

Second Grade Nemeth Braille Code Curriculum
Module 3: Place Value, Numbers to 1000, and the
Contracted Form of the Horizontal Bar
Teacher Reference Materials

Prerequisite skills:

- Ability to skip count by 10s to 120
- Ability to tactually identify the numbers 0-120
- Ability to represent a number 1-120 with concrete materials, including base ten blocks or Digi-Blocks
- Ability to write the numbers 1-120

Math symbols and concepts, including braille knowledge, addressed:

- Numbers 1-1000 in standard form
- Represent numbers 1-1000 with concrete materials, including base ten blocks or Digi-Blocks
- Directly under indicator
- Horizontal bar symbol
- Numbers 1-999 with a single underlined digit

Objectives:

The student will be able to:

- 1) Tactually read Nemeth numbers 1-1000 in standard form
- 2) Represent numbers 1-1000 with concrete materials, including base ten blocks or Digi-Blocks
- 3) Tactually identify the directly under indicator
- 4) Tactually identify the horizontal bar symbol
- 5) Tactually read Nemeth numbers 1-999 with a single underlined digit
- 6) Use the Accessible Equation Editor and/or braillewriter to write numbers 1-1000 in standard form
- 7) Use the Accessible Equation Editor and/or braillewriter to write the directly under indicator
- 8) Use the Accessible Equation Editor and/or braillewriter to write the horizontal bar symbol
- 9) Use the Accessible Equation Editor and/or braillewriter to write numbers 1-999 with a single underlined digit

Other ECC skills addressed:

Listening skills; concept development; following directions; organization; tactual discrimination; left-to-right tracking; top-to-bottom tracking; spatial

alignment; hand positioning; light touch (as opposed to scrubbing); scan and interpret tactile graphics used in math

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.
- It may help to place the flash cards and hard copy braille on a nonslip surface such as rubber shelf liner so they will not move as the student is reading.
- It may be helpful to point out that braille page numbers are placed at the right margin on the last line. If needed, also point out that braille page numbers are transcribed in Unified English Braille, not Nemeth Code.
- Sorting trays often define the work space as well as assist students in determining which flash cards have already been read. If you do not have sorting trays, you can use cafeteria type trays, cookie sheets, small cake pans, and/or small storage boxes.
- A four-compartment sorting tray may be used as the place value chart. From left to right, label the compartments thousands, hundreds, tens, and ones in braille. The sorting tray may assist students in easily keeping their cube, flats, rods, and unit blocks in the correct columns.
- It is very important to use the correct finger on each key when learning new Nemeth symbols. This will help the student continue to be accurate in their writing!
- If needed, remind the student to move his/her fingers across the braille and check his/her work during writing activities.
- Encourage the student to verbalize the process they use when solving problems.

Materials/technology needed:

- Accessible Equation Editor and/or braillewriter
- Braille paper
- Flash cards (included in the curriculum)
- Work and/or sorting trays
- Base ten blocks (or Digi-Blocks) and a place value chart (available in contracted and uncontracted braille within the curriculum)

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

- Wikki Stix®
- Small storage boxes
- Rubber shelf liner
- Index cards
- Timer
- Small stickers

Explanation of activities embedded into module:

- 1) In the activity on page 4, students will use flash cards to practice reading numbers from 1-600. You can either create flash cards with the numbers below using index cards or emboss Set 1 on pages 1-2 of the braille document entitled "Flash Cards for Module 3_2".

131 200 506 594

415 333 365 597

245 76 399 233

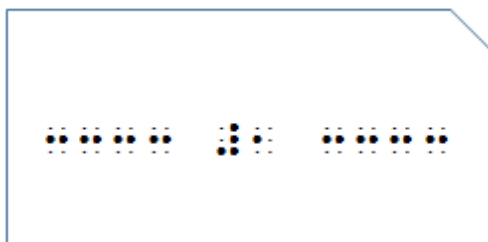
532 68 555 593

357 474 146 13

201 370 150 469

332 269 586 384

Cut out the upper right corner of each flash card for easy identification of orientation. If you are creating the flash cards, use lines of dots 2-5 for leading in and away from the number. See below for an example.



The flash cards will be used to practice reading numbers. Give the student one number card at a time. Make sure that it is oriented with the cut out corner at the upper right. After the child reads each

number, have him/her use a sorting tray to separate which cards he/she has read and which cards he/she has not read.

- 2) On page 5, students will use flash cards to practice reading numbers from 1-1000. Similar to the previous activity, you can either create flash cards with the numbers below using index cards or emboss Set 2 on pages 3-4 of the braille document entitled "Flash Cards for Module 3_2".

