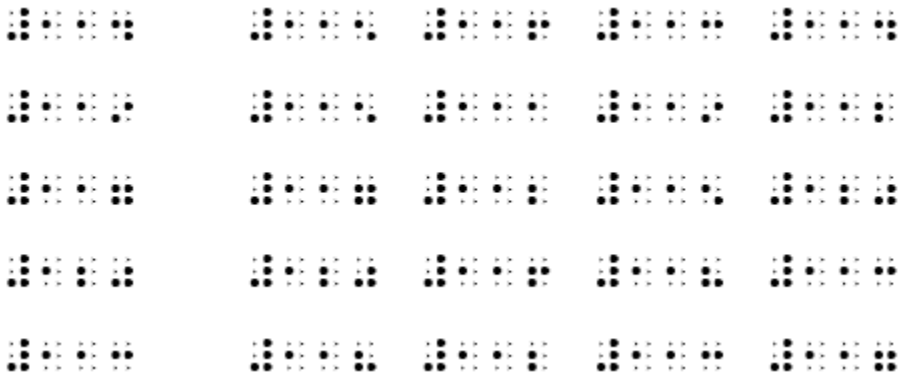
117 113 114

112 115

115 116

113

Now read the number at the beginning of each line and then find its match on the line of braille. Say “cross country” when you find the match!



Answer:

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

Line 1: 114 (last item on answer choices)

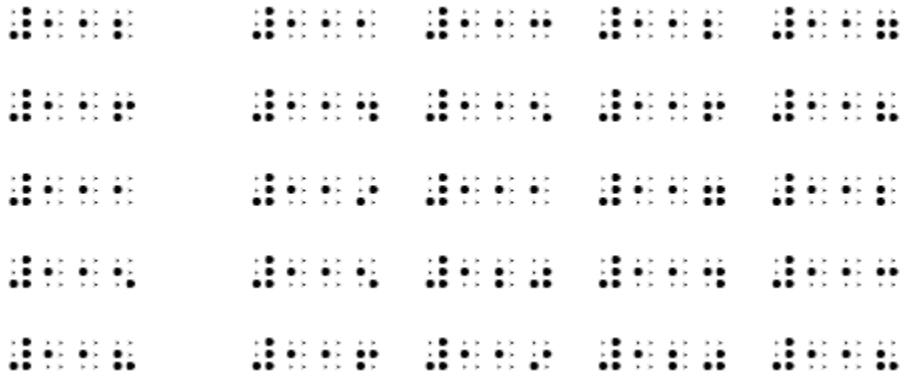
Line 2: 119 (3rd item on answer choices)

Line 3: 117 (1st item on answer choices)

Line 4: 120 (1st item on answer choices)

Line 5: 113 (3rd item on answer choices)

Let's try a few more on page 5! Remember to say "cross country" when you find the match!



Answer:

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

Line 1: 112 (3rd item on answer choices)

Line 2: 116 (3rd item on answer choices)

Line 3: 111 (2nd item on answer choices)

Line 4: 115 (1st item on answer choices)

Line 5: 118 (last item on answer choices)

Now practice reading numbers from 101-120. There will be 5 numbers on each line.

Answer:

103 117 102 116 104

106 119 108 110 115

101 106 120 113 107

109 101 105 110 101

114 118 117 101 112

102 104 119 120 111

Note: *Flash cards are available in braille within the curriculum. It may be helpful to place the flash cards on a nonslip surface such as a rubber shelf liner for this activity.*

Activity time: Use your flash cards to practice reading the numbers 101-120. 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: The Space Shuttle returns to earth as a glider; the rocket engines are used only during lift off.

For the third part of the adventure, let's learn to use a Counting to 120 Chart. It is similar to a hundreds chart except that it contains all of the numbers to 120, instead of just 100.

Note: *The Counting to 120 Chart is included in the curriculum. Please note the chart incorporates a 40 cell line. There is not a title in the braille document so that all of the numbers fit on one page.*

Begin by locating the first line of braille on page 1. Similar to other hundreds charts, the numeric indicators are left off so that we can fit 10 numbers on a line. So the first line of braille would be read: 1, 2, 3, 4, 5, 6, 7, 8, 9, and 10.

Place your hands on the top row of the Counting to 120 Chart. Move your hands across the row from left to right. Now place your hands on the bottom row of the Counting to 120 Chart. Move your hands across the bottom row from left to right. You got it! Now count how many rows are on the Counting to 120 Chart.

Yes, the Counting to 120 Chart contains 12 rows.

Note: *Provide assistance in counting the rows if needed.*

The Counting to 120 Chart contains 10 columns. A column goes from the top to the bottom. Place your hands on the column on the far left of the Counting to 120 Chart. 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 Counting to 120 Chart. Move your hands down the column from top to bottom. You got it!

We can use our Counting to 120 Chart to help us begin counting with any number. For example, let's count beginning with 81. First, find 81 by going down to the row with the 80s. Now, find 81 in that row on the chart. What number comes after 81? That’s right. 82 comes after 81. We are ready to continue counting. Stop counting when you reach 120.

81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100
101	102	103	104	105	106	107	108	109	110
111	112	113	114	115	116	117	118	119	120

That was excellent counting! Now let’s use our chart to count beginning with 48. What is the first step? That is correct. Begin by finding 48 on the chart. What is the next step? Yes, find the number that comes after 48. You got it! 49 comes after 48.

You are ready to use the chart and count beginning with 48.

							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
101	102	103	104	105	106	107	108	109	110
111	112	113	114	115	116	117	118	119	120

Activity time: Use your chart and count beginning with the following numbers. You can stop counting each time when you reach 120.

