*Sample Mathematics Learning Plan*

## Big Idea/ Topic

- Develop an understanding of whole number relationships and place value, including grouping in tens and ones and comparing 2 two-digit numbers, based on meaning of the tens and ones digits
- Organize, represent and interpret data up to 3 categories

## Standard Alignment

**MGSE1.NBT.1** Count to 120, starting at any number less than 120. In this range, read and write numerals and represent a number of objects with a written numeral.

**MGSE1.MD.4** Organize, represent, and interpret data with up to three categories; ask and answer questions about the total number of data points, how many in each category, and how many more or less are in one category than in another.

## Diagnostic Assessment

This diagnostic assessment is based on the Individual Knowledge Assessment for Numeracy form the Georgia Numeracy Project. It is designed to assess number recognition and sequence to 1000.

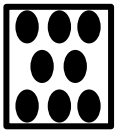
IKAN 1 Diagnostic Assessment from the Georgia Numeracy Project

## Instructional Design

**Engage**

**Number Talks:** How Many Dots? (video modeling this number talks

Introduce the problem:

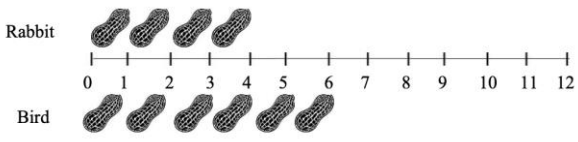


How do you see the dots inside a number sentence? You can review the steps for a number talk here.

- **Synchronous** Complete during a classroom discussion or virtual classroom meeting.
- **Asynchronous** Introduce the problem to students in a virtual platform; this can be done via e-document or video. Allow students to share responses and provide feedback to their peers within the virtual platform/classroom. Ideally, students could use an audio/video to share how they solved the problem. Provide feedback to individual student responses and highlight multiple strategies used by students.
    - Suggested Virtual Tools
        - Flipgrid: Student's can record their answers using a device and post them to Flipgrid. (Here's a user's guide.) The teacher can send responses to students directly and include video or written feedback.
- **Unplugged/ Offline** Provide the dot model to students and ask them to try to draw how they grouped the dots. Encourage students to provide a written explanation (with the help of a family member) of their thinking and how they reached their solution when solving problems. Provide feedback that demonstrates different strategies to solve problems.

**Explore**

**Modeling with Mathematics: Making Sets of More or Less**



Pose this example on the board or one similar one the board. Rabbit has 4 bags of peanuts. Bird has 6 bags of peanuts. Who has more peanuts? Draw a number line on the board and have the students help you label the numbers. Draw a picture to represent each peanut. Ask who has more. You may also draw both picture representations on top. Ask how a number line can help them see more or less. Complete multiple examples allowing students to compare numbers on a number line.

- **Synchronous**: Complete as written in the unit during a classroom discussion or virtual classroom meeting.
    - Alternatively: Consider using Google Slides to create a NearPod Integrated Lesson. Click on the link to learn more.

  **Asynchronous**: Part 1: If you have access to the text, pre record a read aloud of "Just Enough Carrots and a lesson where you provide a teacher think-aloud that models more or less examples on a number line. In the recording, provide wait time for students to think of their own responses to questions and discuss possible wrong answers. Part 2: Distribute printed materials ahead of lesson or provide instructions for families to provide common household objects (example: legos, paper clips, or small pieces of paper) as counters. Create a video or digital presentation with audio modeling the steps in part 2. Ensure wait time for students to participate and respond to your questioning. Part 3 and 4: Both parts will require an adult or family member to act as the student's partner. Provide materials along with step by step instructions to complete. For additional support, create a video that models the instructions.

- **Unplugged/ Offline**: Part 1: Provide the following instructions and materials: Cut out the MORE, LESS and SAME cards and the carrot picture cards. You will use these to model the idea of creating and comparing sets. Have your child sit across from you. Choose a number of carrots less than 10. Ask how you would create a set that is the same. Let your child use the carrot picture cards to represent this set. If you choose 5 carrots, then use the Same card and show five carrot pictures under this word. Ask how to create a set that is More and Less. Allow students to take part in creating these sets and have conversations about why the sets are the same, more or less. Encourage them to begin with the equal group and then create a less than/more than group. Continue this activity with multiple numbers until they understand the process.
- Part 2: Provide printed materials for students that phrase the questions in the following format:

*Using the following image to complete the activity*

1. *Draw a set of peanuts that is the same as the image above.*
2. *Draw a set of peanuts that has more than the image above.*
3. *Draw a set of peanuts that has less than the image above.*

Part 3 and 4: Both parts will require an adult or family member to act as the student's partner. Provide the step by step instructions from the task.

