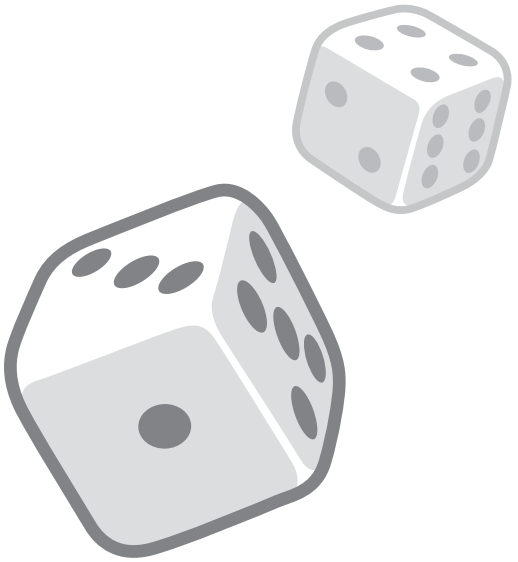
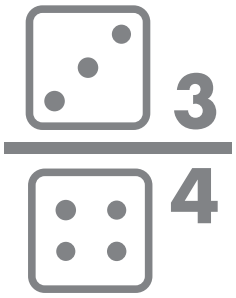
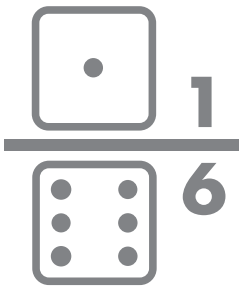
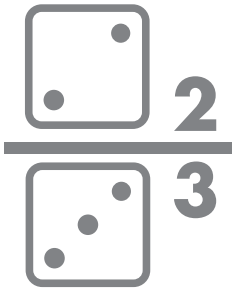
Fraction Games & Activities with Dice!



Fun and Engaging Activities to Build Fraction Fluency







Didax

Rowley, Massachusetts

Lesson 1

Identifying Proper & Improper Fractions

Four in a Row/Crossover

How to Play

- Each team chooses a colored token.
- Teams toss a die. Higher number goes first.

- Choose a game: **Four in a Row** or **Crossover.**
- Toss a die. If the die toss is an **odd number,** place a marker on a **proper fraction.**
- If the die toss is an **even number,** place a marker on an **improper fraction.**
- If the fraction is not available, lose that turn.
- The first player to reach the goal of the game wins.

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

Lesson 2

Identifying Improper & Mixed Fractions

Four in a Row/Crossover

How to Play

- Each team chooses a colored token.
- Teams toss a die. Higher number goes first.

- Choose a game: **Four in a Row** or **Crossover.**
- Toss a die. If the die toss is an **odd number,** place a marker on an **improper fraction.**
- If the die toss is an **even number,** place a marker on a **mixed fraction.**
- If the fraction is not available, lose that turn.
- The first player to reach the goal of the game wins.

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

Lesson 4

Renaming One-Half
Four-Grid Tic-Tac-Toe

- Each team chooses a colored token.
- Teams toss a die. Higher number goes first.

How to Play

- Toss a die. Make a fraction that equals 1. **Example:** Toss 3, make the fraction $\frac{3}{3}$.
- Multiply the fraction that equals 1 by $\frac{1}{2}$ to make an equivalent fraction for $\frac{1}{2}$. **Example:** $\frac{3 \times 1}{3 \times 2} = \frac{3}{6}$
- Place a marker on $\frac{3}{6}$ on any of the 4 Tic-Tac-Toe grids.
- If the fraction is not available, lose that turn.
- The team with the most "threes in a row" wins.

