

Lesson 5-3A

Action Fractions
Math+CT

Storyboarding: Fraction Comic Strip

Math Connections: Children identify equivalent fractions.

CS Connections: Children prepare to create animations in Scratch by considering a simple comic strip storyboard with 4 scenes.

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► Vocabulary

animate • animation • storyboard(ing)

Computational Thinking

- **SEQUENCE:** Precision and completeness are important when writing instructions in advance.
- **SEQUENCE:** Programs are made by assembling instructions from a limited set.
- **DECOMPOSITION:** Problem decomposition is a useful early step in problem solving.

1 Warm Up 5–10 min

Materials

Equivalent Fraction Cards

Children review strategies for finding equivalent fractions.

fraction cards from Lesson 5-2

“I Can ...” Statements

Children read the explicit math and CS goals.

3.NF.3, 3.NF.3a, 3.NF.3b, 3.NF.3d

2 Focus 30–40 min

Fraction Comics

Children examine a fraction comic strip and discuss how to animate it.

Fraction Comic Strip Example (for display)

Planning a Comic

Children assemble a fraction comic strip on a storyboard.

Fraction Comic Cards, Storyboard Organizer student page, scissors

“I Can ...” statements

- *I can (precisely and completely) decompose a story into comic strip scenes (in details).*
- *I can meaningfully order the events on a storyboard to create an animation in Scratch.*
- *I can (precisely and completely) plan to animate a comic (in details) through storyboarding.*
- *I can compare two fractions and identify equivalent fractions.*
- *I can add details to others’ storyboards to make the plan precise and complete.*

Anticipated Barriers

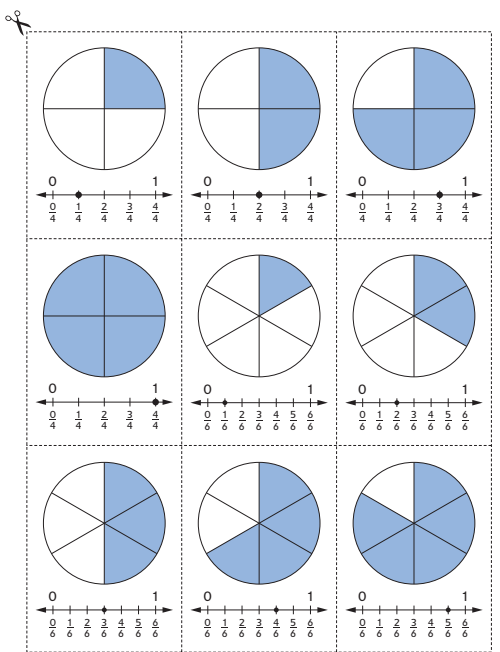
- Some students may need assistance finding and working with a partner.
- Students may have difficulty in explaining the details of the story.

Student Options

Consider these options for adapting the lesson to your students’ preferences:

- Students may need to be reminded of strategies to determine whether fractions are equivalent.

Fraction Cards 2



Activity Sheet 17

1 Warm Up

5–10 min

► Equivalent Fraction Cards

Have children take out the fraction cards they prepared in Lesson 5-2. Remind them that the circle is the whole on these cards and that the whole is the same size on every card. Ask: *How do you know a pair of fractions is equivalent?* **Answers vary.** In partnerships, ask children to find at least 2 pairs of equivalent fractions. As needed, remind children of strategies they used to determine equivalent fractions while playing the game Fraction Memory in Lesson 5-3.

► I Can ...

Display the “I Can ...” statements and remind children that these statements express the goals for today’s lesson and can give them clues about what to expect. Carefully read each statement and ask them to use their thumbs to show how true they feel each statement is for them right now.

