

Kindergarten Module 3 Numbers 16-20, Mathematical Comma, and Punctuation Indicator Teacher Guide

Prerequisite Skills

- Ability to use rote counting number words in order
- Ability to verbally count objects
- Ability to tactually identify the numbers 0-15
- Ability to tactually identify the general omission symbol
- Ability to write the numbers 0-15
- Ability to tactually count tally marks (1-15)
- Ability to write the general omission symbol and tally marks

Symbols and Concepts

- Counting to answer "how many"
- Numbers 16-20
- Mathematical comma
- Numbering of math problems from 1-20, including the punctuation indicator and period
- Patterns that incorporate the general omission symbol (introduced, but not assessed)
- Represent numbers 16-20 with concrete materials, including base ten blocks or Digi-Blocks
- "One more" and "one less"

Objectives

The student will be able to:

- Tactually identify and read the numbers from 16-20
- Tactually identify the mathematical comma
- Tactually identify the punctuation indicator and period
- Use the braillewriter to write the numbers 16-20
- Use the braillewriter to write the mathematical comma
- Use the braillewriter to number math problems from 1-20
- Count to answer "how many" questions about as many as 20 objects arranged in a line or rectangular array

- Represent numbers 16-20 with concrete materials, including base ten blocks or Digi-Blocks
- Identify a number that is “one more” or “one less” than a given number

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
- Taking turns
- Hand positioning
- Light touch (as opposed to scrubbing)
- Recreation and leisure

Required Materials

- Braillewriter
- Braille paper
- Index cards
- Timer
- Sorting tray with a 2-section divider
- Braille documents available within the curriculum
 - Student braille document
 - Place Value Chart 1
 - Bingo card
- Base ten blocks in different containers, baskets, or bowls (or Digi-Blocks)

Optional Materials

- Nonslip surface such as rubber shelf liner
- Writing answers braille document
- Grease marker or crayon to circle or underline answers
- Velcro
- Small stickers or pieces of Wikki Stix® for markers
- Pushpins on a cork board

- Magnetic counters on a cookie sheet or magnetic board
- Small storage boxes

Teaching Tips

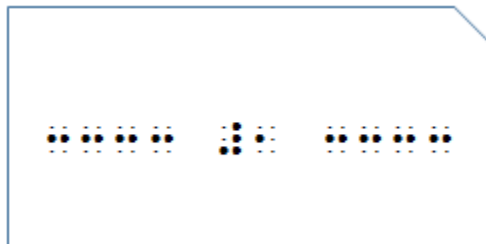
- Before opening any BRF files in Duxbury,
 - Go into the Global menu.
 - Select "**Formatted Braille Importer.**"
 - Select the box for "**Read formatted braille without interpretation**" at the top of the window. This will ensure that nothing is changed when opening the BRF files.
- All braille files 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.
- Sorting trays often define the workspace as well as assist students in determining which flashcards 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, flashcards, etc.
- It may also help to place the flashcards and hard copy braille on a nonslip surface such as rubber shelf liner so they will not move as the student is reading.
- Base ten blocks and Digi-Blocks are often used in elementary general education classrooms. If you do not have base ten blocks or Digi-Blocks, request to borrow them from a classroom teacher.
- A two-compartment sorting tray and then later in the module a three-compartment sorting tray may be used as the place value charts. Label the compartments "ones", and the left compartment "tens" in braille. The sorting tray may assist students in easily keeping their units and rods in the correct columns.
- 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 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.

- We maintain a list of [commercially available materials](#) that can be used to supplement instruction.

Activities

Activity 1

- Create flashcards for the numbers 0-20 with index cards. For this activity, flashcards with numbers 0-15 will be used.
- Cut out the upper right corner for easy identification of orientation. Make five flashcards for each number. Use lines of dots 2-5 before and after the number. For example, for numeral 1, type dots 2-5, dots 2-5, dots 2-5, dots 2-5, space, dots 3-4-5-6, dot 2, space, dots 2-5, dots 2-5, dots 2-5, dots 2-5.



- If you have number cards from Kindergarten Module 2, they can be used instead of creating new flashcards for 0-15.
- The flashcards will be used to practice reading numbers at first. Give the student one number card at a time. Make sure that it is oriented with the cut-out corner at the upper right.

Activity 2

Activity 2 is the same as Activity 1. However, the numbers will range from 0-17.

Activity 3

- The student will learn how to build numbers using either base ten blocks or Digi-Blocks. These blocks will provide a spatial model of our base ten number system.
- Place the units and rods in different containers, baskets or bowls. If preferred, Digi-Blocks (a different type of base ten blocks that nest) can be used. If needed, allow the student to independently explore with the base ten blocks. It may also be helpful to re-introduce the student to the words "unit" and "rod".

- The student should be re-introduced to the place value chart. It will provide a means for the student to organize their work as they explore the relationships among the blocks and determines how groups of blocks can be used to represent numbers. Encourage your student to use their hands to explore the place value chart. Afterwards, ask the student to find the title and read it together. Then point out that there is a line going down the middle of the page. Have the student find the column headings at the top, and then help them read the headings. The column on the right is the ones, and the column on the left is the tens.
- A two-compartment sorting tray may also be used as the place value chart. Label the right compartment "ones" and the left compartment "tens" in braille. The sorting tray may assist students in easily keeping their unit blocks and rods in the correct columns. If you do not have a two-compartment sorting tray, use two small storage boxes.
- Then work with the student to build numbers, beginning with 16. Depending on the child's response, the following questions may be needed.
 - Can you represent the number using units? If so, how many units do you need? If not, why not? As the student counts the unit blocks, assist them if needed in placing them in the ones column on the place value chart or "ones" compartment.
 - Can you represent a number using a rod and units? If so, how many of each kind do you need? If not, why not?
- If needed, model placing the rods in the tens column and the unit blocks in the ones column using hand-under-hand technique.