$\frac{2}{4}$	$\frac{5}{10}$	$\frac{4}{8}$		$\frac{1}{2}$	$\frac{6}{12}$	$\frac{3}{6}$
$\frac{4}{8}$	$\frac{1}{2}$	$\frac{3}{6}$		$\frac{6}{12}$	$\frac{4}{8}$	$\frac{5}{10}$
$\frac{3}{6}$	$\frac{2}{4}$	$\frac{6}{12}$		$\frac{5}{10}$	$\frac{2}{4}$	$\frac{1}{2}$
$\frac{1}{2}$	$\frac{3}{6}$	$\frac{4}{8}$		$\frac{5}{10}$	$\frac{6}{12}$	$\frac{2}{4}$
$\frac{6}{12}$	$\frac{5}{10}$	$\frac{1}{2}$		$\frac{2}{4}$	$\frac{3}{6}$	$\frac{4}{8}$
$\frac{2}{4}$	$\frac{4}{8}$	$\frac{3}{6}$		$\frac{6}{12}$	$\frac{5}{10}$	$\frac{1}{2}$

Lesson 4

Renaming One-Third Four-Grid Tic-Tac-Toe

- Each team chooses a colored token.
- Teams toss a die. Higher number goes first.

How to Play

- Toss a die. Make a fraction that equals 1. **Example:** Toss 3, make the fraction $\frac{3}{3}$.
- Multiply the fraction that equals 1 by $\frac{1}{3}$ to make an equivalent fraction for $\frac{1}{3}$. **Example:** $\frac{3 \times 1}{3 \times 3} = \frac{3}{9}$
- Place a marker on $\frac{3}{9}$ on any of the 4 Tic-Tac-Toe grids.
- If the fraction is not available, lose that turn.
- The team with the most "threes in a row" wins.

$\frac{1}{3}$	$\frac{5}{15}$	$\frac{3}{9}$		$\frac{6}{18}$	$\frac{4}{12}$	$\frac{2}{6}$
$\frac{3}{9}$	$\frac{6}{18}$	$\frac{2}{6}$		$\frac{4}{12}$	$\frac{3}{9}$	$\frac{5}{15}$
$\frac{2}{6}$	$\frac{1}{3}$	$\frac{4}{12}$		$\frac{5}{15}$	$\frac{1}{3}$	$\frac{6}{18}$
$\frac{6}{18}$	$\frac{2}{6}$	$\frac{3}{9}$		$\frac{5}{15}$	$\frac{4}{12}$	$\frac{1}{3}$
$\frac{4}{12}$	$\frac{5}{15}$	$\frac{6}{18}$		$\frac{1}{3}$	$\frac{2}{6}$	$\frac{3}{9}$
$\frac{1}{3}$	$\frac{3}{9}$	$\frac{2}{6}$		$\frac{4}{12}$	$\frac{5}{15}$	$\frac{6}{18}$

Lesson 4

Renaming One-Fourth
Four-Grid Tic-Tac-Toe

- Each team chooses a colored token.
- Teams toss a die. Higher number goes first.

How to Play

- Toss a die. Make a fraction that equals 1. **Example:** Toss 3, make the fraction $\frac{3}{3}$.
- Multiply the fraction that equals 1 by $\frac{1}{4}$ to make an equivalent fraction for $\frac{1}{4}$. **Example:** $\frac{3 \times 1}{3 \times 4} = \frac{3}{12}$
- Place a marker on $\frac{3}{12}$ on any of the 4 Tic-Tac-Toe grids.
- If the fraction is not available, lose that turn.
- The team with the most "threes in a row" wins.

