

First Grade Module 1

Addition and Subtraction to 10, English Letter Indicator for Multiple Choice, and Long Dash

Teacher Guide

Prerequisite Skills

- Ability to tactually identify the numbers 1-35
- Ability to tactually identify the general omission symbol, equals sign, plus sign, and minus sign
- Ability to write the numbers 1-35
- Ability to write the general omission symbol, equals sign, plus sign, and minus sign
- Ability to read and write the numbering of math problems from 1-35, including the punctuation indicator and period
- Ability to represent addition within 5 and 10
- Ability to decompose numbers less than or equal to 5 and 10
- Ability to represent subtraction within 5 and 10

Symbols and Concepts

- Long dash
- Equations in a horizontal format
- Fluently add and subtract within 10
- Relationship of three numbers in equations involving addition and subtraction within 10
- English letter indicator used with answer choices
- Punctuation indicator used with lettered answer choices followed by a period

Objectives

The student will be able to:

- Using a five frame, for any number from 0 to 5, find the number that makes 5 when added to the given number
- Using a ten frame, for any number from 0 to 10, find the number that makes 10 when added to the given number
- Read a long dash in an equation within a horizontal format
- Read equations involving addition within a horizontal format that include numbers 0-10, plus sign, equals sign, and long dash

- Read equations involving subtraction within a horizontal format that include numbers 0-10, minus sign, equals sign, and long dash
- Fluently add within 10, including with equations within a horizontal format
- Determine the unknown whole number in an addition equation in a horizontal format within 10 that relates three whole numbers
- Fluently subtract within 10, including with equations within a horizontal format
- Determine the unknown whole number in a subtraction equation in a horizontal format within 10 that relates three whole numbers
- Read a numbered math problem and associated answer choices that include an English letter indicator and letter, not followed by punctuation
- Read a numbered math problem and associated answer choices that include an English letter indicator and letter, followed by a punctuation indicator and period
- Use the braillewriter to write the long dash
- Use the braillewriter to write equations involving addition in a horizontal format
- Use the braillewriter to write equations involving subtraction in a horizontal format
- Use the braillewriter to write the English letter indicator
- Appropriately use the English letter indicator when answering multiple choice questions

Other ECC Skills Addressed

Note: ECC stands for Expanded Core Curriculum.

- Listening skills
- Concept development
- Following directions
- Organization
- Tactual discrimination
- Left-to-right tracking
- Scan and interpret tactile graphics used in math
- Hand positioning
- Light touch (as opposed to scrubbing)
- Recreation and leisure

Required Materials

- Braillewriter
- Braille paper
- Index cards
- Braille documents available within the curriculum
 - Student braille document
 - 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
- Pennies or APH Tactile Tokens
- Work and/or sorting trays
- Timer
- Markers

Optional Materials

- Magnetic counters on a cookie sheet or magnetic board
- Small pieces of Wikki Stix®
- Nonslip surface such as rubber shelf liner
- Assorted objects, Unifix cubes, Digi-Blocks, or base ten unit blocks
- Writing answers braille document
- Small stickers
- Small storage boxes
- Cork board and pushpins

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.
- All braille files in the curriculum are formatted with a 32-cell width by default.
- This module should be completed across multiple sessions.
- If the child is using a refreshable braille display, ensure that the child knows how to move to the next line of braille. Offer assistance as needed.
- 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. 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 number cards, etc.
- It may also help to place the number 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 can also do the following:
 - Stomp a foot
 - Underline or circle the number with a grease marker or crayon
 - Place a small sticker on top of the number
- 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.
- We maintain a list of [commercially available materials](#) that can be used to supplement instruction.

Activities

Activity 1

- This activity is a game called "Race to 5" with a five frame and pennies. The student will need a sorting tray and 3 flashcards for each number from 0-5. Similar to the other activities in the module, you may also place the five frame on a cookie sheet or magnetic board and use magnetic counters instead of pennies.
- Shuffle the flashcards and then have the student draw a flashcard. They will read the number on the flashcard and then use the five frame and pennies to tell you how many more are needed to make 5. As the child reads each number card, have them use a sorting tray to separate which cards they have read and which cards they have not read.
- If needed, remind the student that no additional pennies would be needed to make 5 when they select a flashcard with the number 5 on it.

- The student wins the game if they can tell you how many more are needed to make 5 for all of the numbers before the timer goes off. The length of time for the game should be based on the individual needs of the student. If desired, this game can be played more than once. The length of time can be decreased each time in order to promote fluency.

Activity 2

- Students will use flashcards to practice reading addition problems and determining missing numbers.
- You can either create flashcards with the equations in the "G1-M1-Flashcards.docx" using index cards or emboss the flashcards on pages 1-2 of the braille document entitled "G1-M1-Flashcards.brf".
- The problems and answers in parentheses are provided in "G1-M1-Flashcards.docx" for your reference. This may also assist you in placing the answers on the back of the flashcards.
- If you are using a screen reader, you will want to select voicing of "all punctuation" in your settings when using "G1-M1-Flashcards.docx".
- Cut out the upper right corner of each flashcard for easy identification of orientation. If you would like for the student to be able to use the flashcards independently, place only the answers on the back of each flashcard using the Feel 'n Peel Stickers: Nemeth Braille-Print Numbers from APH.
- Begin by shuffling the flashcards, and then have the student select a card. As the child reads each equation, have them use a sorting tray to separate which cards they have read and which cards they have not read.
- Afterwards, have them tell you what number the general omission symbol stands for. If needed, the student can use manipulatives in order to determine what number the general omission symbol stands for. Once they can read all of the equations correctly, have them go back and time how quickly they can read the equations.

