

Sample Mathematics Learning Plan

Big Idea/ Topic

- Represent, relate, compare and perform operations with whole numbers, initially with sets of objects

Standard Alignment

MGSEK.CC.3. Write numbers from 0 to 20. Represent a number of objects with a written numeral 0-20 (with 0 representing a count of no objects).

MGSEK.CC.4 Understand the relationship between numbers and quantities; connect counting to cardinality.

a. When counting objects, say the number names in the standard order, pairing each object with one and only one number name and each number name with one and only one object. (one-to-one correspondence)

b. Understand that the last number name said tells the number of objects counted (cardinality). The number of objects is the same regardless of their arrangement or the order in which they were counted.

c. Understand that each successive number name refers to a quantity that is one larger.

Diagnostic Assessment

In this diagnostic assessment task, students will be provided with several tasks involving finding how many. Students may use counting and/or subitizing strategies to determine the number of objects represented.

[Diagnostic Assessment Task: Counting Dots](#)

Instructional Design

Engage

Do 10 jumping jacks and count each jump along the way.

- **Synchronous** Complete during a classroom discussion or virtual classroom meeting.
- **Asynchronous** Students can record themselves doing jumping jacks using Flipgrid, a digital tablet (iPad, etc.) and upload the videos to the Learning Management System or SeeSaw using a free teacher account.
 - Online platform suggestions:
 - FlipGrid- [A guide to using FlipGrid](#)
 - SeeSaw- [Help guide](#)
- **Unplugged/ Offline** Complete activity in class or at home.

Explore

Dotty - 3 Act Task

- **Synchronous** Complete as written in unit during a classroom discussion or virtual classroom.
- **Asynchronous** Part 1: Show students the video. Ask students what they noticed in the video, what they wonder about, and what questions they have about what they saw in the video/picture. Share and record students' questions. Students write their estimate to the question "How many dots will be on the screen after the last bell?" in their journal. Part 2: students determine the main question(s) from Act 1 and decide on the facts, tools, and other information needed to answer the question(s). When students decide what they need to solve the problem, they should ask for those things. It is pivotal to the problem-solving process that students decide what is needed without being given the information up front. Part 3: Students share their answers and strategies with the class and compare. After students have shared, play the video for act 3 <https://vimeo.com/91994950>
- **Unplugged/ Offline** Using a bell/timer and dot flashcards, teachers can recreate the 3 act task in an offline format.

Order the Dice- This activity task is designed for number sequence and recognition. It will also help students start at a number that may not be one and continue counting forward.

- **Synchronous** Complete with a partner or in a whole group lesson.
- **Asynchronous** The game is played the same, but the student stops after ten frames since they are playing without a partner.

- [Virtual dice](#) for online students
- **Unplugged/ Offline** Students can play the game alone or with a partner.

Apply

During Kindergarten, students begin to explore the characteristics of living and non-living things. Engage students in the investigation described below using the [Cornell Lab Feeder Watch Cam](#).



- **Synchronous-** During synchronous learning, model how to pause the Cornell Lab Feeder Watch Cam livestream video. Engage students in a group discussion. Encourage students to identify and count the number living and nonliving objects in the image.
- Students should identify living and nonliving objects based on their characteristics. Living objects (organisms) can move, eat, breathe, or reproduce. Living is also used to describe objects that have ever been alive, such as wood or cotton). Nonliving objects can be defined by the lack of these traits. Non-living is used to describe things that have never been alive such as plastic, metal, or clay.
- **Asynchronous-** Provide students with the link to the Cornell FeederWatch Cam and demonstrate how to pause the video. Students will access the livestream independently and pause the video at a selected time. Then, the student will create a sketch of what they see. Students will engage by counting and documenting the various objects in the paused video. During synchronous learning, students will share their observations and drawings.
- **Unplugged/ Offline-** Encourage students to observe birds and other wildlife in their community.

Extensions:

- Repeat this activity throughout the year during different seasons, different types of weather, or different times of day to compare observations.
- If possible, place a bird feeder on your school campus for students to observe.
- Launch a Project Based Learning unit by collaborating with local experts to learn more about birds local to your area and their needs.
- Observe birds in Georgia locations such as: [Berry College](#) and [Skidaway Island](#)

Reflect

Which One Doesn't Belong?

In this task, students look at the picture below and determine which dice does not belong. Once they have identified the dice, they explain their thinking with writing or drawings.



- **Synchronous** Complete during a class discussion.
- **Asynchronous** Complete as an exit ticket.
 - [Virtual counting on activity](#) for online learning
- **Unplugged/ Offline** Complete as an exit ticket or a class discussion.

Evidence of Student Success

-“Dotty” 3 Act Task Formative Assessment Questions:

- What models did you create?
- What organizational strategies did you use?
- What does your model (do your models) represent?

-“Order the Dice” Formative Assessment Questions:

- How do you know that you counted correctly?
- What strategy did you use to help you put the numbers in order?

[Counting \(Dots in Various Arrangements\) Formative Assessment Lesson](#)

Students can also complete a counting on virtual activity as an exit ticket:

<https://teks.mathgames.com/skill/K.46-count-forward>.

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.
- **“Dotty” 3 Act Task**
- Intervention- Allow students to find the total number of dots for the first covered bell and come up with different arrangements the dots could be in.
 - Extension- Do you know what colors will be after the last bell and how many of each? Students may need to go back and watch Act 1 again to identify the color pattern.
- **“Order the Dice”**
- Intervention- Give students [5 dice](#) and have them arrange the dice so that they are sequenced 1-5. For virtual learning, this site allows students to use up to ten virtual dice at once: <http://www.didax.com/apps/dice/>. Give students a set of cards from [Numeral, Picture, Word](#) (use only one form of card). Shuffle the cards and have the students practice putting them in order.
 - Extension- Use number cubes that are not numbered 1-6 (perhaps 4-9?) or increase the quantity of dice used from 5 to 10.

Engaging Families

- [Caterpillar Counting](#)
 - Complete the following number sequences and create spots on the caterpillar's body that represents the number above it.
- [Counting On](#)
 - This video will provide you with examples of how to teach your child to “count on” from a certain number. For example, counting to 100 from 29.