BRING • DO • LEAVE

Instructional Planning Guide

STANDARDS

Mathematical Content addressed:

1.OA.1 Use addition and subtraction within 20 to solve word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using objects, drawings, and equations with a symbol for the unknown number to represent the problem.

1.NBT.2 Understand that the two digits of a two-digit number represent amounts of tens and ones. Understand the following as special cases:

- 10 can be thought of as a bundle of ten ones—called a "ten."

Lesson Objective: Compare efficiency of counting on and making ten when one addend is 9.

Mathematical Practices addressed:

MP 7: Look for and Make Use of Structure

STUDENTS BRING (what mathematics do students need to **know** to access the task?):

What they know:

- Addition and subtraction within 10
- Solving addition and subtraction story problems

What they need to know:

- How to decompose a number to make a new group of ten
- Combinations that add to ten. What's the missing piece?

What vocabulary is needed?

Math Vocabulary	**General Vocabulary**
-Missing pieces/Missing addend -Decompose/Break apart -Number Bond -Group of 10 -Addition -Story Problem -How many? -Equals	-bird watching

How can I make the task meaningful to each student?

Three reads strategy:

Read 1: What is this situation about?

Read 2: What are the quantities?

Read 3 What are the possible mathematical questions that could be asked about this situation?

Do the Math of the Task/Problem**:** What are all the ways that you anticipate students may solve the task

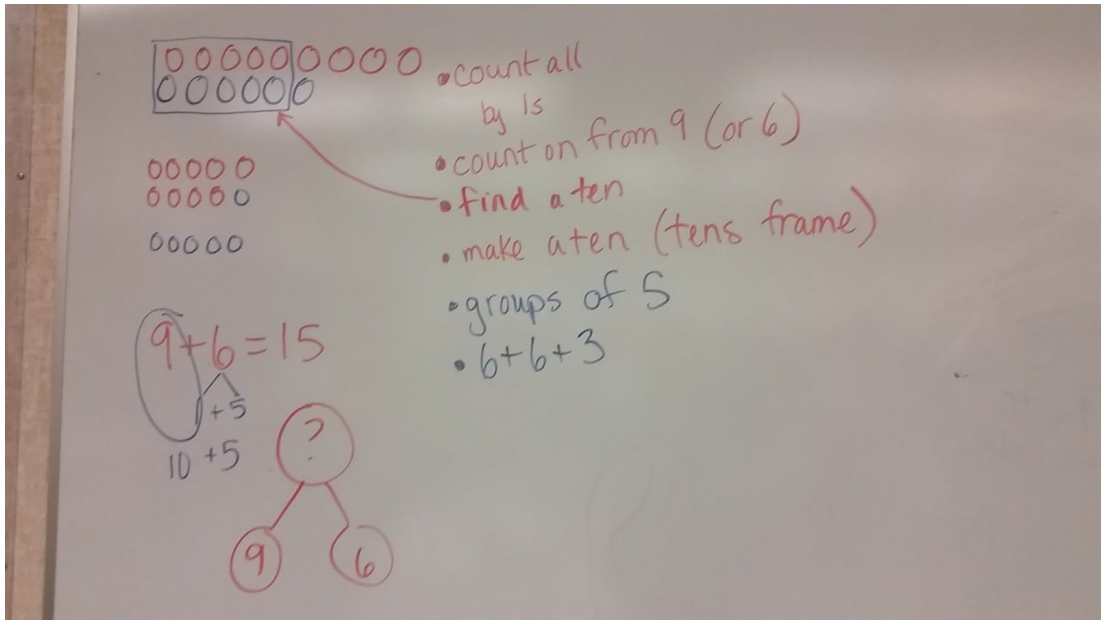
Stem: Mrs. Zielinski went bird watching with her daughters. They saw a tree with lots of birds. Izzy counted 9 red birds, and Maggie counted 6 blue birds.

Question: How many birds are in the tree? Show how you got your answer.

Possible approaches:
-Count all by 1s (or by 2s?)
-Count on from 9 (or 6)
-Make a ten and some more

-Find groups of 5
-6 + 6 + 3 more
-Decompose the 6 to make a ten (9 + 1 + 5)

Possible recordings:



What are possible misconceptions students may hold or difficulties students may have with this task?

- Miscounting (miss one, or double count)
- Find the difference instead of the sum
- Unorganized drawing leads to errors in counting
- Especially if they use a number line, students may count on incorrectly and be off by one.

What resources or tools will be available for students?	**How will students work (independently, small groups, pairs)?**
● **cubes, crayons**	● Independently

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Instructional Planning Guide, Part 2

DO - Classroom Actions and Interactions		**What questions assess student understanding?**	**LEAVE - How will I monitor and document their understanding?**
Launch	**At the beginning:** **What moves/questions will help students understand the problem?** -What is the questions asking us to do? -Are we trying to find a total? -Are we trying to find a missing part? **What moves/questions help students consider possible strategies and math tools/resources without taking away students' opportunities to make decisions as a mathematician?** -What are some strategies we have used before to solve these types of problems? -Where can you find some strategy ideas? (input chart) -How will you prove your thinking? -How will you organize your thinking into a model?	-What is the questions asking us to do? -Are we trying to find a total? -Are we trying to find a missing part?	By looking at their story problem work.
Explore	**While students are working:** **What moves support students in monitoring and controlling their own progress?** -Does this equation match the story problem? How? If not, what can you do make it match? -What does this number represent in the story problem?		Monitor strategies used by students during work time.
Summ-arize	**When students are finished, to facilitate a productive math discussion:** **What questions advance student understanding?** -How do you know what type (addition or subtraction) of story problem this is? -Why did you choose the strategy you used? -Was it the most efficient strategy? Why or why not? **What moves support students in making connections/extensions?** -How is your strategy the same as _____'s strategy? -How is your strategy different from _____'s strategy?	-How do you know what type (addition or subtraction) of story problem this is? -Was it the most efficient strategy? Why or why not? -How is your strategy the same as _____'s strategy? -How is your strategy different from _____'s strategy?	Whole class discussion Module 2 Lesson 5 exit ticket

Adapted from Rigelman (2011).

Orchestrating Productive Mathematical Discourse

Chart for Monitoring, Selecting, Sequencing, and Connecting Student Thinking

Strategy	Work of Specific Students	Sequence	Compare
A. Count all by 1s (or by 2s)			
B. Count on from 9 (or 6)			
C. Find groups of 5			
D. Make a 10 and some more (in a picture model)			
E. Use a double fact (6+6+3more)			
F. Decompose the 6 to make a ten (9+1+5)			

Adapted from Smith and Stein (2011).