

Second Grade Nemeth Braille Code Curriculum
Module 1: Addition to 100 and the Carried Number Indicator
Teacher Reference Materials

Prerequisite skills:

- Ability to tactually identify the numbers 0-100
- Ability to tactually identify the plus sign and separation line
- Ability to write the numbers 0-100
- Ability to write the plus sign and separation line
- Ability to read the numbering of math problems, including the punctuation indicator and period
- Ability to represent addition within 20

Math symbols and concepts, including braille knowledge, addressed:

- Carried number indicator and carried numbers (commonly called renamed numbers)
- Nemeth Braille Code problems and equations in a vertical format
- Fluently add within 100
- Relate counting to addition
- Use manipulatives and strategies based on place value to add within 100
- Add within 100 with Nemeth Code problems in a vertical format

Objectives:

The student will be able to:

- 1) Read unnumbered and numbered Nemeth Code problems involving addition in a vertical format that include numbers 0-99, plus sign, and a separation line
- 2) Fluently add within 100, including with Nemeth Braille Code equations in a vertical format
- 3) Add within 100, using the count on strategy
- 4) Add up to four two-digit numbers using strategies based on place value and/or manipulatives
- 5) Write the answer to an addition problem using correct Nemeth Code in a vertical format
- 6) Use the braillewriter to write Nemeth Braille Code problems and equations involving addition within 100 in a vertical format

Other ECC skills addressed:

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; recreation and leisure

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.
- This module should be completed across multiple sessions.
- It is highly recommended that this module be completed with hard copy braille and a braillewriter instead of a refreshable braille display.
- It may 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 needed, remind the student to move his/her fingers across the braille and check his/her work during writing activities.
- 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.
- As needed, manipulatives such as Unifix blocks, Digi-Blocks, or base ten blocks may be used.
- 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!
- It may be helpful to provide assistance in lining up the embossing head with the addends.
- Encourage the student to verbalize the process they use when solving problems.

Materials/technology needed:

- Braillewriter
- Braille paper
- Index cards
- Flash cards (included in the curriculum)
- Work and/or sorting trays
- Counting to 120 Chart (included in the curriculum)

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

- Unifix blocks, Digi-Blocks, or base ten unit blocks
- Magnetic counters
- Teddy Bear counters
- Wikki Stix®
- Small storage boxes
- Math Window Braille Basic Math Kit in Nemeth
- Rubber shelf liner
- Timer
- Small stickers

Explanation of activities embedded into module:

- 1) In the activity on page 3, students will use flash cards to practice reading addition problems in vertical alignment and determining the sum.

You can either create flash cards with the problems below using index cards or emboss the flash cards on pages 1-2 of the braille document entitled "Flash Cards for Module 1_2". Answers are provided for you in parentheses to assist you in placing the answers on the back of the flash cards.

$\begin{array}{r} 47 \\ + 1 \\ \hline \end{array}$	$\begin{array}{r} 58 \\ + 3 \\ \hline \end{array}$	$\begin{array}{r} 90 \\ + 2 \\ \hline \end{array}$
(48)	(61)	(92)

$\begin{array}{r} 61 \\ + 0 \\ \hline \end{array}$	$\begin{array}{r} 39 \\ + 1 \\ \hline \end{array}$	$\begin{array}{r} 85 \\ + 5 \\ \hline \end{array}$
(61)	(40)	(90)

$\begin{array}{r} 15 \\ + 3 \\ \hline \end{array}$	$\begin{array}{r} 75 \\ + 4 \\ \hline \end{array}$	$\begin{array}{r} 38 \\ + 2 \\ \hline \end{array}$
(18)	(79)	(40)

$\begin{array}{r} 99 \\ + 0 \\ \hline \end{array}$	$\begin{array}{r} 32 \\ + 1 \\ \hline \end{array}$	$\begin{array}{r} 24 \\ + 5 \\ \hline \end{array}$
(99)	(33)	(29)

34	66	96
<u>+ 3</u>	<u>+4</u>	<u>+0</u>
(37)	(70)	(96)

72	67	38
<u>+ 6</u>	<u>+2</u>	<u>+ 1</u>
(78)	(69)	(39)

Cut out the upper right corner of each flash card for easy identification of orientation. If you would like for the student to be able to use the flash cards independently, place the answers on the back of each flash card using the Feel 'n Peel Stickers: Nemeth Braille-Print Numbers from American Printing House for the Blind.

Begin by shuffling the flash cards, and then have the student select a card. After the child reads each problem in vertical alignment and tells you the answer, have him/her use a sorting tray to separate which cards he/she has read and which cards he/she has not read.

- 2) In some of the activities, the student will listen carefully and then write the braille symbols, problems or equations that he/she hears. It is highly recommended that these activities be completed using a brailewriter and braille paper since spatially aligned problems require more than one line in braille.