Activity 4

- Your student will listen carefully and then write the numbers 4-17 that they hear. This activity can be completed using the braillewriter and braille paper.
- Remind the student to space one time between the numbers and check their work. An answer key has been provided for this activity in the braille document entitled "GK-M3-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 5

All information is provided in the teacher script.

Activity 6

- The student will identify and write the missing number that the general omission symbol is representing in this activity. If needed, provide the student with a hard copy of numbers or number flashcards in order to help them identify which number is missing.
- It may help to place the flashcards on a nonslip surface such as rubber shelf liner so they will not move as the student is reading the cards. You may also use a strip of sticky back Velcro on the back side of each flashcard and then arrange the flashcards on a long strip of Velcro on the student's desk.
- The student will write the missing number using the braillewriter and braille paper. Space one time between the numbers.

Activity 7

In this activity, students will locate all of the number 19s in a set of flashcards with numbers from 0-19.

Activity 8

Activity 8 is the same as Activity 1. However, the numbers will range from 0-20.

Activity 9

Activity 9 is similar to Activity 4, but with a focus on writing numbers 19 and 20.

Activity 10

Activity 10 is the same as Activity 6. However, the numbers will range from 1-20.

Activity 11

- The student will count the number of tally marks on several lines of braille. They will write the number of tally marks on each line using the braillewriter.
- Remind the student to space one time between the numbers and check their work. An answer key has been provided for this activity in the braille document entitled "GK-M3-Writing-Answers.brf".

Activity 12

Activity 12 is similar to Activity 4, but with a focus on writing a series of numbers with mathematical commas.

Activity 13

- Your student will listen carefully and then write a math problem about “one more” or “one less” that they hear. This activity can be completed using the braillewriter and braille paper.
- Before beginning the activity, review or teach the meaning of the phrases “One More” and “One Less”. Remind the student to listen carefully as you read each problem and to include a space after the period when numbering each problem. Remind the student to press their line spacing key twice to move to the next line before brailleing a new problem each time.
- Repeat saying each problem as many times as needed. Remind the student to move their fingers across the braille and check their work if needed. An answer key in braille is provided in the braille document entitled “GK-M3-Writing-Answers.brf”.

Activity 14

- This activity is an adaptation of Bingo. You will need 2 or more players for this game. It can easily be played by students (or you if no other students are present) who read print or braille. If some of the players read print, add print to each of the flashcards and Bingo cards. Materials for the game include: Bingo cards, index cards cut into halves, a two-compartment sorting tray, and markers.
- Small stickers or pieces of Wikki Stix® can be used for markers. If you use pieces of Wikki Stix®, roll them into a ball with your hand so that they will stick to the braille paper more easily. Another option is using pushpins on a cork board or magnets on a cookie sheet.
- The Bingo cards can be created by using the template. Notice that the middle square on the template has been labeled as the free space. Use a braillewriter or freeware/software program such as Perky Duck or Duxbury to write the following numbers and symbols randomly in the squares on the Bingo cards: 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, general omission symbol, numeric indicator, and 3 tally marks. You can use the Feel 'n Peel Stickers: Nemeth Braille-Print Numbers from the American Printing House for the Blind to create the Bingo cards.

- Another option is creating your own Bingo cards. One way to create your own card is with 1-inch graph paper from the American Printing House for the Blind to create the Bingo cards. There are many other creative ways to make your own personalized cards.
- Before beginning the activity, have the student make the Bingo number/symbol cards by using index cards and their braillewriter to create a set of number cards from 0-20. Then have the student make cards for the general omission symbol and numeric indicator. Afterwards, have the student make a card with 3 tally marks. If preferred, number cards for 0-20 from the Module can be used instead of creating new flashcards. If you do not have a two-compartment sorting tray, use two small storage boxes.
- Have the student use their hands to explore the Bingo card. Explain that the title is at the top of the page. Also explain that there will be a number or symbol in each square. If needed, explain how a person wins Bingo by having five in a row down, across, or diagonally.
- Then explain that center square is a "free space" in the middle of the Bingo card. Have the student place a marker on it. If you repeated some of the numbers on the Bingo cards, explain that the student will need to scan the entire card in case the number has been included more than once in the squares.
- Then shuffle the flashcards. Have the students take turns drawing one flashcard and reading the number or symbol on the card. As each student reads the number/symbol card, use a two-compartment sorting tray to separate which cards have been read and which cards have not been read.
- Then as each number or symbol is read, have the student quickly scan their Bingo card and place a marker on the number or symbol that was called. Explain that you will play until a winner calls out "Bingo" or "Braille-o".

Fun Facts

Antonova, T. (2019, April 1). The first woman to travel the world on two wheels. *We love cycling*. Retrieved June 13, 2021, from <https://www.welovecycling.com/wide/2019/04/01/the-first-woman-to-travel-the-world-on-two-wheels/>

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Thomas Stevens – The first person to circle the globe by bicycle. (n.d.). Only fun facts. Retrieved June 12, 2021, from <https://onlyfunfacts.com/history/thomas-stevens-the-first-person-to-circle-the-globe-by-bicycle/>

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