

Fun Raiser

FOCUS

Mathematics Objective Students draw on their conceptual understanding of addition and subtraction to estimate solutions.

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 estimate sums and differences.

This Lesson In this lesson, students solve a real-world problem by employing their understanding of addition and subtraction.

Look Ahead In later topics, students develop fluency with addition and subtraction within 1,000.

Cross-Cluster Connection Understanding addition and subtraction (3.NBT.2) connects to work with problem solving (3.OA.8).

RIGOR

Conceptual Understanding Students draw on their conceptual understanding of addition and subtraction.

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

Materials

Provide manipulatives and other tools that students request.



Teacher Resources

enVision on the Go



Act 1 The Hook



10-15 min

Act 1

Name _____

Fun Raiser

I can ... model with math to solve a problem that involves adding and subtracting.

Let's Model in 3 Acts

Lesson 6-11

ACT 1

ACT 1

1. Make Sense and Persevere What do you notice?
What do you wonder?
**Sample answer: Why do they have so much money?,
What are they doing with all that money?,
How much money do they have?**

2. Predict a reasonable answer to the Main Question.
Explain your prediction.
**Students will predict either yes or no.
Check students' explanations.**

Copyright © Savvas Learning Company LLC. All Rights Reserved. Lesson 6-11 **253**

Students are tasked with determining if a grade has met their fund-raising goals given information about the amount collected each week.

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**

Item 1 Make Sense and Persevere 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?**

MTP 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

Has the third grade reached its goal?

Make Predictions **INDIVIDUAL**

Item 2 Point out that the prediction is based on an estimate of the amount of money students raised. Do not give students time to make calculations.

Ask About Predictions **WHOLE CLASS**

Construct Arguments You can survey the class for predictions. Point out that, without any information, you expect a variety of predictions. Ask: **Why do you think your prediction is the answer to the Main Question? Who has the same prediction? Who has a different prediction?**

Act 2 The Model



20-30 min

Act 2

ACT 2

3. What information do you need to answer the Main Question?

Sample answer: The amount of money already collected, The amount of money collected during Week 6, The goal of the fundraiser.

4. **Model with Math** Show how you can find the answer to the Main Question.

Check students' work. See sample solutions.

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



ACT 3

5. What is the answer shown in the video?

Yes, the third grade reached its goal, thanks to the final donation by a student.

6. **Model with Math** Does your answer match the Act 3 video? If not, what is one reason that could explain the difference?

Sample answer: I added incorrectly. I estimated, and because the amount was close I said "yes," which was correct, but maybe for the wrong reason.

254 Lesson 6-11

Copyright © Savvas Learning Company LLC. All Rights Reserved.

Sample Student Work

Week 1 : $40 + 40 + 35 + 25$
about 150
Week 2 : $20 + 50 + 40$
about 110
Week 3 : $20 + 50 + 40$
= 110
Week 4 : $10 + 45 + 35$
about 100
Week 5 : $20 + 30 + 30$
= 80
Week 6 : $35 + 36 + 36$
about 120
Total: $150 + 110 + 110 + 100 + 80 + 120$
about 650
They made \$650, which was their goal.

Week 1	Week 2	Week 3	Total
40	20	20	140
40	20	50	120
35	35	40	110
25	45	36	90
140	120	107	80
			107
Week 4	Week 5	Week 6	
10	20	35	647
45	30	36	
35	30	36	
90	80	107	

They made \$647, which is not their goal.

Achak's Work

Achak estimated to find the total raised by the third grade. He rounded each amount. Since he rounded twice, his estimate is less accurate. His answer is close, but not exact.

Jade's Work

Jade added to find the total raised by the third grade. She added the amounts raised each week and then totaled the weeks' amounts. Her answer is valid.

Identify Important Information WHOLE CLASS

Item 3 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.*

Use Appropriate Tools Strategically After discussing what information would be useful, ask: *How could you get that information? How would you use it once you have it?* You can also 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.

- The amount of money raised during each of the first 5 weeks
- The amount of money each of the three classes raised during the 6th week

MTP Develop a Model SMALL GROUP

Item 4 Model with Math To support productive struggle, observe. If needed, ask guiding questions that elicit thinking. *Can you use the amount collected during Week 5 to predict the amount collected during Week 6?* [No; Each week's fundraising amount is separate.] *What assumption do you need to make to use a math model?* [You can assume the amount raised each week is approximately the same and use that to estimate the 6-week total.]

MTP Share Solution Strategies WHOLE CLASS

Critique Reasoning Have students share their solution methods. If needed, use the student work shown in Act 2, also shown here. Ask: *How did Achak estimate? Is his answer valid? How did Jade use addition? Is her answer valid?*

Act 3 The Solution



15-30 min

Act 3

Use the Video to Reveal the Answer

WHOLE CLASS

Item 5 The Act 3 video shows the total amount raised during the fundraiser. 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?*

Main Question Answer

Yes, the third grade reached its goal, thanks to a final donation.

MTP Validate Conclusions **SMALL GROUP**

Item 6 Model with Math 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?*

Reason Abstractly You can also use the following question to test students' understanding of the real-world situation. *What might influence the amounts of money students raise during a fundraiser? Why do you think the amount raised during Week 6 was more than the amount raised during Week 5? [During the first couple of weeks, people are eager to donate. During the final week of a fundraiser, people may donate a little more because it's the final week.]*

Reflect on Thinking **WHOLE CLASS**

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

Model with Math Explain how you modeled with math to represent the situation. How did doing that help you answer the Main Question?

Attend to Precision Explain how estimation and precision helped or didn't help you represent the situation and answer the Main Question.

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 model with math to solve your problem. Then solve your problem. Remind students that they could use a question they came up with in Act 1.

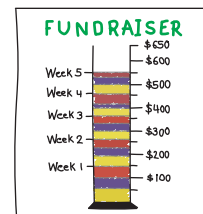
Each of the classes tracked their fundraising.

Starting from the bottom:

Class A is yellow.

Class B is purple.

Class C is red.



Which class do you think raised the most money?
The least money?

I estimate Class A raised the most, then Class B.
Class C raised the least.