

# **First Grade Introduction**

This is a Nemeth curriculum that will support math instruction, but not replace the math curriculum.

## **Modules**

- Addition and Subtraction to 10, English Letter Indicator and the Long Dash
- Spatial Arrangements
- Addition to 20 and Drawing and Building Shapes
- Subtraction to 20 and Equal Shares of Circles and Rectangles
- Understanding Place Value and Numbers to 120
- Writing and Comparing Numbers

## **Symbols and Concepts**

- Opening Nemeth Code indicator
- Nemeth Code terminator
- Counting to 120
- Numbers 1-120 in standard form
- Represent numbers 1-120 with concrete materials, including base ten blocks and/or Digi-Blocks
- Numbers 1-99 in expanded form
- Plus sign
- Minus sign
- Equals sign
- Less than
- Greater than
- Long dash
- General omission symbol
- English letter indicator
- Punctuation indicator
- Problems, equations, and inequalities in a horizontal format
- Problems and equations in a vertical format
- Fluently add and subtract within 10
- Add and subtract within 20 with problems in both horizontal and vertical format
- Multiple strategies to add and subtract within 20
- Relationship of three numbers in equations involving addition and subtraction within 10

- Comparison of two numbers and recording the results
- Tactual identification and attributes of shapes, including a half-circle and trapezoid
- Tactile drawing tools to create and partition shapes
- Tactual identification of equal and unequal shares of shapes
- Single-word switch indicator

## **Objectives**

The student will be able to:

- Count to 120
- Tactually identify and read numbers from 0-120
- Represent numbers 1-120 with concrete materials, including base ten blocks or Digi-Blocks
- Tactually identify the following symbols in expressions, equation, and inequalities:
  - Plus sign
  - Minus sign
  - Equals sign
  - Less than sign
  - Greater than sign
  - Long dash
  - General omission symbol
  - English letter indicator
  - Punctuation indicator
- Use the braillewriter to write the numeric indicator and numbers 0-120
- Use the braillewriter to write the long dash, general omission symbol, plus sign, minus sign, equals sign, greater than sign, and less than sign
- Read problems, equations, and inequalities in a horizontal format
- Use the braillewriter to write problems, equations, and inequalities in a horizontal format
- Read problems and equations in a vertical format
- Use the braillewriter to write problems and equations in a vertical format
- Use the braillewriter to number math problems from 1 – 20
- Represent addition and subtraction process within 20, using concrete objects and verbal explanations
- Fluently add and subtract within 10
- Add and subtract within 20 with problems in both horizontal and vertical format
- Use multiple strategies when adding and subtracting within 20

- Compare two numbers and record the results of comparisons with the symbols for greater than and less than
- Read a numbered math problem and associated answer choice label that include an English letter indicator
- Systematically examine simple tactile graphic organizers, shapes, and charts
- Tactually identify shapes, including half-circle and trapezoid, regardless of size and orientation
- Verbally describe attributes of shapes
- Use tactile drawing tools to create shapes and partition shapes
- Tactually identify equal and unequal shares of shapes

## **Other ECC Skills Addressed**

**Note:** ECC stands for Expanded Core Curriculum

- Listening skills
- Following directions
- Taking turns
- Concept development
- Tactual discrimination
- Left-to-right tracking
- Hand positioning
- Light touch (as opposed to scrubbing)
- Systemically scan, locate pertinent information, and interpret tactile graphics used in math
- Taking turns
- Organization
- Career exploration
- Recreation and leisure

## **Curriculum Documents**

- Teacher guide
- Module content (available for download as a PDF document)
- Answer key for exercises within module
- Teacher materials for administering check-up
- Answer key for check-up
- Teacher recording sheet
- Braille documents available within the curriculum
  - Student braille materials for module
  - Student braille materials for check-up

- Five frame and ten frame (or Tactile Five and Ten Frames from the American Printing House for the Blind [APH])
- Flashcards
- Connect Four game cards and problem set
- Find the Path activity page
- Roll and Race game cards
- Shape chart
- Counting to 120 Chart (choose 1 of 2 versions)
- Place Value Chart 1
- Place Value Chart 2
- Four activity pages in G1-M5-What-Am-I-Activity.brf
- Less Than, Greater Than, and Equals game cards
- Cumulative checklist
- Review activities
- Pretest and posttest

It is recommended that the pretest be used to establish a baseline of Nemeth skills. It is also recommended that the check-ups, pretest, and posttest be completed across multiple sessions. Once a student misses a question 3 times in a row within a part of an assessment, it is suggested that you move to the next part at that point.

If students are proficient in adding and subtracting within 10, you may elect to begin with Section 6 of Module 1, where the long dash is introduced. However, if students would benefit from a review of adding and subtracting within 10, you may want to begin at the beginning of Module 1.