803 756 338 230

821 769 529 344

92 630 813 221

484 662 906 257

746 457 153 728

63 514 776 373

16 460 613 575

549 97 711 98

180 702 248 555

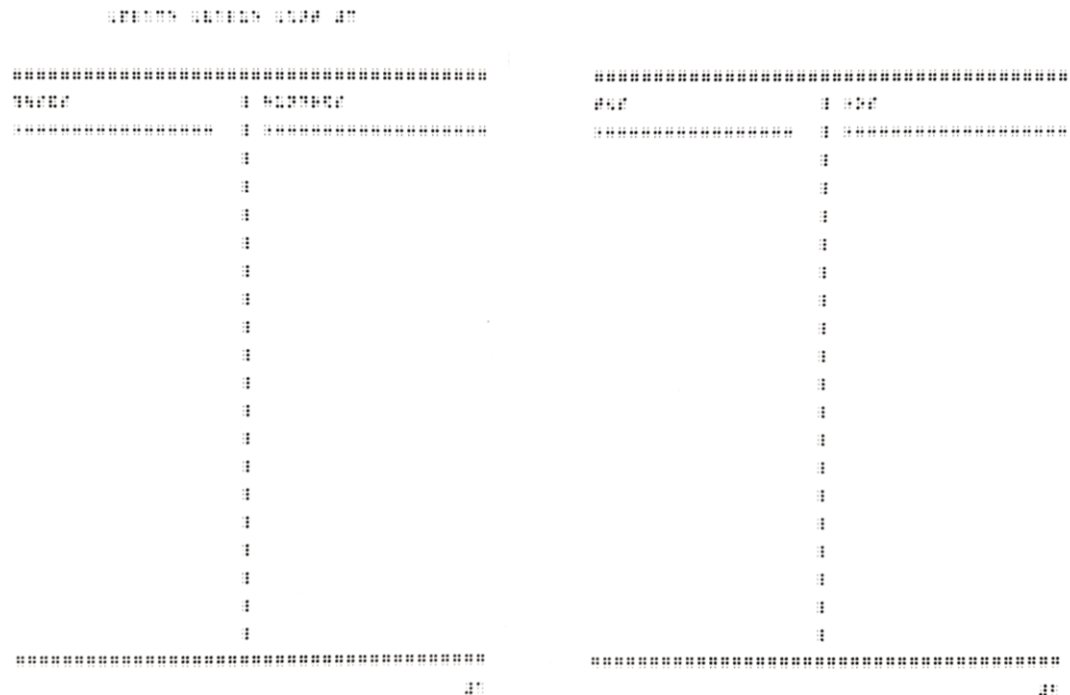
691 739 433 790

910 1000 832 754

- 3) In another activity embedded in the Module, the student will learn how to build numbers using either base ten blocks or Digi-Blocks. These blocks will provide a spatial model of our base ten number system.

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. If you are using the base ten blocks from the Focus in Mathematics kit from APH, a thousands block (cube) is not included. However, general education teachers may have one that you could borrow.

The Place Value Chart 3 will need to be taped together with page 1 on the left side and page 2 on the right side. See the top of the following page for an example. Graphic art tape from the American Printing House for the Blind could have also been used. You could also bind these pages as facing pages.



Place the different types of blocks in different containers, baskets or bowls. If preferred, Digi-Blocks (a different type of base ten blocks that nest) can be used. If needed, re-introduce the terms flat, rod, and unit.

The student should also be introduced to the thousands cube and explain that it represents one thousand. In addition, he/she should be introduced to the Place Value Chart 3. It will provide a means for the student to organize his/her work as he/she explores the relationships among the blocks and determines how groups of blocks can be used to represent numbers. Encourage your student to use his/her hands to explore the Place Value Chart.

A four-compartment sorting tray may be used instead of the place value charts. Label the compartments as ones, tens, hundreds, and thousands in braille. The sorting tray may assist students in easily keeping their units, rods, flats, and cube in the correct columns. If you do not have a sorting tray, use small storage boxes.

If needed, model placing the blocks in the different columns using hand-under-hand technique.

- 4) In some of the activities, the student will listen carefully and then write the braille symbols and numbers that he/she hears.

Begin each time by asking the student to listen carefully as you read the braille symbols and numbers. Afterwards he/she will write what he/she hears 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 3_Answer Key for Writing Activities_2".

- 5) The last activity involves riddles. The student can solve the riddles by themselves or they can complete this activity with a peer who reads print or braille. If the other player reads print, he/she will need a copy of the last page in this document.

Your student will need page 6 in the student braille document to complete this activity. Tell the student to listen carefully to the clues so that he/she can solve the riddle. Ask the student if he/she knows what a clue is. Explain that a clue is information that gives him/her a hint about which of the given numbers is the correct answer to the riddle.

As needed, base ten blocks or Digi-Blocks can be used. If desired, you may also model the multi-step process to determine the answer to the first riddle.

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)
- *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)
- Small Work-Play Tray with Dividers (1-03751-00, 1-03770-00) *also available within the FOCUS in Mathematics Kit*
- Quick Pick Math: Blank Cards (1-03577-00; can be used with the Quick Pick Math folder)
- Graphic Art Tape (1-08878-00)
 - * *WARNING: CHOKING HAZARD -- Small Parts. Not intended for children ages 5 and under without adult supervision.*

Materials that could be used from Wikki Stix® (<https://www.wikkistix.com/>) include

- Wikki Stix

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

- Block-of-1000
- Classic Block-of-100
- Power Block-of-100

Materials that could be used from Didax (<https://www.didax.com/>)

- Thousand Block (thousands cube)

Fun Facts from:

Kidz Search: Encyclopedia for Kids

<https://wiki.kidzsearch.com/wiki/Taxi>

Britannica

<https://www.britannica.com/place/London/Taxicabs#ref360524>

Article entitled "Uber & Lyft Safety Tips That You Haven't Already Heard" by Emily Ferron

<https://www.safety.com/rideshare-safety-tips>

Follow-up Activity: Riddles

1. 200 100 75 50 25
2. 385 105 280 92 630
3. 579 483 976 599 413 792
4. 387 692 384 915 462 235
5. 427 562 632 670 688 710
6. 428 430 294 460 595 840