

## Go for a Spin

## FOCUS

**Mathematics Objective** Use addition or subtraction strategies to solve a real-world problem.

**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 strategies to solve addition problems.

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

**Look Ahead** In later topics, students will use strategies to solve subtraction problems.

## BALANCE

**Conceptual Understanding** Students draw on their conceptual understanding of addition and near doubles.

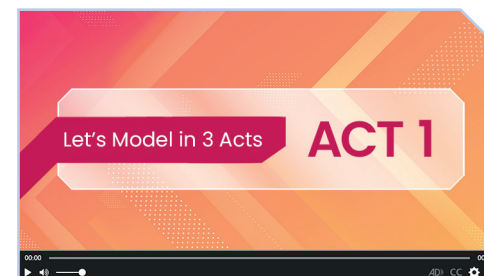
**Application** Students use math they know to solve a real-world problem.

## 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 \_\_\_\_\_

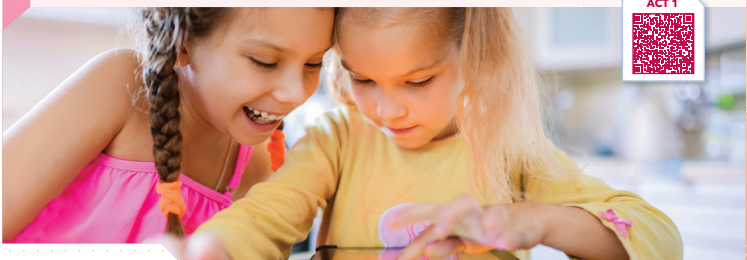
### Go for a Spin

I can ... model with math while using different ways to make a sum.

Let's Model in 3 Acts

## Lesson 3-7

ACT 1



**ACT 1**

1. **Apply Math** What do you notice?  
What do you wonder?  
**Sample answer: What game are they playing?, How did the boy land on the same space as the girl?, Is it OK that the boy landed on the same space as the girl?**

2. Predict a reasonable answer to the Main Question. Why do you think that?  
**Students will predict a variety of pairs of numbers. Check students' explanations.**

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Students are tasked with determining what spins the second player got given information about the value of the first spin and the value of the ending location.

### 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 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

**What spins did the second player get?**

### Make Predictions **INDIVIDUAL**

**Item 2** 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 the spinner landed on? What number is too big?**

# Act 2 The Model



20-30 min

## Act 2

### ACT 2

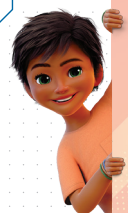
3. What information do you need?

**Sample answer:** The numbers on the spinner, The numbers the players got on the spinner, The number the boy spun second.

4. **Plan** Show how you can find the answer to the Main Question.

**Check students' work. See sample solutions.**

**Build G.R.I.T.**  
Organize your work.



### ACT 3

5. What is the answer shown in the video?

**7 and 8**

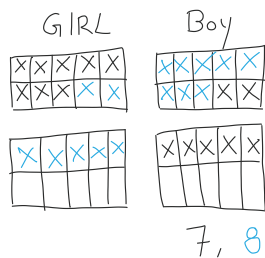
6. **Check** Does your answer match the Act 3 video? If not, explain why.

**Sample answer:** I forgot to include both boy's spins. I thought they both had to have the same spins.

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## Sample Student Work



### Taylor's Work

Taylor used ten-frames to find the numbers. She used two ten-frames for each player's spins. After she put in the boy's second spin, she counted out how many it took for the boy to end up on the same square as the girl. Her answer, that the boy spun 7 followed by 8, makes sense.

### Benjamin's Work

Benjamin used take-away to find the numbers. He wrote an equation with the girl's spins of  $8 + 7$  on the left and the boy's spins of  $\square + 8$  on the right. He correctly found that the boy's first spin was 7, but he didn't answer the main question.

girl boy

$$8 + 7 = 15 \quad \square + 8 = 15$$

I know that  $8 + 7$  and  $7 + 8$  both equal 15.

The boy got 7 on his first spin.

## 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.

**Connect** After discussing what information would be useful, ask: **How could you get that information? How would you use 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.

- On the second player's second spin, the spinner landed on 8.
- Both players' pieces are 15 spaces away from the starting point.

## Develop a Model SMALL GROUP

**Item 4 Plan** To support productive struggle, observe. If needed, ask guiding questions that elicit thinking. **What assumption do you need to make to use a math model?** [Both players followed the rules of the game.]

## 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: **Does Taylor's work make sense? Does Benjamin's answer 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 The Solution



15-30 min

## Act 3

### Use the Video to Reveal the Answer

#### WHOLE CLASS

**Item 5** The Act 3 video shows the second player spinning a 7 followed by an 8 and then moving his game piece to the same spot as the first player's piece. Have students record this real-world answer. To support the connection between variability and mathematical modeling, ask: *Why does our class have multiple answers, and the video has only one answer? Why are some of our predictions closer to the video than others?*

### Main Question Answer

**The second player spun a 7 and then an 8.**

### Validate Conclusions SMALL GROUP

**Item 6 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. *What two spins would have gotten the second player past the first player?* [The highest number on the spinner is 9. To get past the first player, the second player could have to have spun 8 twice, 8 and 9, 9 and 8, or 9 twice.]

### 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?

**Reason** Explain how you found the boy's unknown spin. How did doing that help you answer the Main Question?

**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.

*If a third player took two turns, what other possible spins would get that player to the same space as the first two players?*

*The third player could spin 6, then 9.*

$$6 + 9 = 15$$

*The third player could also spin 9, then 6.*

$$9 + 6 = 15$$