

By the Handful

FOCUS

Mathematics Objective Develop understanding of counting and comparing numbers.

Language Objective Explain predictions and solutions for real-world problems in writing and verbally.

Essential Understanding Many real-world problems can be represented with a mathematical model, but that model may not represent a real-world situation exactly.

COHERENCE

Look Back Earlier in the topic, students learned to count, make, and write numerals from 6 to 10.

This Lesson In this lesson, students solve a real-world problem by employing their understanding of the numbers from 0 to 10.

Look Ahead In later topics, students will count within 100.

BALANCE

Conceptual Understanding Students draw on their conceptual understanding of counting and comparing numbers.

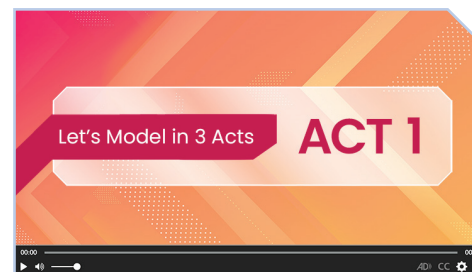
Application Students use math they know to solve a real-world problem.

Reinforce Vocabulary

model

Materials

Provide manipulatives and other tools that students request.



Teacher Resources

Available at
Savvas Realize®



Editable Lesson Plan



enVision on the Go: Planning Support



Act 1 The Hook

10-15 min

Act 1

Name _____


By the Handful

I can ... model with math to count groups and compare to solve a problem.

Let's Model in 3 Acts

Lesson 2-14

ACT 1



ACT 1

How many? _____

Students will predict a range of numbers. Check students' predictions.

Act 1 Directions Watch the video for Act 1. **Say:** What do you notice? What do you wonder? **Next Say:** Write how many you think each person grabbed. **Then Say:** Who did you think grabbed more grapes? Tell why you think that.

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Students are tasked with determining the number of grapes each child grabbed and which child grabbed more given information about the number and type of grapes grabbed.

Play the Video **WHOLE CLASS**

Take advantage of your students' initial reactions to watching the video. Ask: *What do you notice about the video? What do you wonder?*

Brainstorm Questions **WHOLE CLASS**

Apply Math Encourage students to share their questions in a class discussion. Record their questions and store them for later. Listen for interesting mathematical and non-mathematical questions.

To help students work on posing interesting, mathematical problems, ask: *Which question do you find most interesting? Which questions could we use mathematics to answer?*

Pose the Main Question **WHOLE CLASS**

Use the Main Question screen in Act 1 to pose the problem situation students will be tasked with modeling and solving.

Main Question

How many grapes did each person grab? Who grabbed more grapes?

Make Predictions **INDIVIDUAL**

Point out that the prediction is only an estimate. Do not give students time to make calculations.

Ask About Predictions **WHOLE CLASS**

Analyze Survey the class for a range of predictions. Point out that, without any information, you expect a wide range of predictions. Record student predictions. Ask: *Why do you think your prediction is the answer to the Main Question? Who has a similar prediction? Who has a different prediction?*

Make sure students understand it is equally important to think about unreasonable predictions to the Main Question. Ask: *What is a number too small to be the number of grapes? What number is too many grapes?*

Act 2 The Model



20–30 min

Act 2

ACT 2

Show your answer.

Check students' work.
See sample solutions.

Build G.R.I.T.
Keep trying.



ACT 3

Video Answer

5 9

The girl has more grapes than the boy.

Act 2 Directions Say: What information do you need to answer the question? Show the Act 2 screens.
Say: Draw how you can find the answer. **Act 3 Directions** Watch the Act 3 video. **Say:** Write the video answer. Circle the greater number. Have students compare to their answer and work.

