

Second Grade Module 3

Place Value, Numbers to 1000, and the Contracted Form of the Horizontal Bar

Teacher Guide

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

Symbols and Concepts

- 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:

- Tactually read numbers 1-1000 in standard form
- Represent numbers 1-1000 with concrete materials, including base ten blocks or Digi-Blocks
- Tactually identify the directly-under indicator
- Tactually identify the horizontal bar symbol
- Tactually read numbers 1-999 with a single underlined digit
- Use the braillewriter to write numbers 1-1000 in standard form
- Use the braillewriter to write the directly-under indicator
- Use the braillewriter to write the horizontal bar symbol
- Use the braillewriter to write numbers 1-999 with a single underlined digit

Other ECC Skills Addressed

Note: ECC stands for Expanded Core Curriculum.

- 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

Required Materials

- Braillewriter
- Braille paper
- Braille documents available within the curriculum
 - Student braille document
 - Flashcards
 - Place Value Chart 3
- Timer
- Base ten blocks (or Digi-Blocks)

Optional Materials

- Nonslip surface such as rubber shelf liner
- Work and/or sorting trays
- Small storage boxes
- Braille documents available within the curriculum
 - Writing answers braille document
 - Counting to 120 Chart (choose 1 of 2 versions)

Teaching Tips

- Before opening any BRF files in Duxbury,
 - Go into the Global menu.
 - Select "**Formatted Braille Importer.**"
 - Select 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.
- All braille files in the curriculum are formatted with a 32-cell width by default.
- This module should be completed across multiple sessions.
- It may help to place the flashcards 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 workspace as well as assist students in determining which flashcards 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 their fingers across the braille and check their work during writing activities.
- Encourage the student to verbalize the process they use when solving problems.
- We maintain a list of [commercially available materials](#) that can be used to supplement instruction.

Activities

Activity 1

- Students will use flashcards to practice reading numbers from 1-600. You can either create flashcards with the numbers below using index cards or emboss pages 1-2 of the braille document entitled "G2-M3-Flashcards.brf".

131 200 506 594

415 333 365 597

245 76 399 233

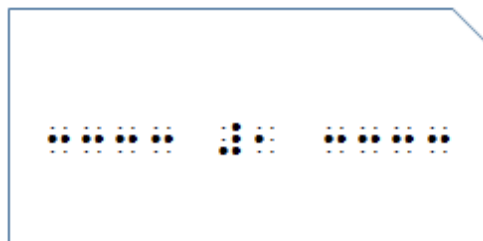
532 68 555 593

357 474 146 13

201 370 150 469

332 269 586 384

- Cut out the upper right corner of each flashcard for easy identification of orientation. If you are creating the flashcards, use lines of dots 2-5 before and after the number. For example, for numeral 1, type dots 2-5, dots 2-5, dots 2-5, dots 2-5, space, dots 3-4-5-6, dot 2, space, dots 2-5, dots 2-5, dots 2-5.



- The flashcards 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 them use a sorting tray to separate which cards they have read and which cards they have not read.

Activity 2

- Students will use flashcards to practice reading numbers from 1-1000. Similar to the previous activity, you can either create flashcards with the numbers below using index cards or emboss pages 3-4 of the braille document entitled "G2-M3-Flashcards.brf".

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

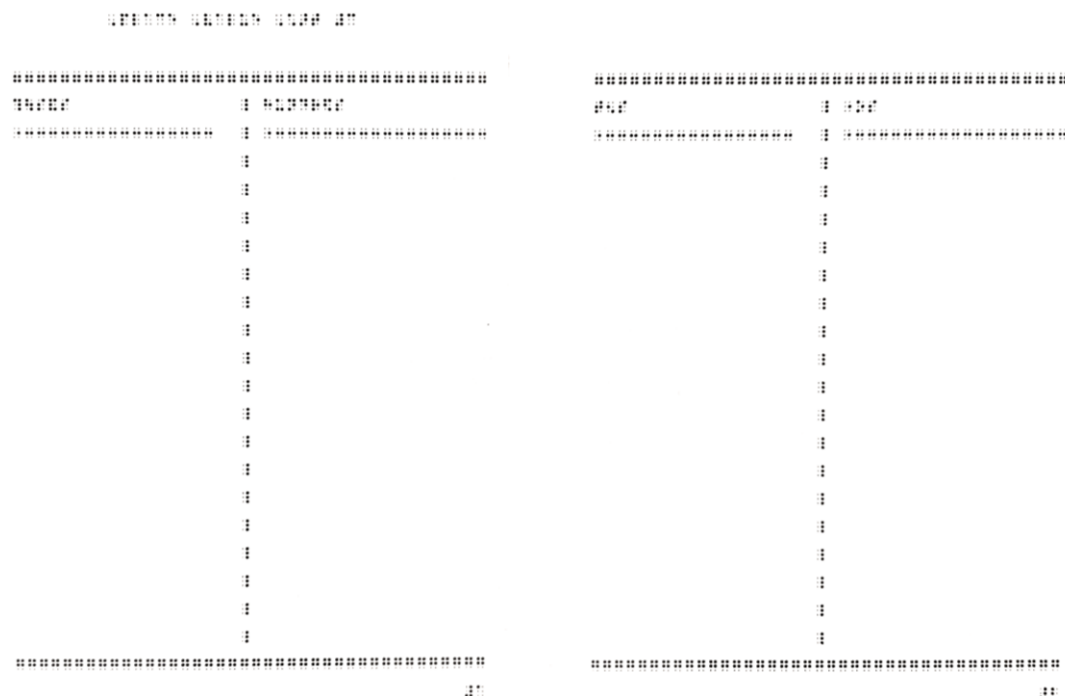
180 702 248 555

691 739 433 790

910 1000 832 754

Activity 3

- 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 American Printing House for the Blind (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. Graphic art tape from APH 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, they should be introduced to the Place Value Chart 3. It will provide a means for the student to organize their work as they explore the relationships among the blocks and determines how groups of blocks can be used to represent numbers. Encourage your student to use their hands to explore the Place Value Chart.
- A four-compartment sorting tray may be used instead of the Place Value Chart. 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.

Activity 4

All information is provided in the teacher script.

Activity 5

All information is provided in the teacher script.

Activity 6

All information is provided in the teacher script.

Activity 7

- The student will listen carefully and then write the braille symbols and numbers that they hear.
- Begin each time by asking the student to listen carefully as you read the braille symbols and numbers. Afterwards they will write what they hear in braille. Remind the student to check their work. An answer key has been provided for these activities in the braille document entitled "G2-M3-Writing-Answers.brf".

Activity 8

- This 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, they will need a copy of the riddles below.

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

- 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 they can solve the riddle. Ask the student if they know what a clue is. Explain that a clue is information that gives them 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.

Fun Facts

Britannica. (n.d.). Taxicabs of London. In *Britannica.com encyclopedia*.

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