

Introduction to the Second Grade 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 and a cumulative checklist. **It is recommended that the posttest also be used as a pretest to establish a baseline of Nemeth skills.** For your convenience, the posttest has been renamed and placed into the Introduction and Pretest folder. Once a student is unable to complete or misses 3 problems in a row within a part of the pretest, it is suggested that you move to the next part at that point.

Modules

- Addition to 100 and the Carried Number Indicator
- Subtraction to 100 and the Cancellation Indicator
- Place Value, Numbers to 1000, and the Contracted Form of the Horizontal Bar
- Money and Word Problems

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

- Opening Nemeth Code indicator
- Nemeth Code terminator
- Nemeth Code problems and equations in a vertical format
- Carried number indicator and carried numbers (commonly called renamed numbers)
- Cancellation indicator
- Fluently add and subtract within 100 with Nemeth Code problems in a vertical format
- Multiple strategies to add and subtract within 100
- 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
- Tactual identification of coins
- Cent sign
- Dollar sign
- Decimal point
- Monetary expressions that include a cent sign
- Monetary expressions that include a dollar sign
- Monetary expressions that include a dollar sign and decimal point
- Word problems

Objectives:

The student will be able to:

- 1) Tactually identify the opening Nemeth Code indicator
- 2) Tactually identify the Nemeth Code terminator
- 3) Tactually identify the following Nemeth symbols in expressions and equations:
 - Plus sign
 - Minus sign
 - Separation line
 - Carried number indicator
 - Carried numbers
 - Cancellation indicator
 - General omission symbol
 - Cent sign
 - Dollar sign
 - Decimal point
 - English letter indicator
 - Punctuation indicator
- 4) Use the Accessible Equation Editor and/or braillewriter to write the Nemeth Code symbols listed above.
- 5) Tactually read Nemeth numbers from 0-1000 in standard form
- 6) Represent numbers 1-1000 with concrete materials, including base ten blocks or Digi-Blocks
- 7) Use the Accessible Equation Editor and/or braillewriter to write the numeric indicator and numbers 0-1000
- 8) Tactually read Nemeth numbers 1-999 with a single underlined digit

- 9) Use the Accessible Equation Editor and/or braillewriter to write numbers 1-999 with a single underlined digit
- 10) Read unnumbered and numbered Nemeth Code problems involving addition in a vertical format that include numbers 0-99, plus sign, and a separation line
- 11) Fluently add within 100, including with Nemeth Braille Code equations in a vertical format
- 12) Add up to four two-digit numbers using strategies based on place value and/or manipulatives
- 13) Write the answer to an addition problem using correct Nemeth Code in a vertical format
- 14) Use the braillewriter to write Nemeth Braille Code problems and equations involving addition within 100 in a vertical format
- 15) Use the Accessible Equation Editor and/or braillewriter to number math problems from 1–20
- 16) Read Nemeth Code problems involving subtraction in a vertical format that include numbers 0-99, a minus sign, and a separation line
- 17) Fluently subtract within 100, including with Nemeth Braille Code equations in a vertical format
- 18) Write the answer to a subtraction problem using correct Nemeth Code in a vertical format
- 19) Use the braillewriter to write Nemeth Braille Code problems and equations involving subtraction within 100 in a vertical format
- 20) Tactually identify a penny, a nickel, a dime, and a quarter
- 21) Sort pennies, nickels, dimes, and quarters
- 22) Tactually read monetary expressions with a cent sign
- 23) Tactually read monetary expressions with a dollar sign
- 24) Tactually read monetary expressions with a dollar sign and decimal point
- 25) Tactually read grade-level word problems, including multiple choice problems, with Nemeth Code switch indicators
- 26) Identify the monetary value of a set of coins
- 27) Identify the monetary value of a set of dollar bills and coins
- 28) Use the Accessible Equation Editor and/or braillewriter to write monetary expressions that include a cent sign
- 29) Use the Accessible Equation Editor and/or braillewriter to write monetary expressions that include a decimal point and dollar sign
- 30) Solve grade-level word problems about addition and subtraction
- 31) Solve grade-level word problems that include money

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; independent living skills, money management

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.
- 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 and First Grade curriculum yet continues to experience difficulty with the symbols and concepts addressed at these grade levels, you may use activities from the Kindergarten and First Grade curriculum to teach and/or reinforce these skills before beginning the Second 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 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 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.
- As needed, manipulatives such as base ten blocks and/or Digi-Blocks may be used.

- 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 may be helpful to point out that braille page numbers are placed at the right margin on the last line.
- Using the braillewriter for some of the writing activities is encouraged as it facilitates the development of motor memory.
- Encourage your student to verbalize the process they use when solving problems.
- 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.
- Use real money throughout the module, instead of play money. Plastic play coins do not feel, weigh, or smell like actual coins. Using real money will allow students to learn how to tactually identify coins. This is an important foundational skill.

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 2nd grade often include base ten blocks and/or Digi-Blocks.
- You may use alternative materials as needed.
- 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.
- Each module includes follow-up activities for enrichment and/or additional practice.