First, count beginning with 34. Second, count beginning with 11. Third, count beginning with 87. Fourth, count beginning with 60.

Answer:

			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
101	102	103	104	105	106	107	108	109	110
111	112	113	114	115	116	117	118	119	120

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
101	102	103	104	105	106	107	108	109	110
111	112	113	114	115	116	117	118	119	120

						87	88	89	90
91	92	93	94	95	96	97	98	99	100
101	102	103	104	105	106	107	108	109	110
111	112	113	114	115	116	117	118	119	120

									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
101	102	103	104	105	106	107	108	109	110
111	112	113	114	115	116	117	118	119	120

For the next part of our adventure, let's practice using our Counting to 120 Chart to help us solve problems about "one more" and "one less". Tell me what number is one more than 113. That's right! 114 is one more than 113. What number is one more than 64? You got it now! 65 is one more after 64. What number is one more than 90? Yes, 91 is one more than 90.

Let's try a couple more. What number is one more than 108? That is correct! 109 is one more than 108. What number is one more than 119? You got it! 120 is one more than 119. Now you 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 46? You got it! 45 is one less than 46.

Let's try another one. What number is one less than 113? You got it! 112 is one less than 113. Now you give me an example about "one less".

Fun fact: Otto and Gustav Lilienthal of Germany made the first successful glider flight in 1891.

Activity time: You will not need any new materials for this activity. Listen carefully as I read each problem, and then use your Counting to 120 Chart to answer the questions aloud.

Note: *Repeat saying each problem if needed. Also, assist the student in locating the number on the chart as needed.*

1. What number is one less than 114?

   Answer: 113
2. What number is one more than 96?

   Answer: 97
3. What number is one less than 107?

   Answer: 106
4. What number is one more than 28?

   Answer: 29
5. What number is one less than 110?

   Answer: 109

Let's try a few more.

6. What number is one less than 51?

   Answer: 50
7. What number is one more than 100?

   Answer: 101
8. What number is one more than 52?

   Answer: 53
9. What number is one less than 88?

   Answer: 87
10. What number is one less than 114?

    Answer: 113

That was excellent work! Now let's practice skip counting 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.

Note: *Count by 10s, beginning with 10. Have the student keep their place on 10 with their left hand and move their right hand to the next row and 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.*

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?

Note: *Give the student time to discover this pattern on their own.*

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 95 105 115

Note: *Count by 10s, beginning with 5. Have the student move their hands from left to right and count to 10 with you each time.*

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 92 102 112

Let's try one more! Skip count by 10s beginning with 6, using our chart.

6 16 26 36 46 56 66 76 86 96 106 116

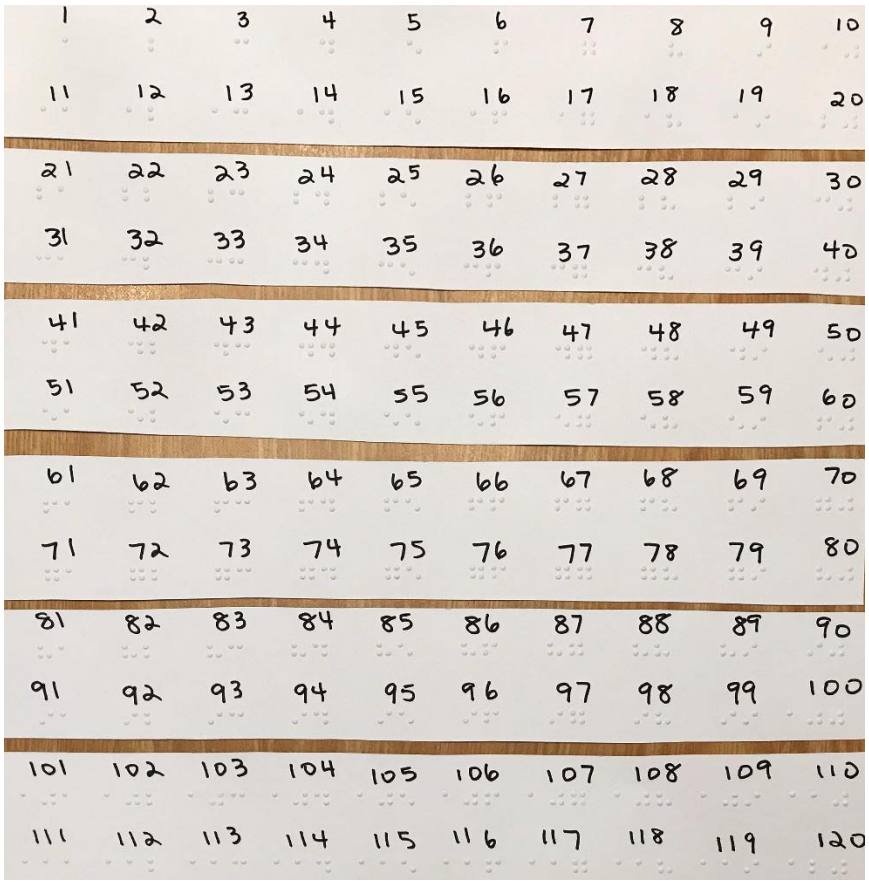
Fun fact: Before the Wright brothers invented an airplane, they designed and piloted a series of gliders. What they learned about flying with gliders helped the brothers invent an airplane.

Activity time: In this activity, we are going to rebuild a Counting to 120 Chart that has been cut into 6 puzzle pieces.

Note: *You will need a large piece of construction paper, a glue stick, and a Count to 120 Chart.*

Cut the Count to 120 Chart into 6 different pieces. The first piece should include the numbers 1-20, and the second piece should include the numbers 21-40. The third piece should include the numbers 41-60, and the fourth piece should include the numbers 61-80. The fifth piece should include the

numbers 81-100, and the sixth piece should include the numbers 101-120. Place all of the pieces into a work tray or large zippered plastic bag.