$\frac{6}{24}$	$\frac{5}{20}$	$\frac{1}{4}$		$\frac{4}{16}$	$\frac{3}{12}$	$\frac{2}{8}$
$\frac{1}{4}$	$\frac{4}{16}$	$\frac{2}{8}$		$\frac{3}{12}$	$\frac{1}{4}$	$\frac{5}{20}$
$\frac{2}{8}$	$\frac{6}{24}$	$\frac{3}{12}$		$\frac{5}{20}$	$\frac{6}{24}$	$\frac{4}{16}$
$\frac{4}{16}$	$\frac{2}{8}$	$\frac{1}{4}$		$\frac{5}{20}$	$\frac{3}{12}$	$\frac{6}{24}$
$\frac{3}{12}$	$\frac{5}{20}$	$\frac{4}{16}$		$\frac{6}{24}$	$\frac{2}{8}$	$\frac{1}{4}$
$\frac{6}{24}$	$\frac{1}{4}$	$\frac{2}{8}$		$\frac{3}{12}$	$\frac{5}{20}$	$\frac{4}{16}$

Lesson 4

Renaming One-Fifth Four-Grid Tic-Tac-Toe

- Each team chooses a colored token.
- Teams toss a die. Higher number goes first.

How to Play

- Toss a die. Make a fraction that equals 1. **Example:** Toss 3, make the fraction $\frac{3}{3}$.
- Multiply the fraction that equals 1 by $\frac{1}{5}$ to make an equivalent fraction for $\frac{1}{5}$. **Example:** $\frac{3 \times 1}{3 \times 5} = \frac{3}{15}$
- Place a marker on $\frac{3}{15}$ on any of the 4 Tic-Tac-Toe grids.
- If the fraction is not available, lose that turn.
- The team with the most "threes in a row" wins.

$\frac{5}{25}$	$\frac{4}{20}$	$\frac{2}{10}$		$\frac{1}{5}$	$\frac{3}{15}$	$\frac{6}{30}$
$\frac{2}{10}$	$\frac{1}{5}$	$\frac{6}{30}$		$\frac{3}{15}$	$\frac{2}{10}$	$\frac{4}{20}$
$\frac{6}{30}$	$\frac{5}{25}$	$\frac{3}{15}$		$\frac{4}{20}$	$\frac{5}{25}$	$\frac{1}{5}$
$\frac{1}{5}$	$\frac{6}{30}$	$\frac{2}{10}$		$\frac{4}{20}$	$\frac{3}{15}$	$\frac{5}{25}$
$\frac{3}{15}$	$\frac{4}{20}$	$\frac{1}{5}$		$\frac{5}{25}$	$\frac{6}{30}$	$\frac{2}{10}$
$\frac{5}{25}$	$\frac{2}{10}$	$\frac{6}{30}$		$\frac{3}{15}$	$\frac{4}{20}$	$\frac{1}{5}$

Adding/Multiplying Fractional Parts – Score Chart

Die Toss	Fraction	Proper or Mixed Fraction	Score
		Total – Game 1	

Die Toss	Fraction	Proper or Mixed Fraction	Score
		Total – Game 2	

Die Toss	Fraction	Proper or Mixed Fraction	Score
		Total – Game 3	

	Score
Game 1	
Game 2	
Game 3	
Total Score	

Lesson 5

Fraction Bars – Adding/Multiplying Halves

How to Play

- Each team gets a score chart, bar chart, die, and pencil.
- Toss a die.
- Make a fraction: Numerator = die toss, denominator = 2. (**Example:** Toss 5. Make the fraction $\frac{5}{2}$. Five-halves is $\frac{1}{2} + \frac{1}{2} + \frac{1}{2} + \frac{1}{2} + \frac{1}{2}$, or 5 of the halves.)
- Cross out that many halves on the fraction bar chart.
- On the score chart, record the die toss, the fraction created by the die toss, and the score.
- After 5 tosses, the teams total their scores. The team with the highest score wins.
- Play 2 or more games. First team to win 2 games is the winner.

Lesson 5

Fraction Bars – Adding/Multiplying Thirds

How to Play

- Each team gets a score chart (page 38), bar chart, die, and pencil.
- Toss a die.
- Make a fraction: Numerator = die toss, denominator = 3. (**Example:** Toss 5. Make the fraction $\frac{5}{3}$. Five-thirds is $\frac{1}{3} + \frac{1}{3} + \frac{1}{3} + \frac{1}{3} + \frac{1}{3}$, or 5 of the thirds.)
- Cross out that many thirds on the fraction bar chart.
- On the score chart, record the die toss, the fraction created by the die toss, and the score.
- After 5 tosses, the teams total their scores. The team with the highest score wins.
- Play 2 or more games. First team to win 2 games is the winner.

