Proactive
Mathematics
Interventions
GRADES 2–5

Priming for Success
Through Engaging Tasks
and Purposeful Design

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CORWIN
Mathematics

Thankyou

FOR YOUR
INTEREST IN
CORWIN

Please enjoy this complimentary excerpt from
Proactive Mathematics Interventions, Grades 2-5.

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CORWIN

General Objective:

Students will add/subtract fractions using a variety of strategies.

This activity might be used with:

Students who are able to (prerequisite knowledge):	Students who are Primed to (getting ready to learn):
• name and write fractions and mixed numbers represented by a model • represent fractions and mixed numbers with models and symbols • represent equivalent fractions	• solve practical problems that involve addition and subtraction with fractions having like denominators of 12 or less • solve practical problems that involve addition and subtraction with fractions having unlike denominators of 12 or less

Materials:

◗ Fraction circles/bars

◗ Fraction open line

◗ PRINTABLE: Fraction Zap!

◗ DIGITAL RESOURCE (fraction models): https://qrs.ly/bigjc86

◗ DIGITAL RESOURCE (fraction strips): https://qrs.ly/2wgjc8c

◗ DIGITAL RESOURCE (fraction circles): https://qrs.ly/lxgjc8d

Recommended Children's Literature:

◗ *Full House: An Invitation to Fractions* – Dodds, 2009

Task Overview:

Students use addition or subtraction strategies to determine how much was "zapped" and record their results. In the activity, students will discuss their strategies and reflect on how thinking in terms of addition can help solve subtraction problems with fractions.

Select (or create) a variation that focuses on the prior knowledge you are working to shore up for your student group.

Variation 1

Learning Target: Students will think about the missing addends to figure out what fraction was zapped. This will allow students to use an adding-up strategy (also called "think addition") or subtraction strategy to find the

missing addend. The activity is played by figuring out the missing addend, which is a way to think about fraction subtraction. Fraction Zap will elicit strategies like adding up to the target number.
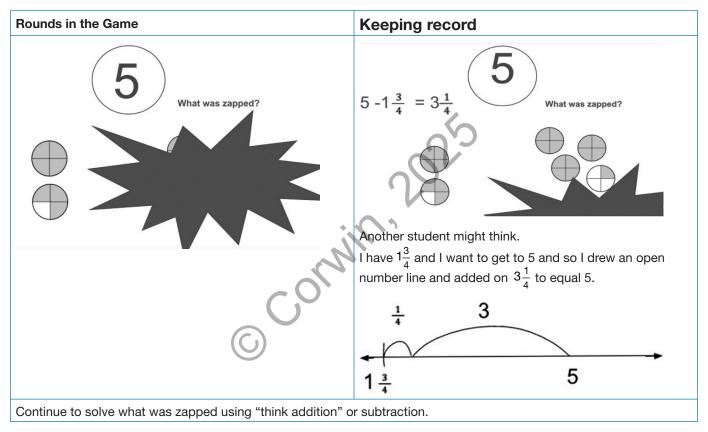
Variation Directions:

Monster loves key lime pies and key lime bars. When it sees these key lime snacks out of the oven, it uses zapping power to capture them and eat them. Find out how many key lime pies/bars Monster has zapped. The number in the circle shows how many pies/bars were baked before they were zapped.

In this variation, students use addition or subtraction strategies to determine how much was zapped.

Do this first example in the role-playing and then show this image on the white board after they have answers as you discuss their thinking.

Figure 5.25.1 Fraction Zap Variation 1 example

Rounds in the Game	Keeping record
	  $5 - 1\frac{3}{4} = 3\frac{1}{4}$ Another student might think. I have $1\frac{3}{4}$ and I want to get to 5 and so I drew an open number line and added on $3\frac{1}{4}$ to equal 5.

Continue to solve what was zapped using "think addition" or subtraction.

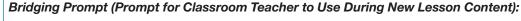### Engage in Math Discourse (Make the Mathematics Visible):

Observation: As students work, encourage them to notice important relationships and push on early and partial understandings.

◗ Listen for diverse strategies of adding up as "think addition" or subtracting to find the unknown. Ask them to explain their thinking using the fraction materials and the number line.

Interview: After the activity, bring the intervention group together for a discussion. Suggested prompts:

◗ What strategies did you use to solve for what was zapped?