Before we begin, tell me what you know about the Counting to 120 Chart.

Note: *Responses will vary. If needed, briefly provide the Counting to 120 Chart as a refresher and motivator for beginning the activity.*

Yes, the Counting to 120 Chart begins with 1 and ends with 120. There are 12 rows and 10 columns. All of the numbers on the right side of the chart end with 0. We can also skip count by using our Counting to 120 Chart. Smaller numbers are at the top of the chart, and the largest numbers are at the bottom of the chart.

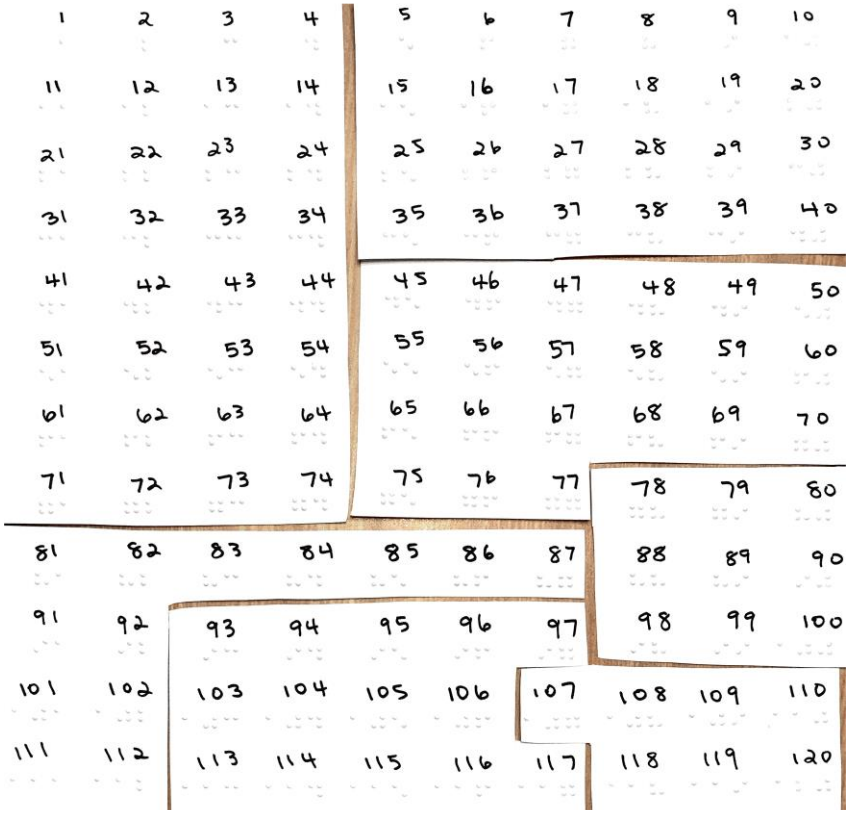
I think you are ready to rebuild the chart! Good luck, Nemeth superstar!

Note: *Offer assistance as needed.*

Now that you can easily re-build the Counting to 120 Chart, glue the pieces in order on a large piece of construction paper!

Let's try another puzzle. Have fun, puzzle master!

Note: *Cut a second Counting to 120 Chart into 7 pieces. This time the pieces will be different sizes. The first piece should contain the following numbers: 1-4, 11-14, 21-24, 31-34, 41-44, 51-54, 61-64, and 71-74. The second piece should contain the following numbers: 5-10, 15-20, 25-30, and 35-40. The third piece should contain the following numbers: 45-50, 55-60, 65-70, and 75-77. The fourth piece should contain the following numbers: 78-80, 88-90, and 98-100. The fifth piece should contain the following numbers: 81-87, 91-92, 101-102, and 111-112. The sixth piece should contain the following numbers: 93-97, 103-106, 113-117. The seventh piece should contain the following numbers: 107-110 and 118-120. Place all of the pieces into a work tray or large zippered plastic bag.*



Please note the print numbers have been added above the braille numbers in both pictures above. Now these activities can easily be completed with the student and one of his/her friends. Another option is to have the student cut one of the Counting to 120 Chart into pieces and assist a friend in rebuilding the chart.

Now that you can easily re-build the hundreds chart, glue the pieces in order on a large piece of construction paper!

Fun fact: Some gliders have an altimeter in the cockpit so that the pilot will know his/her height above the ground.

For the fourth part of the adventure, let's learn how to use base ten blocks (or Digi-Blocks) to help us build two-digit numbers up to 30.

Note: *Place the units and rods in different containers, baskets or bowls. If preferred, Digi-Blocks (a different type of base ten blocks that nest) can be used.*

Use your hands to explore the blocks in the two baskets.

The small blocks are called units, and the long, narrow blocks are called rods.

The rods contain ridges. Let's count how many squares are on each rod. That's right. There are ten squares on each rod. It takes ten little cubes or units to make a long one.

Note: *Show the Place Value Chart 1 (available in contracted and uncontracted braille within the curriculum) to the student.*

Sometimes when we use base ten blocks, we also use a place value chart. Use your hands to explore the place value chart we have used before. Now let's find the title and read it together. Where will we find the title?

That's right, pilot! The title will be at the top of the page. The title is Place Value Chart.

Notice that there is a line going down the middle of the page. Find the column headings toward the top of the page, and I will help you read them. The column on the right is the ones, and the column on the left is the tens.

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

Each unit block represents one, and each rod represents ten. We place rods in the tens column and the unit blocks in the ones column. Sometimes rods are called tens, and unit blocks are called ones.

