

First Grade Nemeth Braille Code Curriculum
Module 6: Writing and Comparing Numbers
Teacher Reference Materials

Prerequisite skills:

- Ability to use rote counting number words in order to 120
- Ability to tactually identify the numbers 1-120
- Ability to represent a number 1-120 with concrete materials, including base ten blocks or Digi-Blocks
- Ability to write the numbers 1-120
- Ability to read and write the numbering of math problems from 1-20, including the punctuation indicator and period
- Ability to skip count by 10s to 120

Math symbols and concepts, including braille knowledge, addressed:

- Ten more
- Ten less
- Numbers 1-120 in standard form
- Numbers 1-99 in expanded form
- Greater than sign
- Less than sign
- Comparing numbers

Objectives:

The student will be able to:

- 1) Using a braille chart to 120, determine what number is ten more and ten less
- 2) Tactually read Nemeth numbers 1-120 in standard form
- 3) Tactually read Nemeth numbers 1-99 in expanded form
- 4) Tactually identify the greater than sign
- 5) Tactually identify the less than sign
- 6) Tactually read Nemeth Braille Code inequalities in a horizontal format
- 7) Use the Accessible Equation Editor and/or braillewriter to write numbers 1-120 in standard form
- 8) Use the Accessible Equation Editor and/or braillewriter to write numbers 1-99 in expanded form
- 9) Use the Accessible Equation Editor and/or braillewriter to write the greater than sign
- 10) Use the Accessible Equation Editor and/or braillewriter to write the less than sign

- 11) Use the Accessible Equation Editor and/or braillewriter to write Nemeth Braille Code inequalities in a horizontal format
- 12) Compare two one-digit numbers and record the results of comparisons with the Nemeth symbols for greater than and less than
- 13) Compare two two-digit numbers and record the results of comparisons with the Nemeth symbols for greater than and less than

Other ECC skills addressed:

Listening skills; concept development; following directions; organization; tactual discrimination; left-to-right tracking; scan and interpret tactile graphics used in math; hand positioning; light touch (as opposed to scrubbing); recreation and leisure

Teaching tips:

- Before opening any BRF files in Duxbury, go into the Global menu. Select "Formatted Braille Importer" and then check the box for "Read formatted braille without interpretation" at the top of the window. This will ensure that nothing is changed when opening the BRF files.
- This module should be completed across multiple sessions.
- If the child is using a refreshable braille display, ensure that the child knows how to move to the next line of braille. Offer assistance as needed.
- A Counting to 120 Chart is used. It is available in the curriculum.
- Encourage the student to verbalize the process he/she uses when solving problems and use hands-on strategies as needed.
- If a student reads the Nemeth symbols or equation incorrectly, tell the student the correct way to read the symbol or equation.
- Using small storage boxes with labels can make it easier for a child to independently locate stored items such as number cards, etc.
- Base ten blocks and Digi-Blocks are often used in elementary general education classrooms. If you do not have base ten blocks or Digi-Blocks, request to borrow them from a classroom teacher.
- Using the braillewriter for some of the writing activities is encouraged as it facilitates the development of motor memory.
- It is very important to use the correct finger on each key when learning new Nemeth symbols. This will help the student become accurate in their writing!
- Offer tips to the students about how to remember which hand to use first when writing the greater than sign and the less than sign. For

example, you will use the right hand first and then the left hand when writing the greater than sign.

Materials/technology needed:

- Accessible Equation Editor and/or braillewriter
- Braille paper
- Index cards
- Counting to 120 Chart (included in the curriculum)
- Base ten blocks (or Digi-Blocks)

Optional materials for follow-up activities or adaptation of activities:

- Work and/or sorting trays
- Timer
- Small storage boxes
- Rubber shelf liner

Explanation of activities embedded into module:

- 1) In one of the activities, your student will listen carefully and then use his/her Counting to 120 Chart to answer a math problem about ten more or ten less. This activity was designed to be completed orally, but the student can use the Accessible Equation Editor and/or a braillewriter and braille paper to answer the problems if preferred.

Repeat saying each problem as needed. Also, assist the student in locating the numbers on the chart as needed.

- 2) In some of the activities, the student will listen carefully and then write the numbers, symbols, and inequalities that he/she hears. These activities can be completed using the Accessible Equation Editor and/or a braillewriter and braille paper.

Begin each time by asking the student to listen carefully as you read numbers. Afterwards he/she will write the numbers, symbols, or inequalities in braille. Remind the student to check his/her work. An answer key has been provided for these activities in the document entitled "B3 Module 6_Answer Key for Writing Activities_1".