Begin each time by asking the student to listen carefully as you read the braille symbols, problems, or equations. Afterwards he/she will write what he/she hears in braille. Remind the student to check his/her work. An answer key has been provided for these activities in the document entitled "B3 Module 1_Answer Key for Writing Activities_2".

- 3) The follow-up activity is a game called Tic-Tac-Toe. You will need 2 players for this game. It can easily be played with another student (or you if no other students are present) who reads print or braille. If the other player reads print, add print to each of the game cards.

Materials for the game include: a Tic-Tac-Toe game card and two different types of markers that are tactually distinctive such as small pieces of Wikki Stix® or stickers. If you use Wikki Stix® pieces, roll them into a ball with your hand so that they will stick to the paper more easily.

The first player to get 3 markers in a row wins the game! Each time a player determines the sum for a problem, he/she will earn the right to place a marker on the problem. Once a player has 3 markers horizontally in a row, vertically in a column, or going diagonally, he/she should call out Tic-Tac-Toe.

Begin by encouraging the student to use his/her hands to explore the Tic-Tac-Toe game card. Point out that he/she will find the title centered on the first line. Afterwards there will be 3 rows with 3 problems on each row.

Decide which player who will go first. Then the first player will select one of the nine addition problems to solve. If the first player correctly determines the sum, then he or she can place one of his/her markers on top of the problem.

Afterwards, the second player will select one of the addition problems to solve. If the second player correctly determines the sum, then he or she can place one of his/her markers on top of the problem. Continue alternating turns until a winner gets 3 markers in a row and calls out Tic-Tac-Toe.

Four different game cards are available in braille in the curriculum. If preferred, you can create your own game cards.

Here is a list of what is included in the game cards. Answers are provided for you in parentheses to assist you in placing the answers on the back of the flash cards.

Game Card 1

52 <u>+37</u> (89)	48 <u>+34</u> (82)	27 <u>+44</u> (71)
67 <u>+26</u> (93)	45 <u>+23</u> (68)	45 <u>+5</u> (50)
38 <u>+27</u> (65)	77 <u>+11</u> (88)	18 <u>+23</u> (41)

Game Card 2

55 <u>+32</u> (87)	18 <u>+65</u> (83)	47 <u>+44</u> (91)
58 <u>+17</u> (75)	81 <u>+18</u> (99)	53 <u>+ 4</u> (57)
17 <u>+65</u> (82)	37 <u>+39</u> (76)	46 <u>+26</u> (72)

Game Card 3

34 <u>+58</u> (92)	48 <u>+21</u> (69)	68 <u>+19</u> (87)
26 <u>+58</u> (84)	53 <u>+19</u> (72)	98 <u>+ 1</u> (99)
15 <u>+77</u> (92)	54 <u>+38</u> (92)	16 <u>+17</u> (33)

Game Card 4

26 <u>+67</u> (93)	39 <u>+11</u> (50)	57 <u>+20</u> (77)
63 <u>+27</u> (90)	27 <u>+57</u> (84)	36 <u>+ 5</u> (41)
55 <u>+29</u> (84)	64 <u>+21</u> (85)	34 <u>+48</u> (82)

Materials Commercially Available:

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

- FOCUS in Mathematics Kit, Second Edition that includes base ten blocks (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*
- *Feel 'n Peel Stickers: Nemeth Braille-Print Numbers 0-100 (1-08876-00)
- *Feel 'n Peel Stickers: Basic Math Symbols (1-08892-00)
- *Feel 'n Peel Sheets: Carousel of Textures (1-08863-00)
- Addition and Subtraction Table (5-82699-00)
- Quick Pick Math: Blank Cards (1-03577-00; can be used with the Quick Pick Math folder)
- Math Flash for computers running Windows 7 or later (D-19910-ED; available for download at <https://tech.aph.org/>)
- Math Flash, Google Home Assistant Version (D-30028-AP; included with the Google Assistant app which is free)
- Math Flash, Amazon Alexa Version (D-19910-AS; included with the Amazon Alexa app which is free)
- Math Robot app for the iPad (D-30000-AP; available for download at <https://tech.aph.org/>)
- Cranmer Abacus (1-03150-00)
- Large Abacus (1-03170-00)
* WARNING: CHOKING HAZARD -- Small Parts. Not intended for children ages 5 and under without adult supervision.

Materials that could be used from Wikki Stix® (<https://www.wikkistix.com/>) include

- Wikki Stix

Materials that could be used from the Digi-Block Store (<https://www.digiblock.com>) include

- Classic Block-of-100
- Power Block-of-100

Materials that could be used from Math Window (<https://mathwindow.com/>) include

- Math Window Braille Basic Math Kit in Nemeth

Fun Facts from:

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<http://justfunfacts.com/interesting-facts-about-cars/>