Note: *If needed, model placing the rods in the tens column and the unit blocks in the ones column using hand-under-hand technique.*

Let's work together to use base ten blocks and the place value chart to represent 16.

There are two ways that we can build sixteen. Think about how we can use the unit blocks and rods to represent the number 16. You are right! One way is to count out 16 unit blocks.

Another way is to exchange 10 of the unit blocks for a rod. Then we would need one rod and six unit blocks to represent 16. It is often easier and quicker to use both rods and unit blocks when building two-digit numbers.

Note: *Depending on the child's response, the following questions may be needed. Can you represent 16 using unit blocks? If so, how many unit blocks do you need? If not, why not? That's right. You need 16 unit blocks. As you count the unit blocks, place them in the ones column on your place value chart. Can you represent 16 using a rod and unit blocks? If so, how many of each kind do you need? If not, why not?*

Great work, math superstar! Sixteen is equal to 1 ten plus 6 ones.

Let's work together to use base ten blocks and the place value chart to represent 19. Can you represent 19 using a rod and unit blocks? If so, how many of each kind do you need? Don't forget to use your place value chart!

You got it! We can exchange 10 of the unit blocks again for a rod. So we need one rod and nine unit blocks. Nineteen is equal to 1 ten plus 9 ones.

Now let's use your place value chart and base ten blocks to build 24 together. First, let's think about how many ten blocks we will need.

If one tens block equals 10, then two tens blocks equal 20. We can count the ridges to confirm that the two tens blocks equal 20. Let's count together.

We are correct! Two tens blocks equal 20! How many unit blocks will we need? Yes, we will need 4 unit blocks. So 24 equals 2 tens plus 4 ones.

Now you try building a number by yourself. Use base ten blocks and your place value chart to build 13.

Note: *Provide assistance as needed.*

That is correct! Thirteen equals one tens block (rod) and 3 unit blocks. Another way to say this is thirteen equals one ten plus 3 ones.

Now build the number 27. You did it! Twenty-seven equals two tens blocks (rods) and 7 unit blocks. So twenty-seven equals 2 tens plus 7 ones.

Activity time: Use your place value chart and base ten blocks to build the following numbers.

15

Answer: Fifteen equals one tens block (rod) and 5 unit blocks, or fifteen equals one ten plus 5 ones.

21

Answer: Twenty-one equals two tens blocks (rods) and 1 unit block, or twenty-one equals 2 tens plus 1 one.

8

Answer: Eight equals 8 unit blocks, or eight equals 8 ones.

29

Answer: Twenty-nine equals two tens blocks (rods) and 9 unit blocks, or twenty-nine equals 2 tens plus 9 ones.

18

Answer: Eighteen equals one tens block (rod) and 8 unit blocks, or eighteen equals one ten plus 8 ones.

3

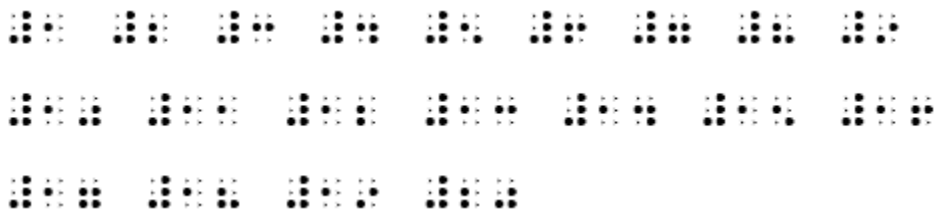
Answer: Three equals 3 unit blocks, or three equals 3 ones.

26

Answer: Twenty-six equals two tens blocks (rods) and 6 unit blocks, or twenty-six equals 2 tens plus 6 ones.

Fun fact: The World Altitude Record for gliders currently stands at 50,699 feet. The pilot was Steve Fossett, and he was gliding over the Andes Mountains when he set the record!

For the fifth part of the adventure, let's have fun with writing numbers up to 30! Begin by using your braillewriter to write the numbers from 1-20. Remember to space one time between the numbers. Ready, set, go!



Now move your fingers across the braille and check your work as we say the numbers together. Tell me if you find any errors.

Excellent work, number superstar!

The position of each digit in a number shows its value, so we can use what we know about place value to help us write two-digit numbers. Let's use 24 as an example.

Begin by brailling a numeric indicator. Then ask yourself a question. How many tens blocks would I need to build 24?

You are welcome to use your place value chart and base ten blocks if you would like.

Yes, you would need 2 tens blocks (rods) to build 24, so in the tens column, you will braille the number two with dots 2-3. Then ask yourself another question. How many unit blocks would I need to build 24?

Yes, you will need 4 unit blocks, so in the ones column, braille the number four with the dots 2-5-6. Now that you are finished with writing your number, move your fingers across the braille and read it! Excellent! The number is 24.

Let's try one more together. This time braille the number 21. What should we braille first?

Yes, we will begin with the numeric indicator. What should you braille next and why?

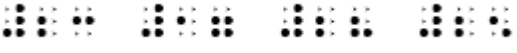
You got it! We would braille the number 2 in the tens column since we would need 2 tens blocks to build the number 21. What should you braille next and why?

That's right! We would braille the number 1 in the ones column since we would need one unit block to build the number 21. Move your fingers across the braille and check your work!

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

I will build several numbers with rods and unit blocks. Count the blocks and then write the number. Space one time between the numbers.

Note: *Use Place Value Chart 1, tens blocks (rods), and unit blocks to build the following numbers one at a time: 23, 17, 28, and 25. An answer key in braille is provided on page 1 of the document entitled "B3 Module 5_Answer Key for Writing Activities_1".*

Answer: 

Fun fact: The longest flight by a glider lasted 56 hours and 15 minutes. That is longer than two days!