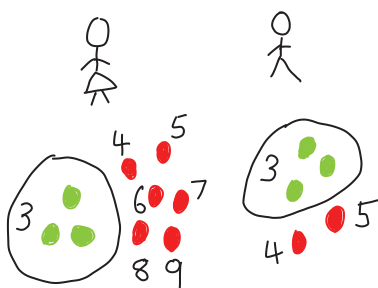
124 Lesson 2-14

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Sample Student Work

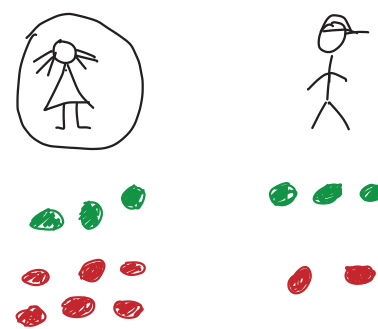
Jackson's Work

Jackson knows both children have 3 green grapes. He counted on from 3 when counting the red grapes.



Bria's Work

Bria knows that the girl has more grapes without counting all the grapes. Both children have the same number of green grapes. Since the girl has more red grapes, she has more grapes than the boy.



Identify Important Information WHOLE CLASS

Before showing any information, give students time to think about what quantities are relevant to the problem situation.

Ask: What information do you need to answer the Main Question? I will only give you the information you ask for.

Connect After discussing what information would be useful, ask: How could you get that information? How would you use it? You might have students complete the sentence frame "If I knew _____, then I could figure out _____."

Reveal the Information WHOLE CLASS

Use the Image Gallery screen in Act 2 to reveal each piece of information. Record information as students identify it and keep the information where students can refer to it. Have students discuss whether this information matches their expectations.

- Boy: 3 green grapes, 2 red grapes
- Girl: 3 green grapes, 6 red grapes

Develop a Model SMALL GROUP

Plan To support productive struggle, observe. If needed, ask guiding questions that elicit thinking. How can counting help you compare? [If you know how many each person has, you can tell which number is greater.] What assumption do you need to make to use a math model? [The color of the grapes doesn't matter.]

Share Solution Strategies WHOLE CLASS

Communicate Have students share their solution methods. If needed, use the student work shown in Act 2, also shown here. Ask: How did Jackson determine the number of grapes each child grabbed? What strategy did Bria use? Does Bria's strategy make sense?

Update Predictions WHOLE CLASS

Explain to students that what they found in Act 2 is a mathematical answer. It's a newer, more accurate prediction based on modeling. Ask: How does your new prediction compare to your original prediction? Do you think the real-world answer will match your answer exactly?

Act 3

Use the Video to Reveal the Answer

WHOLE CLASS

The Act 3 video shows how many grapes each child has. Have students record this real-world answer. To support the connection between variability and mathematical modeling, ask: Why does our class have a variety of answers, and the video has only one answer? Why are some predictions closer to the answer in the video than others?

Main Question Answer

The boy grabbed 5 grapes. The girl grabbed 9 grapes. The girl grabbed more grapes.

Validate Conclusions SMALL GROUP

Check Encourage students to discuss possible sources of error involved in using math to model this real-world situation. Accept a model as useful even if it is not perfect. Use the Answer screen in Act 3 to ask: How useful was your model at predicting the answer? Would you change your model after watching the video? How would you change it?

Explain You can also use the following question to test students' understanding of the real-world situation. If the grapes were different sizes, would that change the answer? [No, the size of the grapes does not change the number of grapes.]

Reflect on Thinking WHOLE CLASS

If time allows, ask students the following questions to discuss how they incorporated math processes during the task.

Represent Explain how you used math to represent the situation. How did doing that help you answer the Main Question?

Plan How can you tell which person has more grapes without counting all of the grapes?

Check How might you analyze and evaluate the efficiency of the approach you chose to solve the problem?

Create a Problem INDIVIDUAL

Have students create a problem. Write your own problem related to the video in Act 1. Include any additional information needed to solve your problem. Explain how you would use math to solve your problem. Then solve your problem. Remind students that they could use a question they came up with in Act 1.

Who grabbed fewer grapes?
I can compare the number of grapes each child grabbed.

Girl	○	○	○	○	○	○	○	○	○
Boy	○	○	○	○	○				

Because the girl had more grapes, the boy had fewer.