## Required Materials

- Braillewriter
- Braille paper
- Index cards
- Work and/or sorting trays
- Timer
- Pennies, counters, or APH Tactile Tokens
- Tactile markers
- Assortment of stickers, including both small and large stickers
- Wikki Stix<sup>®</sup>
- Tactile graphic supplies such as textured paper, cardboard, foam board, felt, buttons, and/or other small objects
- Magnets with two each of the Nemeth numbers 0-12 without the numeric indicator, plus sign, and separation line that is 5 cells long
- Cookie sheet or magnetic board
- Tactile die or homemade cube labeled with Nemeth numbers 1-6

- inTACT Sketchpad or the DRAFTSMAN: Tactile Drawing Board
- Several pieces of drawing film
- Sketchpad stylus
- Stencils
- Bag or small box
- Three circles, semi-circles, and rectangles available in various APH products
- Scissors
- Construction paper
- Glue or glue stick
- Ruler
- Playdough
- Circle cookie cutter
- Cutting tool such as a plastic knife
- An empty container
- Baskets, bowls, or different containers
- Grid board and number cards
- Two small boxes shaped like a cube: one labeled with the Nemeth numbers 1, 2, 3, 4, 5, 6 on the 6 faces and the other labeled with the Nemeth numbers 7, 8, 9, 10, 11, 12

## Optional Materials

- Nonslip surface such as rubber shelf liner
- Unifix cubes, Digi-Blocks, or base ten unit blocks
- Small storage boxes
- Cork board and pushpins
- Pipe cleaners
- Math Window Braille Basic Math Kit in Nemeth
- Velcro dots and 1-inch embossed graph paper from APH
- Teddy bear manipulatives
- Abacus
- Five frame and ten frame (available in contracted and uncontracted braille within the curriculum)
- Graphic art tape (or other materials needed to create a grid board)
- Number Board and/or Consumable Hundreds Chart from APH
- APH Feel 'n Peel Stickers: Nemeth Braille-Print Numbers 0-100

## 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.
- Administer the pretest before beginning. This will provide important information about pre-existing knowledge of the Nemeth symbols addressed in the modules and guide instruction.
- If the student has completed the Kindergarten curriculum yet continues to experience difficulty with the symbols and concepts addressed at this grade level, you may use activities from the Kindergarten curriculum to teach and/or reinforce these skills before beginning the First Grade Nemeth Curriculum.
- Continue to pay attention to the child's hand movements. Give help and model tracking if the student does not use both hands or if the student does not move both hands smoothly from left to right.
- Encourage a light touch. This will help in tactile identification and increase reading speed across time.
- If needed, the swing cell from the APH for the Blind may be used when first introducing the student to a new symbol. It provides a concrete model of the relationship between the dots in a braille cell and the keys on a braillewriter.
- If a student reads the Nemeth symbols or equation incorrectly, tell the student the correct way to read the symbol or equation.
- 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.
- Using small storage boxes with labels can make it easier for a child to independently locate stored items such as unit blocks, flashcards, etc.
- A two-compartment sorting tray, and then later a three-compartment sorting tray, may be used instead of the place value charts. Label the compartments as ones, tens, and hundreds in braille. The sorting tray may assist students in easily keeping their units, rods, and flats in the correct columns.
- Use a nonslip surface such as rubber shelf liner so braille pages and flashcards will not move as much.
- It may be helpful to point out that braille page numbers are placed at the right margin on the last line.
- Using the braillewriter for most of the writing activities is encouraged as it facilitates the development of motor memory.

- If needed, remind the student to move their fingers across the braille and check their work during writing activities.
- 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.
- If your student is using a refreshable braille display, explain about the additional keys on the far right and far left.
- When teaching the child how to tactually discriminate 2-dimensional shapes, use a variety of sizes for the shapes. The child will also need to explore shapes in different orientations.
- It is recommended that shapes be drawn by using a continuous, clockwise motion.
- The student may draw the shapes free-hand or by using stencils.

## **Planning of Lessons**

- It is recommended that each module be completed across multiple sessions.
- Provide frequent breaks and keep lessons short.
- As needed, supplement with other materials.
- General education classroom manipulative kits for 1st grade often include base ten blocks and two-dimensional shapes in different sizes.
- You may use alternative materials as needed. For example, if you do not have a Math Window Braille Basic Math Kit in Nemeth, you can use a cookie sheet and magnets with Nemeth numbers and symbols to build vertically aligned problems.
- If you elect to emboss the braille materials, you will notice that the pages are numbered and use a 32-cell margin. You are welcome to bind the pages with a comb-binder if you would like.
- Most modules include activities for enrichment and/or additional practice.