Activity time: You will also need the Accessible Equation Editor and/or your braillewriter and braille paper for this activity.

Listen as I read a series of numbers. Then write the numbers in braille. Space one time between the numbers.

Note: *Use Place Value Chart 1, tens blocks (rods), and unit blocks as needed. Repeat saying each series of numbers as many times as needed. An answer key in braille is provided on page 1 of the document entitled "B3 Module 5_Answer Key for Writing Activities_1".*

25 11 3 20 8 19

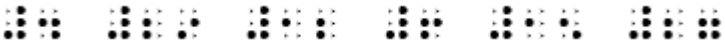
Answer:

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

25 11 3 20 8 19

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

4 29 12 6 15 27

Answer: 

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

4 29 12 6 15 27

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

18 14 22 11 0 26

Answer:

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

18 14 22 11 0 26

For the sixth part of the adventure, let's learn more about building two-digit numbers.

The number 10 refers to 1 ten and 0 ones. So how would we build the number 10 using base ten blocks and the place value chart? You got it! We would place 1 rod in the tens column.

The number 20 refers to 2 tens and 0 ones. So how would we build the number 20? Yes, we would place 2 rods in the tens column.

So if we use the same pattern since 30 is ten more than 20, how would we build the number 30? Way to go, number superstar! We would place 3 rods in the tens column.

Similarly, 40, 50, 60, 70, 80, and 90 refer to four, five, six, seven, eight, or nine tens and 0 ones.

So how many tens does 50 equal? Yes, 50 equals 5 tens. How would we build the number 50? That's right! We would place 5 rods in the tens column.

Let's try one more. How many tens does 90 equal? Yes, 90 equals 9 tens. How would we build the number 90? You got it! We would place 9 rods in the tens column.

Activity time: Use your place value chart and base ten blocks to build the following numbers. Don't forget to put your blocks back into the work tray each time before beginning to build a different number.

60

Answer: We would place 6 rods in the tens column.

10

Answer: We would place 1 rod in the tens column.

80

Answer: We would place 8 rods in the tens column.

40

Answer: We would place 4 rods in the tens column.

70

Answer: We would place 7 rods in the tens column.

Fun fact: Sailplanes are gliders with a pilot, standard aircraft parts, and flight control systems, but yet no engine.

Let's have fun building other two-digit numbers! As we prepare to build 35, we can first ask ourselves what digit is in the ones column. Yes, five is in the ones column.

Then we can ask ourselves what digit is in the tens column? Yes, three is in the tens column.

So if there is a three in the tens column and a five in the ones column in the numeral, how many rods and unit blocks do we need?

Use your base ten blocks and show me. Excellent work, place value superstar! We need 3 rods and 5 unit blocks. Thirty-five equals 3 tens and 5 ones.

Place your base ten blocks back in the work tray, and let's try some more together.

Next, build 58. Begin by asking yourself what digit is in the ones column. Yes, eight is in the ones column.

Then ask yourself what digit is in the tens column? Yes, five is in the tens column.

So if there is a five in the tens column and an eight in the ones column, how many rods and unit blocks do you need?

You got it! We need 5 rods and 8 unit blocks. Fifty-eight equals 5 tens and 8 ones.

Place your base ten blocks back in the work tray, and build 73. Then tell me how many tens and ones make 73.

Note: *Encourage the student to verbalize the process they use to determining how many rods and unit blocks are needed. Provide assistance or ask additional follow up questions as needed.*

Yes, we would build 73 with 7 rods (tens blocks) and 3 unit blocks. Seventy-three equals 7 tens and 3 ones.

Activity time: Use your place value chart and base ten blocks to build the following numbers. Then tell me how many tens and ones make each number. Don't forget to put your blocks back into the work tray each time before beginning to build a different number.

36

Answer: We would build 36 with 3 rods (tens blocks) and 6 unit blocks.
Thirty-six equals 3 tens and 6 ones.

14

Answer: We would build 14 with 1 rod (tens block) and 4 unit blocks.
Fourteen equals 1 ten and 4 ones.

81

Answer: We would build 81 with 8 rods (tens blocks) and 1 unit block.
Eighty-one equals 8 tens and 1 one.

50

Answer: We would build 50 with 5 rods (tens blocks). Fifty equals 5 tens.

77

Answer: We would build 77 with 7 rods (tens blocks) and 7 unit blocks.
Seventy-seven equals 7 tens and 7 ones.

90

Answer: We would build 90 with 9 rods (tens blocks). Ninety equals 9 tens.

62

Answer: We would build 62 with 6 rods (tens blocks) and 2 unit blocks.
Sixty-two equals 6 tens and 2 ones.

38

Answer: We would build 38 with 3 rods (tens blocks) and 8 unit blocks.
Thirty-eight equals 3 tens and 8 ones.

Fun fact: An airplane has an engine that generates thrust, while the glider does not. In order for a glider to fly, it must generate lift.

For the seventh part of the adventure, let's learn more about how to write two-digit numbers. We will continue to use what we know about place value to help us.

Let's write the number 78 together. Begin by brailling a numeric indicator. How many ten blocks would we need to build 78?

Note: *Continue to use Place Value Chart 1, tens blocks (rods), and unit blocks as needed.*

Yes, we would need 7 tens blocks to build 78, so in the tens column, I would braille the number seven with dots 2-3-5-6. How many unit blocks would we need to build 78?

Yes, we would need 8 unit blocks, so in the ones column, I would braille the number eight with the dots 2-3-6. Now that you are finished with writing your number, move your fingers across the braille and read it! Excellent! The number is 78.