◗ Why do you think other students suggest that "think addition" is easier than subtracting?

Variation 2

Learning Target: Students will use fraction manipulatives to solve some contextual problems.

Variation Directions:

In this variation, students will first use concrete materials then will create math sketches of fraction models (circles or bars) to solve these contextual problems.

Figure 5.25.2 Contextual problems

Fraction with like denominators

Example: You walked $\frac{3}{4}$ mile to the park and then walked another $\frac{3}{4}$ mile to the store. How far did you walk in total?

A student might put together $\frac{3}{4}$ and $\frac{3}{4}$ then combine the two sets to make a whole and notice that they would have walked $1\frac{2}{4}$ or $1\frac{1}{2}$ miles.

Try this by using fraction materials first then drawing a fraction model:

A recipe requires $1\frac{2}{3}$ cup of flour and $\frac{1}{3}$ cup of sugar. How much more flour than sugar does the recipe require?

Fraction Problems With Unlike Denominators

Example: You have $\frac{3}{4}$ of a box of pencils and you give away $\frac{1}{8}$ of the box to a friend. How much of the box of pencils do you have left?

(A student might draw $\frac{3}{4}$ of a box then split the box into eighths by splitting the box in half with the dotted line and take away $\frac{1}{8}$ to have $\frac{5}{8}$ left.)

Try this by using fraction materials first then creating a math sketch as a semiconcrete representation of the fraction model.

You drank $\frac{3}{10}$ liter of water in the morning and $\frac{1}{5}$ liter in the afternoon. How much water did you drink in total?

Engage in Math Discourse (Make the Mathematics Visible):

Observation, **Interview** and **Show Me**: As students work, encourage them to notice important relationships and push on early and partial understandings.

◗ Can you use a math sketch or a model to show how to make sense of the problem?

◗ How would you combine two fractions that have the same denominator? Can you explain your approach using the fraction models or the open number line?

◗ In looking at the context of this specific problem, what does the denominator tell us? What does the numerator tell us?

Interview: After the activity, bring the intervention group together for a discussion. Suggested prompts:

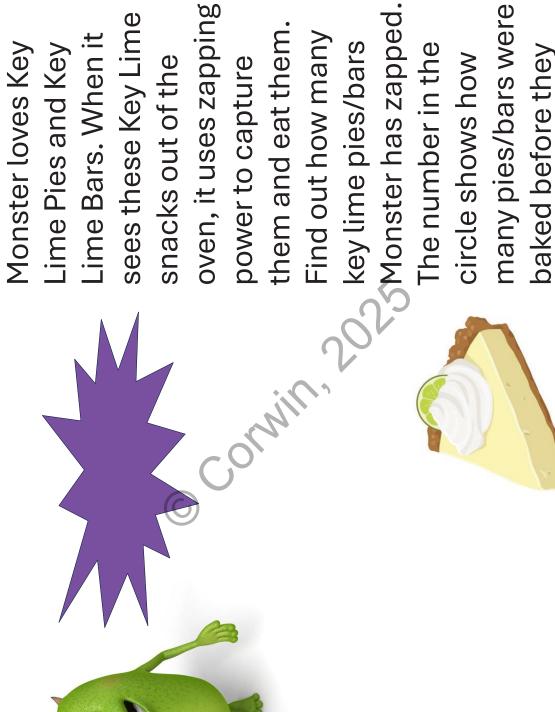◗ How do the fraction tools and math sketches help us add and subtract fractions with like and unlike denominators?

	Bridging Prompt (Prompt for Classroom Teacher to Use During New Lesson Content):
	Set up a problem with models/visuals (walk on a hike) to help the students who participated in the intervention group get into familiar territory. Then, have them model some problems from this variation for the class using materials and the open number line. • How do visual models help you solve the fraction problems in context? • How does using the fraction tools and math sketches help you to add fractions with unlike denominators? • Can using "thinking addition" work with all subtraction problems?

Fraction Zap!

Monster loves Key Lime Pies and Key Lime Bars. When it sees these Key Lime snacks out of the oven, it uses zapping power to capture them and eat them. Find out how many key lime pies/bars Monster has zapped. The number in the circle shows how many pies/bars were baked before they were zapped.

Fraction Zap!

What was zapped?

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