Practice Task – Flip it Over

STANDARDS FOR MATHEMATICAL CONTENT

MCC5.NF.1 Use equivalent fractions as a strategy to add and subtract fractions.

Add and subtract fractions with unlike denominators (including mixed numbers) by replacing given fractions with equivalent fractions in such a way as to produce an equivalent sum or difference of fractions with like denominators. *For example, 2/3 + 5/4 = 8/12 + 15/12 = 23/12. (In general, a/b + c/d = ad + bc/bd)*

STANDARDS FOR MATHEMATICAL PRACTICE

1. Make sense of problems and persevere in solving them.
2. Reason abstractly and quantitatively.
3. Construct viable arguments and critique the reasoning of others.
4. Model with mathematics.
5. Use appropriate tools strategically.
6. Attend to precision.
7. Look for and make use of structure.
8. Look for and express regularity in repeated reasoning.

ESSENTIAL QUESTIONS

- How can fractions with different denominators be added together?
- What strategies can we use for adding and subtracting fractions with different denominators?
- What models can we use to help us add and subtract fractions with different denominators?
- What do equivalent fractions have to do with adding and subtracting fractions?

MATERIALS

- Game board
- Two counters per person
- Available manipulatives

GROUPING

Group/Partner Task

TASK DESCRIPTION, DEVELOPMENT, AND DISCUSSION

This task was developed to help students develop and use relationships between certain fractions for fraction computation. It is designed to allow students to develop these relationships for fluency and understanding of fractional computation.
In this task students will play a game to see who can flip over their cards first. This game will allow students to use their fractional understandings and build their fractional computation strategies. Logical thinking and problem solving skills will begin to develop their game playing strategies, the more students play the game.

Comments

Multiple fraction models, in addition to those included in the task, should be made available to the students as support for those who need it. In addition, fractional number lines (or open number lines) could benefit many students with this task.

This task could be introduced in a small group or by playing with class as a whole using available technology. In addition, the teachers could role model with a student, or better yet have two students role model how to play for the rest of the class.

Before asking students to work on this task, be sure students are able to:

Use models to create equivalent fractions (see previous tasks and Teaching Student Centered Mathematics, volume 2, pg 155-156 (Slicing Squares).

Understand that a whole can be written as a fraction with any number of parts as long as all of those parts are included to make the whole. For example, a whole can be cut into tenths. In order to have a whole, I need all ten tenths (10/10).

Be able to decompose fraction, for example $^{4}/_{4}$ = ½ + ½ or ¼ + ¾

Task Directions

Students will follow directions below from the Create Three Game activity.

Play the game several times.

Keep track of computation strategies used (use models in explanations during the closing).

Keep track of game playing strategies used (if any develop this first time playing).

FORMATIVE ASSESSMENT QUESTIONS

- What fractions do you find easy to work with? Why?
- Which fraction do you like to spin? Why?
- What strategies do you use when playing this game?

Questions for Teacher Reflection

While planning the task:
What level of support do my struggling students need in order to be successful with this task?
In what way can I deepen the understanding of those students who are competent in this task?
Could this game be played again, or changed in any way?

During and after the students complete the task:

Which students have developed a strategy based on fraction understandings of numerators and denominators?
Which students are becoming fluent in creating equivalent fractions when adding fractions?
Which students still prefer to use manipulatives and rely heavily on models?