Let's try writing the number 92. What should the number begin with? Yes, the number 92 begins with a numeric indicator. What should you braille next and why?

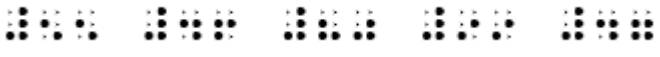
You got it! We would braille the number 9 in the tens column since we would need 9 ten blocks to build the number 92. What should you braille next and why?

That's right! We would braille the number 2 in the ones column since we would need two unit blocks to build the number 92. Move your fingers across the braille and check your work!

Activity time: You will also need the Accessible Equation Editor and/or your braillewriter and braille paper for this activity.

I will build several numbers with rods and unit blocks. Count the blocks and then write the number. Space one time between the numbers.

Note: *Use Place Value Chart 1, tens blocks (rods), and unit blocks to build the following numbers one at a time: 55, 46, 80, 99, and 47. An answer key in braille is provided on page 2 of the document entitled "B3 Module 5_Answer Key for Writing Activities_1".*

Answer: 

Fun fact: Hang glider pilots sometimes run and jump off the side of a steep hill in order to begin their flight.

Numbers can be written in different ways. At the top of page 6, there are several examples of numbers written in standard form and expanded form. Let's read the first two lines together.

83 = 80+3

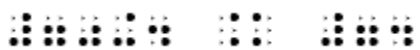
Another way of writing this equation is

80+3 = 83

Now read the next two lines of braille along with me.

74 = 70+4

70+4 = 74



Now try reading the next four lines by yourself!

29 = 20+9

50+1 = 51

99 = 90+9

37 = 30+7

That was super reading!

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

For the first part of the activity, read each number in expanded form at the top of page 7 and then write the number in standard form. Space one time between the numbers.

Note: *An answer key in braille is provided on page 2 of the document entitled "B3 Module 5_Answer Key for Writing Activities_1".*

⠼⠂⠴⠮⠆ ⠨⠅ ⠿

⠼⠖⠴⠮⠖ ⠨⠅ ⠿

⠼⠒⠴⠮⠆ ⠨⠅ ⠿

⠼⠆⠴⠮⠂ ⠨⠅ ⠿

⠼⠢⠴⠮⠒ ⠨⠅ ⠿

⠼⠲⠴⠮⠴ ⠨⠅ ⠿

Answer: ⠼⠂⠆ ⠼⠖⠖ ⠼⠒⠆ ⠼⠆⠂ ⠼⠢⠒ ⠼⠲⠴

For the second part of the activity, read each number in standard form at the top of page 8 and then write the number in expanded form.

Note: *Write the first number in expanded form together.*

⠼⠂⠹⠲ ⠼⠔⠖

Answer:

1. 96

⠼⠂⠹⠲ ⠼⠔⠴⠮⠖

⠼⠂⠹⠲ ⠼⠂⠶

Answer:

2. 17

⠼⠂⠹⠲ ⠼⠂⠴⠮⠶

⠼⠒⠹⠲ ⠼⠒⠔

Answer:

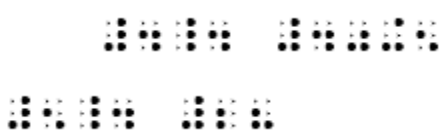
3. 39

⠼⠒⠹⠲ ⠼⠒⠴⠮⠔

⠼⠲⠹⠲ ⠼⠲⠢

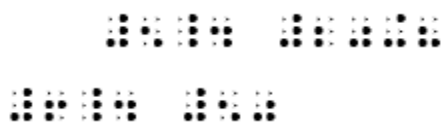
Answer:

4. 45



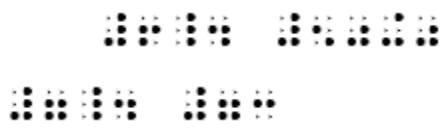
Answer:

5. 28



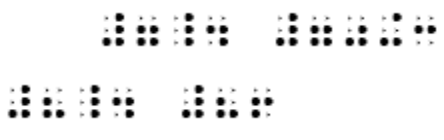
Answer:

6. 50



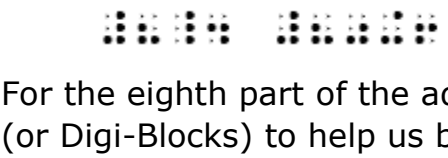
Answer:

7. 73



Answer:

8. 86



For the eighth part of the adventure, let's learn how to use base ten blocks (or Digi-Blocks) to help us build three-digit numbers.

Note: *Place the units, rods, and flats in different containers, baskets or bowls. If preferred, Digi-Blocks (a different type of base ten blocks that nest) can be used.*

Use your hands to explore the blocks in the three baskets. Do you remember what we call the small blocks?

Yes, they are called units. What do you call the long, narrow blocks?

You got it! The long, narrow blocks are called rods.

If we place ten rods beside each other, they would be the same size as the large square blocks in the last basket. We call this block a flat.

The flats contain ridges. If we counted the number of squares on each flat, we would discover that there are 100 squares.

Note: *Show Place Value Chart 2 (available in contracted and uncontracted braille within the curriculum) to the student.*

Use your hands to explore a new place value chart that includes a column for hundreds. Let's find the title and read it together. Where will we find the title?

That's right, pilot! The title will be at the top of the page. The title is Place Value Chart 2.

Notice that there are two lines going down the page. Find the column headings toward the top of the page, and I will help you read them. The column on the left is hundreds, the middle column is tens, and the column on the right is ones.

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

As you already know, each unit block represents one, and each rod represents ten. We place rods in the tens column and unit blocks in the ones column.

We will place our new blocks called flats in the hundreds column.