If your student is using a refreshable braille display for this activity, explain about the additional keys on the far right and far left. If your student is using a QWERTY keyboard with the Accessible Equation

Editor, it may be helpful to use tactile dots on the keys used for dot 1 and dot 4.

- 3) In one of the activities, the student will read several inequalities that include a long dash standing for a missing sign of comparison. He/she will use either a Counting to 120 Chart or base ten blocks to determine the relationship between the numbers in order to write the missing sign of comparison. Encourage the student to verbalize the process they are using.

The student will record his/her answers using either the Accessible Equation Editor or his/her braillewriter and braille paper. Remind the student to number the problems. This will be especially important as he/she will not be writing the problem, just the answer.

- 4) The follow-up activity is a new game developed by Carolyn Mason. You will need 2-4 players for this game. It can easily be played by students (or you if no other students are present) who read print or braille. If some of the players read print, add print to each of the game cards. Materials for the game include: game cards and a way to keep track of points for each player. Suggestions for how to keep track of points include: APH Score Card Set, an abacus, craft sticks in a container, or a braillewriter.

The first player to get 20 points wins the game! Begin by shuffling the game cards and placing them in one side of a two-compartment sorting tray. Then the players will take turns drawing a card. If the player draws a "less than" card and reads it correctly, he/she gets one point. If the player draws a "greater than" card and reads it correctly, he/she gets two points. If the player draws an "equals" card, he/she gets zero points. If the player draws a "sayings" card, he/she should follow the directions. Once each card has been used, it should be placed in the other side of the sorting tray. As needed, remind each student to keep track of his/her score.

The game cards are available in uncontracted and contracted braille in the curriculum. If preferred, you can create your own game cards.

Here is a list of what is included in the game cards.

- 10 "less than" cards
 - $9 < 12$

- $46 < 51$
- $33 < 35$
- $71 < 75$
- $17 < 23$
- $76 < 87$
- $29 < 31$
- $18 < 19$
- $81 < 99$
- $55 < 56$
- 10 "greater than" cards
 - $95 > 80$
 - $12 > 7$
 - $67 > 38$
 - $39 > 13$
 - $57 > 52$
 - $85 > 24$
 - $75 > 41$
 - $72 > 71$
 - $98 > 94$
 - $44 > 43$
- 4 "equals" cards
 - $7 = 7$
 - $82 = 82$
 - $5 = 5$
 - $25 = 25$
- 1 each of the following "sayings" cards
 - Oops you fell. Go back to zero.
 - Give two points back.
 - Give three points back.
- 2 each of the following "sayings" cards
 - Get 5 points.
 - Get 6 points.

Materials Commercially Available:

Materials that could be used from the American Printing House for the Blind (www.aph.org) include

- FOCUS in Mathematics Kit, Second Edition that includes base ten blocks (with print Teacher's Guide 1-08280-01, with braille Teacher's Guide 1-08281-01)

- Small Work-Play Tray with Dividers (1-03751-00, 1-03770-00) *also available within the FOCUS in Mathematics Kit*
- *Feel 'n Peel Stickers: Nemeth Braille-Print Numbers 0-100 (1-08876-00)
- *Feel 'n Peel Point Symbols or Stars (1-08846-00; 1-08868-00; 1-08867-00)
- *FOCUS in Mathematics: Base Ten Blocks: Units (61-115-278)
- *FOCUS in Mathematics: Base Ten Blocks: Rods (61-115-274)
- FOCUS in Mathematics: Base Ten Blocks, Flats (61-115-275)

** WARNING: CHOKING HAZARD -- Small Parts. Not intended for children ages 5 and under without adult supervision.*

Materials that could be used from the Digi-Block Store (<https://www.digiblock.com>) include

- Classic Block-of-100
- Power Block-of-100

Fun Facts from:

Facts about Blimps

<https://easyscienceforkids.com/all-about-blimps-dirigibles-and-zeppelins/>

How a Blimp Flies

<https://science.howstuffworks.com/transport/flight/modern/blimp2.htm>

How Blimps Work

<https://science.howstuffworks.com/transport/flight/modern/blimp4.htm>

Inside a Blimp

<https://science.howstuffworks.com/transport/flight/modern/blimp1.htm>

What It's Like to Ride in a Blimp

https://www.huffpost.com/entry/what-its-like-to-ride-in-a-blimp_b_7530654