Questions for Teacher Reflection

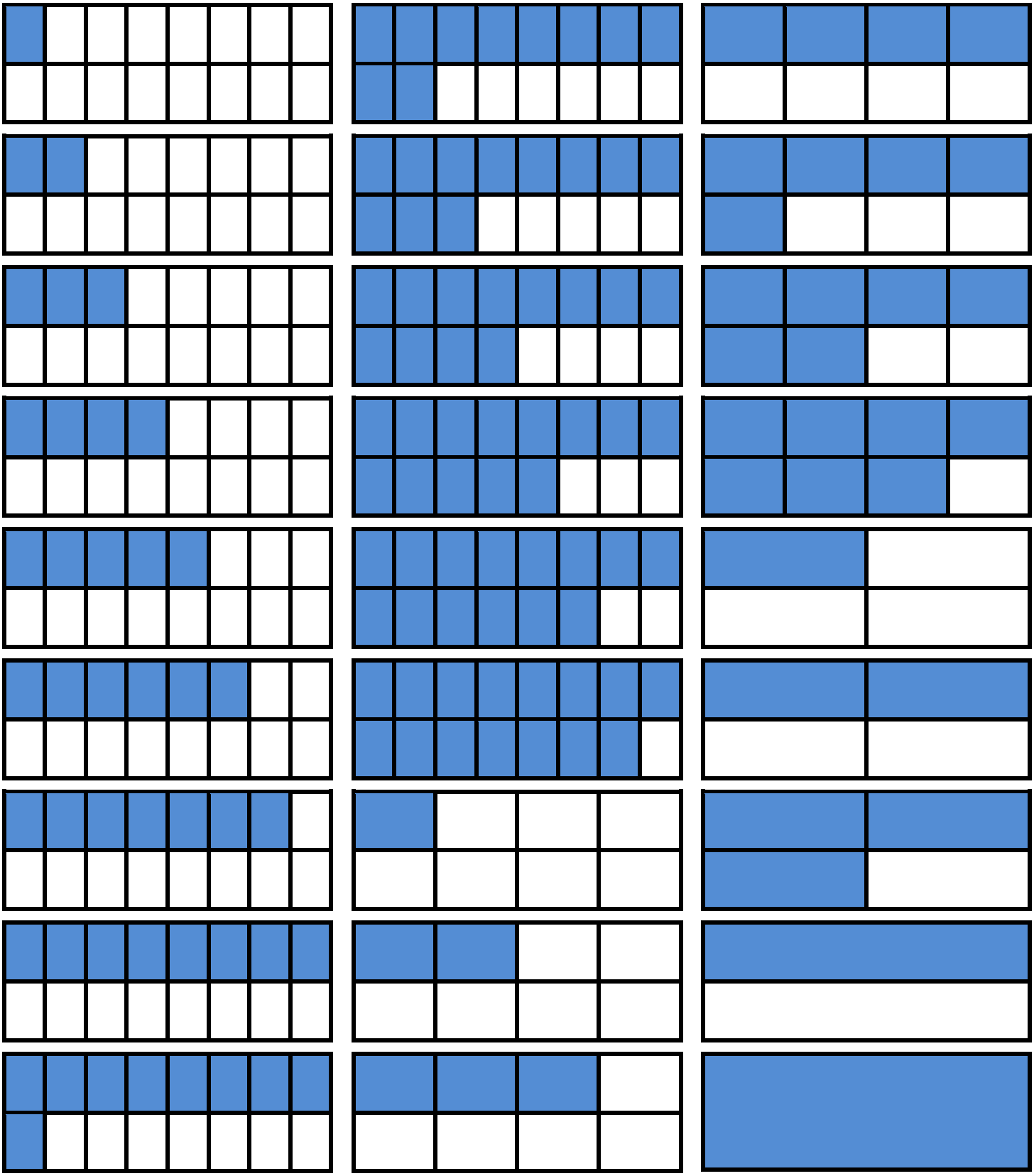
- How did my students engage in the 8 mathematical practices today?
- How effective was I in creating an environment where meaningful learning could take place?
- How effective was my questioning today? Did I question too little or say too much?
- Were manipulatives made accessible for students to work through the task?
- One positive thing about today's lesson and one thing you will change?

Technology

http://www.counton.org/games/map-fractions/racing/ this is an interactive board game where players race bikes on a game board by adding fractions with like denominators.

http://www.counton.org/games/map-fractions/frosty/ this is an interactive three across board game where players add fractions with like and unlike denominators and place a virtual counter on the sum. The first to get three in a row wins the game.

http://www.k-5mathteachingresources.com/ this site offers simple contextual problems to use to extend and support students in their understanding of fraction computation and all problems are correlated to CCSS.



$\frac{2}{16}$	$\frac{3}{16}$	$\frac{4}{16}$
$\frac{5}{16}$	$\frac{6}{16}$	$\frac{7}{16}$
$\frac{8}{16}$	$\frac{9}{16}$	$\frac{10}{16}$
$\frac{11}{16}$	$\frac{12}{16}$	$\frac{13}{16}$
1	$\frac{14}{16}$	$\frac{15}{16}$
$\frac{2}{8}$	$\frac{3}{8}$	$\frac{4}{8}$

$\frac{5}{8}$	$\frac{6}{8}$	$\frac{7}{8}$
$\frac{2}{4}$	$\frac{3}{4}$	$\frac{17}{16}$
$\frac{9}{8}$	$\frac{5}{4}$	$\frac{3}{2}$
$\frac{3}{8}$	$\frac{4}{8}$	$\frac{5}{8}$
$\frac{6}{8}$	$\frac{7}{8}$	

Fraction Operation Cards

$+\frac{1}{16}$	$+\frac{3}{16}$	$+\frac{5}{16}$
$+\frac{1}{8}$	$+\frac{3}{8}$	$+\frac{7}{16}$
$+\frac{5}{8}$	$+\frac{3}{4}$	$+\frac{9}{16}$
$+\frac{7}{8}$	$+\frac{1}{4}$	$+\frac{1}{2}$

Flip it Over

Materials: One set of Fraction Picture Cards (attached), One set of Fraction Cards (attached), One set of Fraction Operation Cards, (attached).

Players: two or four players

Directions:

Set up the game:

- Deal all of the fraction number cards evenly to each player.
- Everyone places their fraction number cards face-up in front of them.
- Place the fraction picture cards in a deck, face down, in the center of the playing area.
- Place the set of fraction operation cards loosely in the center of the playing area.
- Decide who plays first.

Playing the game:

- The first player takes the top fraction picture card from the deck in the center, then chooses 3 operation cards.
- Player one chooses one or more of the operation cards to add to the picture card to make a sum equal to one of their fraction number cards.
- If you have a number card that matches the sum, flip it over.
- Return the used operation cards and the picture card to the center.
- Player two takes the left over operation card(s) takes some more to have three operation cards, then chooses a picture card
- Player two chooses one or more of the operation cards to add to the picture card to make a sum equal to one of their fraction number cards.
- If you have a number card that matches the sum, flip it over.
- Play continues in this way for each player.
- The first player to flip over all of his or her cards wins.