

Pre-Kindergarten Nemeth Braille Code Curriculum
Module 5: Nemeth Numerals 8-9
Teacher Reference Materials

Prerequisite skills:

- Ability to use rote counting number words in order
- Ability to verbally count objects
- Ability to tactually identify the numeric indicator and the numerals 1-7
- Ability to write the numerals 1-7
- Ability to put the numbers 1-7 in order

Math symbols and concepts, including braille knowledge, addressed:

- Counting
- Numeric indicator
- Numerals 1-9
- Concepts of "before" and "after"
- Numerical order (introduced, but not assessed until next module)
- Circle and rectangle (introduced, but not assessed)

Objectives:

The student will be able to:

- 1) Tactually identify the numerals from 1-9
- 2) Use the Accessible Equation Editor and/or braillewriter to write the numerals 1-9
- 3) Represent a number ranging from 1-9 by producing a set of objects with concrete materials and Nemeth numerals
- 4) Use concrete materials (for "before" relating to one less and "after" relating to one more) and/or number cards in order and then determine what number comes before or after a specific number from 1-9 in Nemeth Code only

Other ECC skills addressed:

Listening skills; concept development; following directions; tactual discrimination; left-to-right tracking; taking turns; hand positioning; light touch (as opposed to scrubbing)

Teaching tips:

- This module should be completed across multiple sessions.
- Note that the beginning tracking activities are emphasizing the shape of the numeral.

- It may also 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.
- 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.
- 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.
- As previously mentioned, the swing cell from the American Printing House for the Blind provides a concrete model of the relationship between the dots in a braille cell and the keys on a braillewriter.
- Using the braillewriter for some of the writing activities is encouraged as it facilitates the development of motor memory.
- 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!

Materials/technology needed:

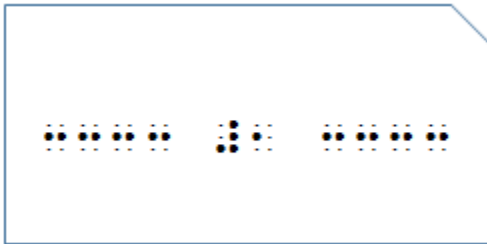
- Accessible Equation Editor and/or braillewriter
- 2 swing cells and pegs
- Braille paper
- Index cards
- Brightly colored construction paper
- Unifix cubes (or other cubes that can be snapped together)
- Bin or bucket
- Glue stick or glue
- Textured paper/material/small objects
- Outline/pattern of train cars from Texas State Library
https://www.tsl.texas.gov/ld/projects/trc/2008/manual/bil_trains.html#_Color_Train

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

- Scented stickers, Wikki sticks, buttons, or textured paper
- Two ½ dozen muffin tins and 12 small balls
- Graham crackers
- Vanilla wafers (or other small circular cookies)
- Cheerios (any flavor)
- Hook and loop sticky-back strips and circles of Velcro so the circles will connect to the strips

Explanation of activities embedded into module:

- 1) If you do not have two swing cells, use two ½ dozen muffin tins with tennis balls for an easy way for the child to “build” the Nemeth numerals. Another variation would be to use a ½ dozen egg carton or a dozen egg carton cut in half with plastic eggs or golf balls.
- 2) Create flash cards with the index cards. Cut out the upper right corner for easy identification of orientation. Make five flash cards for each numeral. Use lines of dots 2-5 for leading in and away from the numeral. See the next page for an example.



The flash cards will be used to practice reading numerals at first. They will also be used to put the numbers in order in this and later modules. Give the student one number card at a time. Make sure that it is oriented with the cut out corner at the upper right.

- 3) The student will create 8 lines of full braille cells and numerals 8s for reading and writing practice. The student will need a sheet of braille paper and braillewriter. Remind the student to make some of the lines long and some of the lines short. This activity will also provide an opportunity for the student to check their work as they braille. This is an important work habit to build when a student is first learning to read and write. After the student checks his/her work, have the student find the shortest line of braille and then the longest line of braille. Also, have the student count how many numeral 8s are on each line.
- 4) Continue to make a number train. The student will need: railroad cars with numerals 1-7 from the last module, brightly colored construction paper or braille paper cut into train car shapes, glue stick, and braille numerals 8-9 on small cards. First, have the student find the numeral 8 and glue it onto a railroad car. Then, have the student find the numeral 9 and glue it onto another railroad car. Then have the student put the railroad cars into order from 1 to 9.