Activity 3

- The student will listen carefully and then write linear addition problems that contain a general omission symbol. These activities can be completed using the braillewriter and braille paper.
- Remind the student to check their work. An answer key has been provided for these activities in the braille document entitled "G1-M1-Writing-Answers.brf".
- If your student is using a refreshable braille display for this activity, explain about the additional keys on the far right and far left.

Activity 4

Activity 4 is the same as Activity 1. However, the student will play the game with a ten frame and 2 flashcards for each number from 0-10. It is called "Zoom to Ten" since the numbers range from 0-10.

Activity 5

- Students will find the long dash either at the beginning or the end of each equation. Afterwards, they will determine the missing information in each equation and record their answer in braille. These activities can be completed using the braillewriter and braille paper.
- Encourage the student to verbalize the process they use to determine the missing number. Provide assistance as needed. An answer key in braille is provided in "G1-M1-Writing-Answers.brf".

Activity 6

Activity 6 is similar to Activity 5. However, the long dash may be located anywhere in the equation.

Activity 7

- You can either create flashcards with the equations in the "G1-M1-Flashcards.docx" using index cards or emboss the flashcards on pages 3-5 of the braille document entitled "G1-M1-Flashcards.brf".
- The problems and answers in parentheses are provided in "G1-M1-Flashcards.docx" for your reference. This may also assist you in placing the answers on the back of the flashcards.
- Similar to the other flashcard activities, cut out the upper right corner of each flashcard for easy identification of orientation. If you would like for the student to be able to use the flashcards independently, place only the answers on the back of each flashcard using the Feel 'n Peel Stickers: Nemeth Braille-Print Numbers from APH.
- Begin by shuffling the flashcards, and then have the student select a card. As the child reads each equation, have them use a sorting tray to separate which cards they have read and which cards they have not read.
- Afterwards, have them tell you what number is missing. If needed, the student can use manipulatives in order to determine what number is missing. Once they can read all of the equations correctly, have them go back and time how quickly they can read the equations containing the long dash.

Activity 8

Students will practice writing symbols, including the long dash.

Activity 9

Activity 9 is similar to Activity 3, but with a focus on writing linear addition problems that contain a long dash.

Activity 10

- You can either create flashcards with the equations in the "G1-M1-Flashcards.docx" using index cards or emboss the flashcards on pages 6-8 of the braille document entitled "G1-M1-Flashcards.brf".
- The problems and answers in parentheses are provided in "G1-M1-Flashcards.docx" for your reference. This may also assist you in placing the answers on the back of the flashcards.
- Similar to the other flashcard activities, cut out the upper right corner of each flashcard for easy identification of orientation. If you would like for the student to be able to use the flashcards independently, place the answers on the back of each flashcard using the Feel 'n Peel Stickers: Nemeth Braille-Print Numbers from APH.
- Begin by shuffling the flashcards, and then have the student select a card. As the child reads each equation, have them use a sorting tray to separate which cards they have read and which cards they have not read.
- Afterwards, have the child tell you the answer to the problem. If needed, the student can use manipulatives in order to determine the difference. Once they can read all of the equations correctly, have them go back and time how quickly they can read the subtraction equations containing the long dash.

Activity 11

Activity 11 is similar to Activity 3, but with a focus on writing linear subtraction problems that end with a long dash.

Activity 12

Activity 12 is similar to Activity 3, but with a focus on writing linear subtraction problems that contain a long dash.

Activity 13

- Students will use the braillewriter and braille paper to record their answer. The students will begin by reading each problem and answer choices. Afterwards, they will write the problem number and letter of the correct answer choice. Then they will press their line spacing key twice to move to the next line of braille before beginning the next problem.
- Encourage the student to pay close attention to the sign of operation and verbalize the process they use to determine the missing number. If needed, a five/ten frame and pennies may be used. Also remind the student to move their fingers across the braille and check their work if needed. An answer key in braille is provided in Section 12 of the braille document entitled "G1-M1-Writing-Answers.brf".

Activity 14

- The activity is a new game for 2 or more players called Connect Four. Each player will need a Connect Four game card, the problem set, and markers. The problem set and game cards are included in a separate document. They are ready to be embossed.
- The problems and answers in parentheses are provided in "G1-M1-Problem-Set.docx" for your reference.
- Small stickers or pieces of Wikki Stix® can be used for markers. If you use Wikki Stix® pieces, roll them into a ball with your hand so that they will stick to the paper more easily. Another option is using pushpins on a cork board or magnets on a cookie sheet.
- The first player to get 4 markers in a row wins the game. Each time a player finds a missing number in an equation, they will earn the right to place a marker on the number somewhere on their Connect Four game board. Once a player has 4 markers horizontally in a row, vertically in a column, or going diagonally, they will win by calling out "Connect Four".
- Instructions for playing Connect Four:
 - Begin by telling the students that they will play until a winner calls out "Connect Four".
 - Then have the players use their hands to explore their Connect Four game card. Let them know that the title is centered on the first line. Below the title the players will find 6 rows with six numbers on each row.

- Next, let the students know that they will take turns reading equations on the Problem Set and then determine the missing information. If they correctly identify the missing number, they earn the right to find the missing number on the Connect Four game board and place a marker on top of it. There will be more than 1 of each number on the game board, so they will get to decide where to place their sticker or Wikki Stix® each time. Tell them to think about which one will help them get 4 markers in a row horizontally, vertically, or diagonally.
- Continue playing until one of the students has 4 markers in a row and calls out "Connect Four". This activity can easily be completed with several students who read print or braille. You are welcome to play if no other students are available. If some of the players read print, add print to each of the game cards and problem set.

Fun Facts

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