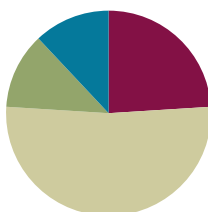


## Lesson 21

Objective: Introduce zero.

### Suggested Lesson Structure

Fluency Practice	(6 minutes)
Application Problem	(3 minutes)
Concept Development	(13 minutes)
Student Debrief	(3 minutes)
<b>Total Time</b>	<b>(25 minutes)</b>



### Fluency Practice (6 minutes)

- Count Flaps to 9 **PK.CC.1** (2 minutes)
- The Wind and the Trees! **PK.CC.1** (4 minutes)

#### Count Flaps to 9 (2 minutes)

Note: This fluency activity prepares students for tomorrow's lesson involving touching and counting to 9. If the majority of students struggle with the coordination of flaps and counts to 9, start at a smaller number and build up to 9. Keep it playful!

- T: Let's pretend we are baby birds who are so proud to learn how to flap our wings, that we count our flaps. Let's flap and count to 9. Ready? 1, 2, 3, 4, 5, 6, 7, 8, 9. (Repeat the process until students better coordinate one flap with one count.)

#### The Wind and the Trees! (4 minutes)

Materials: (T/S) Baggie with 5 manipulatives (e.g., blocks or dominoes)

Note: This fluency activity prepares students for the Concept Development that introduces zero by having them eat goldfish crackers until there are none left.

- T: Let's pretend our blocks are trees. Let's stand our trees up in a row. Have the flat side face you. Count them.
- T: How many trees are standing up?
- S: 5.
- T: Let's pretend a big wind came and knocked 1 down. (Pause, then knock one down.) Count how many are still standing.
- S: 4.

Repeat until there are no trees standing. The word "zero" will be formally introduced in the Concept Development. Here, you might say, "The wind knocked down all the blocks."

## Application Problem (3 minutes)

Materials: (S) 8 dominoes

Tell students that if the wind blows over one tree, that can make all the trees fall down. How could that happen? Let them experiment and then show them if necessary. Emphasize that there are no trees standing after they all fall down!

Note: This Application Problem naturally leads students to experience “no trees” or “none” before assigning this quantity a number, zero.

## Concept Development (13 minutes)

### Part 1: Concept Introduction

Materials: (T) 5 inflated balloons (or balloon cut-outs)

1. Gather students in a circle and show them the balloons. Ask students to count the balloons, “1, 2, 3, 4, 5 balloons!” Tell them, “Imagine it’s a windy day. The wind came along and blew 1 balloon away!”
2. Have students blow as you move one balloon into hiding as if they are blowing it. Ask students, “How many balloons did not blow away?” “4!” Continue until no balloons are left.
3. Ask students, “How many balloons are left? When there are no more left we answer ‘**zero**.’ 0 is the number that means ‘none.’”
4. Tell students, “Let’s pretend Sara, Leonhard, and Mayumi are fish. Let’s count as they swim away one by one.” As each student swims away, guide the class to count, “3 fish, 2 fish, 1 fish, 0 fish!”
5. Ask, “How many are left after they all swim away?” “Zero!”
6. Invite students to suggest scenarios. For example, invite 4 leaves to blow away as the class counts, or invite 2 crayons to roll away. Repeat until all students have had a chance to participate in the play-acting.

### Part 2: Practice

Materials: (S) Underwater mat (Lesson 9 Template 1),  
3 goldfish crackers

Note: Based on the dietary needs or food allergies of your students, adjust the materials as needed. A possible substitute for the goldfish crackers could be paper or plastic fish counters, which children can hide instead of eating.

1. Send students to prepared tables. Ask them to count their goldfish, “1 goldfish, 2 goldfish, 3 goldfish.”
2. Say, “We are going to catch each fish one at a time and eat them up!” Guide students to say how many goldfish they still have each time one is eaten: “3 goldfish, 2 goldfish, 1 goldfish.”



#### NOTES ON MULTIPLE MEANS OF REPRESENTATION:

Give students an opportunity to share real life experiences they have had with the newly introduced term zero. Making connections to their own experiences or hearing others’ experiences supports comprehension of new vocabulary.

3. Say, “There are no goldfish left. How many goldfish are left?” Guide students to say, “Zero! 0 goldfish!”

### Student Debrief (3 minutes)

**Lesson Objective:** Introduce zero.

The Student Debrief is intended to invite reflection and active processing of the total lesson experience. It is also an opportunity for informal assessment. Consider taking anecdotal notes or using a simple checklist to note each child’s progress towards meeting the lesson objective.

As students complete the Practice portion of the lesson, listen for misconceptions or misunderstandings that can be addressed in the Debrief. You may choose to use any combination of the questions below to help students express ideas, make connections, and use new vocabulary (**zero**).

- (Show 2 blue cubes.) How many cubes are blue? Yellow? Green?
- How many flying elephants with green shoes are there in our class right now?
- What else is there **zero** of in our classroom? In your house?



#### CENTER CONNECTION:

Have students look around their center to answer the question, “What is there zero of in this center?” Have them use complete sentences, e.g., “There are zero couches in the art center.”