

The Flick Game

Description

Students will explore equivalent fractions and sums of fractions as they flick an eraser along game boards that are divided into thirds, sixths, ninths and eighteenths. The process of recording the scores on a number line – and determining the sum of their personal score, as well as their team score – reinforces the need for a common unit for addition of fractions.



Mathematics

Students often struggle when combining fractions with unlike denominators. In part, this struggle involves fragile understanding of equivalent fractions and common units. This activity will allow students to explore the addition of combinations of fractions with denominators of 3, 6, 9 and 18 whilst exploring fractional relationships. Many opportunities to compose and decompose fractions, and to use concrete models to lend proof to their thinking, will allow students to consolidate the need for a common unit when adding fractions.

Curriculum Connections

Students will:

- represent, compare and order fractional amounts with unlike but friendly denominators using a variety of tools and standard fractional notation;
- compare fractions to benchmarks using concrete materials;
- solve problems using addition and subtraction with fractions.

Instructional Sequence

1. Divide students into teams of three.
2. Review the object of the game and the requirements for scoring. Emphasize to students that each game board equals 1 whole. Students should line multiple boards up end-to-end.
3. Distribute to each team: instructions (BLM 1), 1 game piece, 3-4 Game Boards (BLM 2a and/or 2b). Each student also gets a Score Card (BLM 3). Note that the game boards are different, with BLM 2a partitioned into thirds and ninths while BLM 2b is partitioned into sixths and eighteenths. You may select which students receive which boards or distribute a mix of boards to each team and have the students strategize about how to order them (with more finely partitioned boards at the end to increase the accuracy of their score)
4. Have students play the game as per the instructions on BLM 1. Each player takes 3 turns, completing a Score Card (BLM 3) as they play.
5. After everyone has taken 3 turns, each player adds their individual results. Then, each team member identifies their highest score and these are added together to get a team total.
6. Have students complete the Exit Ticket (BLM 4).

Highlights of Student Thinking

Students may:

- identify the equivalent fractions on the game boards quickly;
- create/label number lines incorrectly;
- immediately find common denominators to label all partitions;
- use the game board partitions to determine equivalent fractions;
- have difficulty placing their scores on the number line additively on the score card; and
- be more comfortable with representing their score using standard notation than with a model.

Key Questions

1. How did you choose your common unit? How did you calculate your total scores when the denominators were different?
2. What representation makes the most sense to you? Why?
3. How did you choose to label your number line and why?
4. Why did you choose this particular game board?

Materials

BLM 1 (one copy per group)

One eraser half for each team

BLM 2a and/or 2b (printed on 11X17) (3-4 boards per group)

BLM 3 (one copy per student)

BLM 4 (one card per student; three cards per page with different fractions to allow for modification)