2 Focus

30–40 min

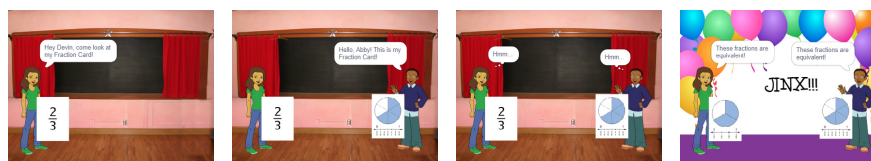
► Fraction Comics

WHOLE CLASS | SMALL GROUP | PARTNER | INDEPENDENT

Ask children to think about their favorite comic book or comic strip. Ask: *How would you explain what a comic strip is to someone who has never seen one?* **Answers vary.** Tell them that today they will plan to animate a simple comic in Scratch. Ask children to think about the meaning of the words **animate** and **animation**.

Display the following comic strip example.

Comic Strip Example:



scene 1

scene 2

scene 3

scene 4

Have children read the comic strip. Ask: *What is this comic about?* **Sample answer: Two classmates, Abby and Devin are talking and comparing fraction cards. The fractions are equivalent.** *How could we animate this comic?* **Answers vary.** Discuss with children two different ways to animate a comic strip:

- Create and use a series of pictures that change, like a flip book.
- Use a computer to change what the characters and objects do, say, and look like.

Academic Language Development

To *animate* something means to make it move. It is similar to the word *animal*, which is something that moves.

“I Can ...” statements

- I can (precisely and completely) decompose a story into comic strip scenes (in details).
- I can meaningfully order the events on a storyboard to create an animation in Scratch.
- I can (precisely and completely) plan to animate a comic (in details) through storyboarding.
- I can compare two fractions and identify equivalent fractions.
- I can add details to others’ storyboards to make the plan precise and complete.

Tell children that an important first step when planning an animation or comic is called **storyboarding**. The author (or animator) draws the images, writes the text, identifies the actions for each character and object in the story, and lays out each scene on a storyboard. Point out that when the animator creates the storyboard, it is important to describe all the details of the story, including the characters and what they say or do in each scene/frame. If the author is animating by creating a flip book, this may be as simple as drawing multiple pictures. When using a Scratch project to run the animation with sprites and say blocks, it is important to think about and plan all the actions that need to happen for the animation to work correctly. We can think of the storyboard like a comic strip, with extra details.

► Planning a Comic

WHOLE CLASS	SMALL GROUP	PARTNER	INDEPENDENT
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Distribute the Fraction Comic Cards. Have children work in partnerships to choose four cards that could be used in a comic strip as scene 1, scene 2, scene 3, and scene 4. Children should use the example comic as a starting point, but change some of the scenes to suit their preferences. They should draw their chosen fraction cards in the blank spaces provided and may also draw one scene of their choice for their comic.

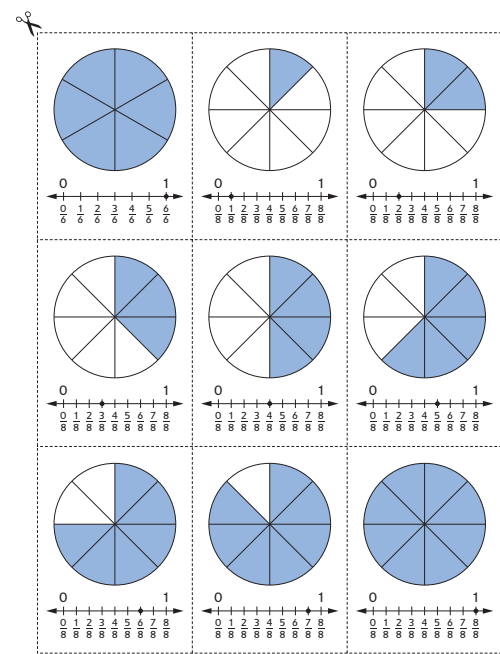
After children have selected their scenes, encourage them to act out their comic strip to help them think about what changes from each scene to the next. Students may notice changes in the appearance (costumes) of the characters (sprites), changes in the speech bubbles for each character, and changes in the fraction cards displayed. Encourage students to talk about when things happen—in sequence or at the same time. Ask:

- Look at all the scenes in your comic strip. What objects do you see that may be sprites? **Abby, Devin**
- Is every sprite in each scene? **No** What do you think that means would happen in a Scratch project? **Sample answer: The sprites are always in the project, but sometimes they are hidden.**
- In Scratch, what blocks do you think might be used for the actions in each scene? **Sample answers: say, think, hide, show, switch costume, switch backdrop**

Tell children that now you will work together to start adding details to make their comic strips into storyboards.