Note: *If needed, model placing the flats in the hundreds column using hand-under-hand technique.*

Let's work together to use base ten blocks and the place value chart to represent 116.

It will be important to remember that the position of each digit in a number shows its value. Begin by asking yourself what digit is in the ones column.

Yes, six is in the ones column. Then ask yourself what digit is in the tens column?

Yes, one is in the tens column. Now ask yourself what digit is in the hundreds column?

You got it! There is a second one in the hundreds column.

So if there is a one in the hundreds column, a one in the tens column, and a six in the ones column, how many flats, rods, and unit blocks do you need?

You got it! We will need 1 flat, 1 rod, and 6 unit blocks. Where would we place the blocks on the place value chart?

Excellent! The flat will go in the hundreds column, the rod will go in the tens column, and the units will go in the ones column.

So one hundred sixteen equals 1 hundred, 1 ten, and 6 ones.

Let's try another one together. The number is 104.

Begin by asking yourself what digits are in the ones, tens, and hundreds columns.

Yes, 4 is in the ones column, 0 is in the tens column, and 1 is in the hundreds column. So how many flats, rods, and unit blocks do we need?

That is correct! We will need 1 flat, no rods, and 4 unit blocks. Why will we not need any rods?

You are right! We will not need any rods since there is a zero in the tens column. Now place the blocks in the correct columns.

Way to go! The flat will go in the hundreds column and the units will go in the ones column.

Activity time: Use your place value chart and base ten blocks to build the following numbers. Then tell me how many hundreds, tens, and ones make each number. Don't forget to put your blocks back into the work tray each time before beginning to build a different number.

101

Answer: We would build 101 with 1 flat, no rods, and 1 unit block. One hundred one equals 1 hundred, 0 tens, and 1 one.

115

Answer: We would build 115 with 1 flat, 1 rod, and 5 unit blocks. One hundred fifteen equals 1 hundred, 1 ten, and 5 ones.

120

Answer: We would build 120 with 1 flat, 2 rods, and no unit blocks. One hundred twenty equals 1 hundred, 2 tens, and 0 ones.

109

Answer: We would build 109 with 1 flat, no rods, and 9 unit blocks. One hundred nine equals 1 hundred, 0 tens, and 9 ones.

100

Answer: We would build 100 with 1 flat, no rods, and no unit blocks. One hundred equals 1 hundred, 0 tens, and 0 ones.

113

Answer: We would build 113 with 1 flat, 1 rod, and 3 unit blocks. One hundred thirteen equals 1 hundred, 1 ten, and 3 ones.

Fun fact: Sometimes hang gliders and sailplanes are towed in the air by an airplane and then cut loose to begin their glide.

For the last part of the adventure, let's learn to write three-digit numbers. We will continue to use what we know about place value to help us.

Let's begin by writing the number 118 in standard form together. Begin by brailling a numeric indicator. How many flats, rods, and unit blocks would we need to build 118?

Note: *Continue to use Place Value Chart 2, flats, tens blocks (rods), and unit blocks as needed.*

Yes, we would need 1 flat, 1 rod, and 8 units to 118. So what would I braille in the hundreds column?

That is correct! I would braille the number one with dot 2. What would I braille in the tens column?

You got it! I would braille the number one with dot 2. How many unit blocks would we need to build 118?

Yes, we would need 8 unit blocks, so in the ones column, I would braille the number eight with the dots 2-3-6. Now that you are finished with writing your number, move your fingers across the braille and read it! Excellent! The number is 118.

Let's try writing the number 106. What should the number begin with? Yes, the number 106 begins with a numeric indicator. What should you braille next and why?

You got it! We would braille the number 1 in the hundreds column since we would need 1 flat to build the number 106. What should you braille next and why?

Yes, we would braille the number 0 in the tens column since we would not need any ten blocks to build the number 106. What should you braille next and why?

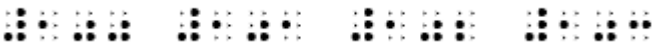
That's right! We would braille the number 6 in the ones column since we would need six unit blocks to build the number 106. Move your fingers across the braille and check your work!

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

Listen as I read a series of numbers. Then write the numbers in braille. Space one time between the numbers.

Note: *Use Place Value Chart 2, flats, tens blocks (rods), and unit blocks as needed. Repeat saying each series of numbers as many times as needed. An answer key in braille is provided on page 3 of the document entitled "B3 Module 5_Answer Key for Writing Activities_1".*

100 101 102 103

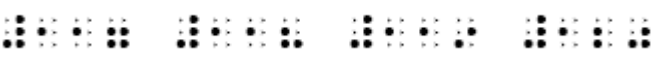
Answer: 

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

100 101 102 103

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

117 118 119 120

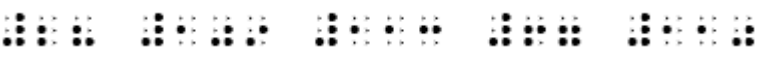
Answer: 

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

117 118 119 120

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

28 109 113 67 110

Answer: 

