Introduction to the Kindergarten Nemeth Braille Code Curriculum

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

Materials for each module include:

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

Additionally, there is a posttest, review activities, and cumulative checklist. **It is recommended that the posttest also be used as a pre-test to establish a baseline of Nemeth skills.** Once a student is unable to complete or miss 3 problems in a row, it is suggested that you stop testing at this point. If students are proficient in reading and writing numbers from 0-10, you may elect to begin with Module 2. If students are proficient with additional skills, you may elect to begin with Module 3 or higher.

Modules

- Review of Numbers 0-10 and Tally Marks
- Numbers 11-15 and General Omission Symbol
- Numbers 16-20, Mathematical Comma, and Punctuation Indicator
- Building Towards the Braille Hundreds Chart
- Equations, Addition, and the Braille Hundreds Chart
- Subtraction, Geometry, and an Introduction to the Ellipsis

Math symbols and concepts, including braille knowledge, addressed across the modules:

- Counting to answer "how many"
- Count aloud to 50 (and then 100) beginning with 1
- Count aloud to 50 (and then 100) beginning with different numbers
- Skip count by 10s beginning with 10
- Skip count by 10s beginning with different numbers
- Numeric indicator
- Numbers 0-100
- Tally marks
- General omission symbol

- Mathematical comma
- Ellipsis
- Plus sign
- Equals sign
- Minus sign
- Nemeth Braille Code equations in a horizontal format
- Numbering of math problems from 1-20, including the punctuation indicator and period
- Numerical order
- Represent numbers 1-20 with concrete materials, including base ten blocks or Digi-Blocks
- "One more" and "one less"
- Patterns that incorporate the general omission symbol
- Missing numbers in a pattern of numbers represented by the ellipsis
- Decompose numbers less than or equal to 5 (and then 10)
- Add within 5 (and then 10)
- Subtract within 5 (and then 10)
- Shapes

Objectives:

The student will be able to:

1) Tactually identify and read the numeric indicator and numbers from 0-100
2) Tactually identify the tally mark, general omission symbol, plus sign, minus sign, equals sign, mathematical comma, and ellipsis in Nemeth code
3) Use the Accessible Equation Editor and/or braillewriter to write the numeric indicator and numbers 0-20
4) Use the Accessible Equation Editor and/or braillewriter to write the tally mark, general omission symbol, plus sign, minus sign, equals sign, mathematical comma, and ellipsis in Nemeth code
5) Tactually read Nemeth Braille Code equations in a horizontal format
6) Use the Accessible Equation Editor and/or braillewriter to write Nemeth Braille Code equations in a horizontal format
7) Represent a given number ranging from 1-20 by making a set of tally marks
8) Represent numbers 1-20 with concrete materials, including base ten blocks or Digi-Blocks
9) Count to answer "how many" questions about as many as 20 objects arranged in a line or rectangular array

10) Count to answer "how many" questions about as many as 20 tally marks (in groups of 5) arranged in a line or rectangular array
11) Identify a number that is "one more" or "one less" than a given number, ranging from 1-100
12) Use the Accessible Equation Editor and/or braillewriter to number math problems from 1 – 20
13) Count aloud to 50 (and then 100) beginning with 1 and with different numbers
14) Using a braille chart, skip count by 10s through the last row in the chart, beginning with different numbers
15) Place numbers 1-50 (and then 100) in order on a grid board
16) Locate numbers 1-50 (and then 100) on a braille chart
17) Represent addition and subtraction to 5 (and then 10) with objects, acting out situations, Five Frame, Ten Frame, and verbal explanations
18) Decompose numbers less than or equal to 5 (and then 10) in more than one way by using objects, tactile representations, Five Frames, Ten Frames and/or a braillewriter
19) Fluently add and subtract within 5, including with Nemeth Braille Code equations in a horizontal format
20) Use the Accessible Equation Editor and/or braillewriter to write the first three missing numbers in a list of missing numbers ranging from 0-20 represented by an ellipsis
21) Use a braille hundreds chart to verbally identify the first three missing numbers in a pattern of numbers ranging from 0-100 represented by an ellipsis
22) Tactually identify circle, triangle, rectangle, and square regardless of size and orientation
23) Verbally describe circle, triangle, rectangle, and square

Other ECC skills addressed across the modules:

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

Teaching tips:

- If the student has not been exposed to the Nemeth numbers 0-10 yet, use the Pre-Kindergarten curriculum in order to teach the numbers 0-10 before beginning the Kindergarten unit.

- 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 Pre-Kindergarten curriculum yet continues to experience difficulty reading and writing any of the numbers, you may use activities from the Pre-Kindergarten curriculum to teach and/or reinforce the numbers 0-10.
- 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.
- If needed, the swing cell from the American Printing House 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.
- When you initially introduce the number 0, explain that it means no objects.
- 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.
- Using small storage boxes with labels can make it easier for a child to independently locate stored items such as unit blocks, flash cards, etc.
- Use a nonslip surface such as rubber shelf liner so braille pages and flash cards will not move as much.
- If you are using hard copy braille, the student may also underline or circle the answer with a grease marker or crayon. Placing a small sticker on top of the answer is another option.
- Using the braillewriter for some of the writing activities is encouraged as it facilitates the development of motor memory.
- If needed, remind the student to move his/her fingers across the braille and check his/her 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. 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.

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.
- You may use alternative materials as needed. For example, if you do not have a Grid Board from the American Printing House for the Blind, you can use 1-inch graph paper to create a Grid Board. Another option is to use graphic art tape and braille paper to create a Grid Board.
- 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 follow-up activities for enrichment and/or additional practice.
- Use ½ sheets of braille paper when using the braillewriter with young students. These sheets will be easier for the student to handle.