If you would like, the student can “decorate” the railroad cars with scented stickers, Wikki sticks, buttons, or textured paper. Feel 'n Peel Sheets: Carousel of Textures (catalog number 1-08863-00) from American Printing House for the Blind has a variety of adhesive backed and non-adhesive backed textured paper.

It may help to place the railroad cars on a nonslip surface such as rubber shelf liner so they will not move as the student is using them. You may also use a strip of sticky back Velcro on the back side of each railroad car and then arrange the railroad cars on a long strip of Velcro on the student’s desk.

Encourage verbalization of the names of the ordinal positions such as first and second while the children work. Use this activity to reinforce counting as well.

Keep the railroad cars and in a later module the student will have the opportunity to build the number train to 10.

- 5) Draw a card and then read the numeral. Afterwards have the student build a train using that number of Unifix cubes or other cubes that can be snapped together. Afterwards, if desired, the student can practice writing the numeral using the Accessible Equation Editor and/or a braillewriter.

If you do not have Unifix cubes, you can also use MegaBlocks, Legos, or teddy bear manipulatives designed for preschoolers. This activity can easily be completed with the student and one of his/her friends (or you if no other students are present). The students should take turns drawing a number card and building a train!

- 6) Place 9 objects in a bin or bucket. Then have students select some or all of the items. Afterwards, have the students count the items and then braille the Nemeth numeral. Then you or the student’s friend can select some of the objects. Have the student count the items and then braille the Nemeth numeral!

- 7) You will need flash cards with numerals written from 1 to 9 on them. Then have the student shuffle the flash cards. Afterwards have the student place the numbers in order from 1 to 9.

If needed, provide the student with a hard copy of numbers in order to use as a model. It may also help to place the flash cards on a nonslip surface such as rubber shelf liner so they will not move as the student

is using them. You may also use a strip of sticky back Velcro on the back side of each flash card and then arrange the flash cards on a long strip of Velcro on the student's desk. You and/or the student can paste the flash cards in place on a large piece of construction paper when they are correctly laid out.

- 8) Have fun making a graham cracker train snack as a follow-up activity! You will need graham crackers, vanilla wafers, and Cheerios. The first step in building a train snack is to have the student break a sheet of graham crackers into four equal parts. Then have the student count out 8 vanilla wafers and 8 Cheerios. Then he/she should use the graham crackers to create 4 railroad cars with two vanilla wafers for wheels on each railroad car. The Cheerios can be used to create the exhaust and steam coming from the engine.

Once the student finishes making a train, enjoy the snack! The student can eat one of the railroad cars and its wheels, and then figure out how many railroad cars and wheels he/she has left. Then if the student is still hungry, he/she can eat another railroad car and its wheel, and then figure out how many railroad cars and wheels he/she has left.

If preferred, the student can use frosting or yogurt as an edible glue to hold the components of the train together.

Use this activity to reinforce counting as well as talk about the following shapes: circle and rectangle.

Materials Commercially Available:

American Printing House for the Blind (www.aph.org) sells the swing cell. The catalog number is 6-78041-00.

Additional materials that could be used from the American Printing House for the Blind (www.aph.org) include

- Feel 'n Peel Sheets: Carousel of Textures (1-08863-00)
- Hundreds boards and Manipulatives Kit (1-03105-00)
- FOCUS in Mathematics Kit, Second Edition (with print Teacher's Guide 1-08280-01, with braille Teacher's Guide 1-08281-01)
- Small Work-Play Tray with Dividers (1-03751-00, 1-03770-00) *also available within the FOCUS in Mathematics Kit*
- Textured sorting Circles and Shapes (1-08834-00)
- MathBuilders Unit 1: Matching, Sorting, and Patterning (with print Teacher's Guide 7-03560-00, with braille Teacher's Guide 5-03560-00)

- *Picture Maker Wheatley Tactile Diagramming Kit (1-08838-00) *Many of these objects and a blue felt board are also available in the*
- *MathBuilders Unit 1 and the FOCUS in Mathematics Kits mentioned above.*
- *Feel 'n Peel Stickers: Nemeth Braille-Print Numbers 0-100 (1-08876-00)
- *Feel 'n Peel Point Symbols or Stars (1-08846-00; 1-08868-00; 1-08867-00)

** WARNING: CHOKING HAZARD -- Small Parts. Not intended for children ages 5 and under without adult supervision.*

Fun Facts from:

Train sounds: <http://www.written-sound.com/index.php?term=train>

Number of subway train stations:

<http://www.citylab.com/commute/2016/06/the-relationship-between-subways-and-urban-growth/485006/>