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

28 109 113 67 110

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

104 108 112 116

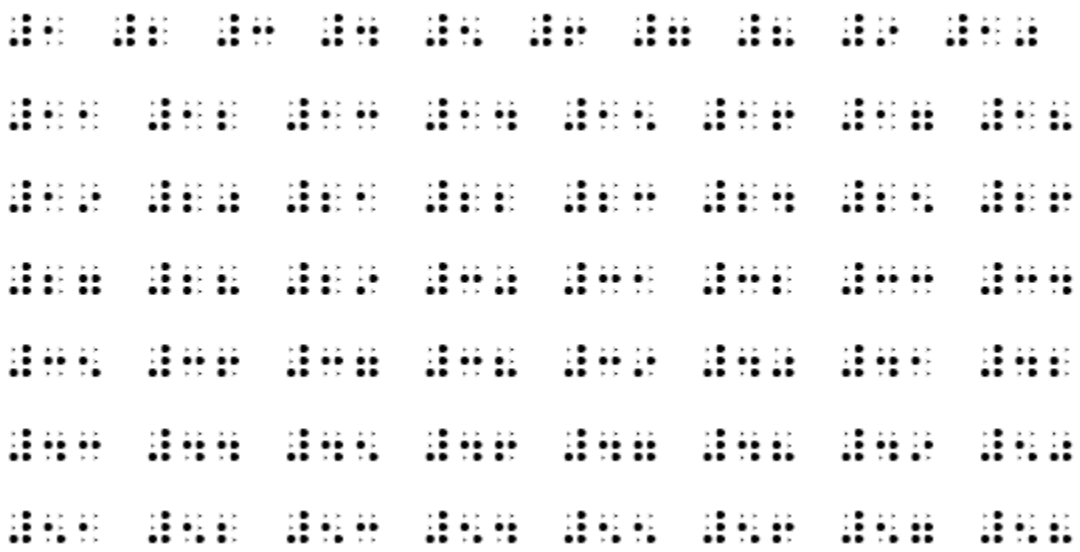
Answer:

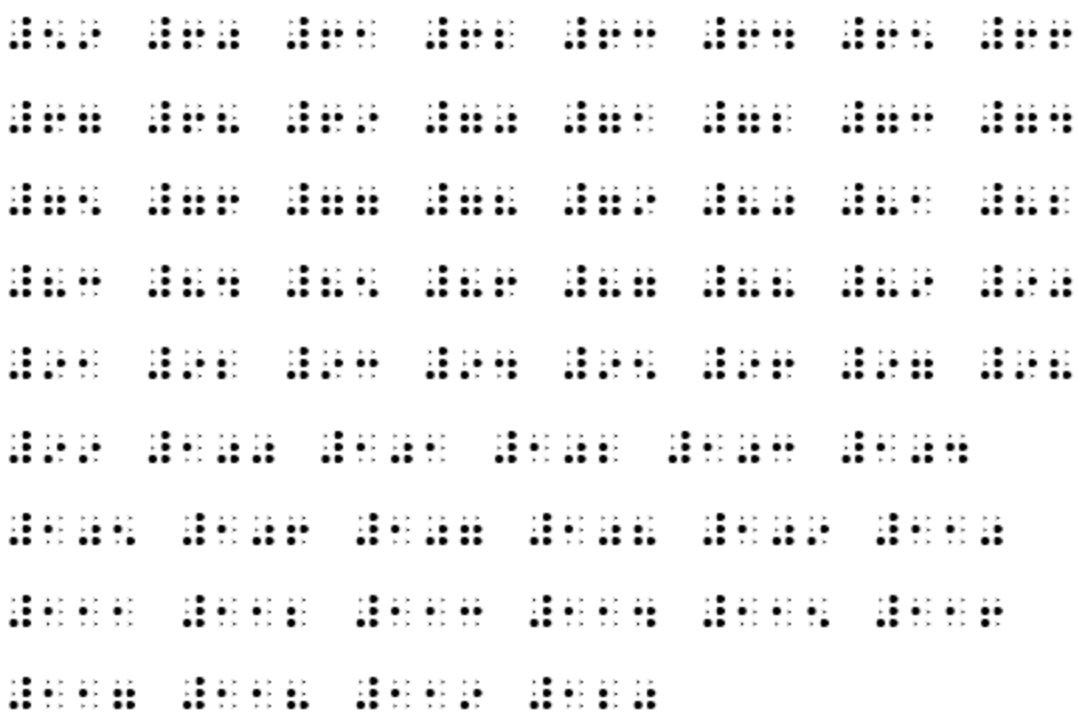
Now move your fingers across the braille and check your work as I say the numbers again.

104 108 112 116

As we are preparing for a smooth landing in our glider, write the numbers from 1-120. Space one time between the numbers.

Answer:





Note: *An answer key in braille is provided on pages 3-4 of the document entitled "B3 Module 5_Answer Key for Writing Activities_1".*

Please note that by the end of first grade, a student should be able to read and write numerals to 120. They should also be able to represent a number of objects with a written numeral.

Fun fact: It is important to wear a helmet, eye goggles, and a harness when hang gliding. Some pilots also carry an emergency reserve parachute.

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!

Follow-up activity:

You will need an activity page, braillewriter, and braille paper.

Note: *The activity pages are available within the curriculum in a folder called What Am I Activity. It may help to place the activity page on a nonslip surface such as a rubber shelf liner. An answer key in print and braille is provided in separate documents.*

The name of the game is located on the first line of braille. It is at the top of the page. Softly glide your fingers across the line and read the name of the game with me. It says What Am I? This is followed by an opening Nemeth Code indicator, so we know that we are going to read math or science next.

Shapes have taken over our Counting to 120 Chart! So I need your help to figure out what shape took over the chart!

But first, we have to figure out what numbers are missing from the chart. The shapes are made with full braille cells, so wherever we find a full braille cell, there is a missing number. When you figure out which numbers are missing, write them using your braillewriter.

It will be very important to read all of the numbers on each row so that we can find all of the missing numbers!

Once you have written all of the missing numbers, let me know and I will confirm if you have identified all of the missing numbers or not.

The last step is figuring out what shape took over the chart. Now connect your full braille cells with Wikki Stix® or graphic art tape. If you need a hint, just let me know.

Note: *There are four different activity pages that can be used if the student would like to play the game more than once.*