**Bunch of Bananas (Video Modeling Task)**

***(Include an evidence-based instructional strategy that allows students to apply what they have learned in a new situation to develop a deeper understanding of the big idea)***

- **Synchronous:** Complete during a classroom discussion or virtual classroom meeting
- **Asynchronous**: Create a video or document that explains the problem. Allow students to share their strategies and respond to their peers via videos, voice recordings, drawings, and text.
- **Unplugged/ Offline**: Provide students with the "Bunch of Bananas" task sheet. Encourage students to use everyday objects they can find at home for manipulatives. Encourage students to explain their thinking with drawings on the task sheet.

**Apply:**

Scenario- Access monthly weather data for your zip code from www.weather.com. When you visit the weather.com website, select "monthly" in the top banner that includes forecasts for Today, Hourly, 10 Day, Weekend, and Monthly. Allow students to organize, represent, and interpret the weather data.

- **Synchronous:** During synchronous learning, look at the weather data together and engage students in a discussion of the whole number and group the weather events in tens and ones. Together, organize, represent, and interpret data by weather event.
- **Asynchronous:** Provide students with the monthly weather data. Students will share observations and data and asynchronously create a representation of the weather data.
- **Unplugged/Offline:** Provide students with the monthly weather data and have students make observations and a representation of the data in any offline format.

**Reflect**

**Estimation Activity: How many pieces of candy are in the cylinder?**

***(Include an evidence-based instructional strategy that allows students the opportunity to review and reflect on their own learning and new understandings.)***

- **Synchronous**: Ticket out the door or math journal
- **Asynchronous**: Respond in math journal or learning management system
- **Unplugged/ Offline**: Respond in math journal and encourage students to share their thinking with a family member

## Evidence of Student Success

"Making Sets of More or Less" Assessment Questions:

• Can you find more than one way to make a set less than ____?
• Can you find more than one way to make a set more than____?
• Can you tell me a sentence that describes your sets using the term less, more or same?
• Tell me how you know that ____ is less or more than ____?
• What is another way to represent a set less than/greater than _____?

"Bunch of Bananas" Formative Assessment Questions

• What is your plan to solve the problem?
• Can you use pictures to communicate your thinking?
• Can you write a number sentence or use words to communicate your thinking?
• How do you know if a number is odd or even?
• How many tens and ones in a given number?

## Student Learning Supports

At all grades, the mathematics big ideas encourage students to reason mathematically, to evaluate mathematical arguments both formally and informally, to use the language of mathematics to communicate ideas and information precisely, and to make connections among mathematical topics and to other disciplines. The following strategies are intended to support students who are struggling to progress towards this goal:

- ***Conceptual Processing:*** Utilize the Concrete-Representational-Abstract instructional sequence to support students in making connections among mathematical ideas, facts and skills, and reflecting upon and refining one's own understanding of relationships, generalizations and connections.
- ***Language:*** Strategically select language routines to support students in describing strategies, explaining their reasoning, justifying solutions and making persuasive arguments.
- ***Visual-Spatial Processing:*** Provide opportunities for students to engage with visual representations and manipulatives (virtual or concrete) as they solve problems, explore concepts and communicate ideas.
- ***Organization:*** Teach problem-solving strategies and problem types such as CGI Problem Types in order to support students in figuring out how to get started, carrying out a meaningful sequence of steps while solving problems, keeping track of the information from prior steps, monitoring their own progress and adjusting strategies accordingly.
- ***Memory:*** Focus on conceptual strategies and patterns for computation, providing a scaffold for students who struggle with basic facts and carrying out written algorithms.

**"Making Sets of More or Less"**

- **Acceleration:** Allow students to use larger numbers and create additional dot arrangements on index cards. Be sure to give students additional counters for larger numbers.
- **Intervention:** Allow students to use numbers less than the amount given for the game (perhaps 5 instead of 10) and make only one comparison at a time. Offer a blank tens frame to place the counters in as they count and compare.

**"Bunch of Bananas"**

- **Acceleration:** Present this problem to the students: Monkeys like to eat an even number of bananas for lunch and each monkey must receive the same number of bananas. They never eat more than five bananas because their bellies are too small. The zookeeper needs to figure out how to share 28 bananas between the 8 monkeys for lunch. Show the best way to share the bananas with the monkeys.
- **Intervention:** Provide students with manipulatives to represent the monkeys and bananas. Present this problem to the students: *Monkeys like to eat an even number of bananas for lunch and each monkey must receive the same number of bananas. They never eat more than five bananas because their bellies are too small. The zookeeper*

*needs to figure out how to share 12 bananas between the monkeys for lunch. Show different ways the zoo keeper can share the bananas with 3 monkeys.*

## Engaging Families

Here are two games that can be played at home with family members or independently for additional support on more, less, fewer:

- Online Game Practicing More, Less, and Fewer