First display the example comic strip storyboard organizer. Explain that the panels break the story down into smaller parts, from beginning to end, just like in the comic strip. Ask: *What do we call the process of breaking things down into smaller or simpler parts?* **decomposition** Carefully point out the connection between the comic strip scene and the details below each one. In the example storyboard organizer, all the details are filled out for Abby, but Devin’s section is incomplete. You may wish to model adding details to complete the example storyboard together as a class before children attempt their own storyboards.

Fraction Cards 3



Activity Sheet 18

Fraction Comic Cards

Fraction Comic Cards Lesson 5-3A

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Storyboard Organizer

	Scene 1	Scene 2	Scene 3	Scene 4
Duration:	seconds	seconds	seconds	seconds
Costume:				
Abby	Action: say wait think show switch costume	Action: say wait think show switch costume	Action: say wait think show switch costume	Action: say wait think show switch costume
Costume:				
Devin	Action: say wait think show switch costume	Action: say wait think show switch costume	Action: say wait think show switch costume	Action: say wait think show switch costume
Costume:				
Backdrop:				
Stage	Action: wait switch	Action: wait switch	Action: wait switch	Action: wait switch

Example Storyboard Organizer:

	Scene 1	Scene 2	Scene 3	Scene 4
Duration:	5 seconds	5 seconds	5 seconds	5 seconds
Abby	Costume: 2/3 fraction Action: say wait think show switch costume Hey Devin, come look at my Fraction Card!	Costume: 2/3 fraction Action: say wait think show switch costume --	Costume: 2/3 fraction Action: say wait think show switch costume Hmm ...	Costume: 2/3 circle Action: say wait think show switch costume These fractions are equivalent!
Devin	Costume: -- Action: say wait think show switch costume	Costume: 4/6 circle Action: say wait think show switch costume	Costume: 4/6 circle Action: say wait think show switch costume	Costume: 4/6 circle Action: say wait think show switch costume
Stage	Backdrop: chalkboard Action: wait switch	Backdrop: chalkboard Action: wait switch	Backdrop: chalkboard Action: wait switch	Backdrop: Jinx! balloons Action: wait switch

Distribute the blank storyboard organizer to children and have them work in their partnerships to complete the storyboard for their comic strips. To accurately fill in the details, encourage children to discuss and act out each scene.

Wrap Up

WHOLE CLASS | SMALL GROUP | PARTNER | INDEPENDENT

Tell students to save their storyboards for Lesson 5-3B, when they will get a chance to animate their comics in Scratch. If time allows, choose one or two volunteer groups to share their storyboards with the class. Have children help add missing details to each storyboard.

Suggested questions:

- How was it helpful to decompose your comic strip into scenes? **Answers Vary**
- What changes did you notice when you thought about moving from one scene to the next? **Answers Vary**
- What was challenging about creating a storyboard? **Answers Vary**
- How did talking with a partner help you create your storyboard? **Answers Vary**
- How do you think you will use your storyboard when you are animating in Scratch? **Answers Vary**

Now "I Can ..." Review today's "I Can ..." statements and ask children to use their thumbs to show their opinion of each statement.

"I Can ..." statements

- I can (precisely and completely) decompose a story into comic strip scenes (in details).
- I can meaningfully order the events on a storyboard to create an animation in Scratch.
- I can (precisely and completely) plan to animate a comic (in details) through storyboarding.
- I can compare two fractions and identify equivalent fractions.
- I can add details to others' storyboards to make the plan precise and complete.