Lesson 5

Fraction Bars – Adding/Multiplying Fourths

How to Play

- Each team gets a score chart (page 38), bar chart, die, and pencil.
- Toss a die.
- Make a fraction: Numerator = die toss, denominator = 4. (**Example:** Toss 5. Make the fraction $\frac{5}{4}$. Five-fourths is $\frac{1}{4} + \frac{1}{4} + \frac{1}{4} + \frac{1}{4} + \frac{1}{4}$, or 5 of the fourths.)
- Cross out that many fourths on the fraction bar chart.
- On the score chart, record the die toss, the fraction created by the die toss, and the score.
- After 5 tosses, the teams total their scores. The team with the highest score wins.
- Play 2 or more games. First team to win 2 games is the winner.

Lesson 5

Fraction Bars – Adding/Multiplying Fifths

How to Play

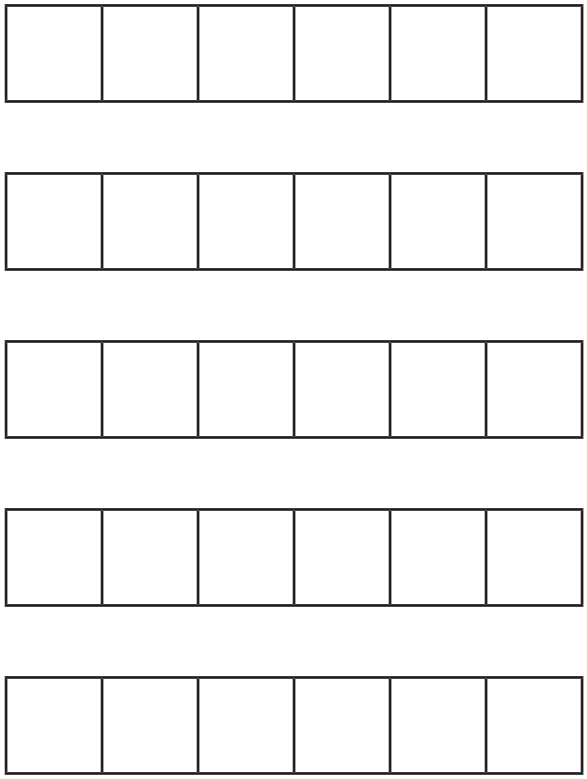
- Each team gets a score chart (page 38), bar chart, die, and pencil.
- Toss a die.
- Make a fraction: Numerator = die toss, denominator = 5. (**Example:** Toss 4. Make the fraction $\frac{4}{5}$. Four-fifths is $\frac{1}{5} + \frac{1}{5} + \frac{1}{5} + \frac{1}{5}$, or 4 of the fifths.)
- Cross out that many fifths on the fraction bar chart.
- On the score chart, record the die toss, the fraction created by the die toss, and the score.
- After 5 tosses, the teams total their scores. The team with the highest score wins.
- Play 2 or more games. First team to win 2 games is the winner.

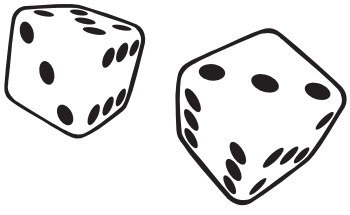
Lesson 5

Fraction Bars – Adding/Multiplying Sixths

How to Play

- Each team gets a score chart (page 38), bar chart, die, and pencil.
- Toss a die.
- Make a fraction: Numerator = die toss, denominator = 6. (**Example:** Toss 4. Make the fraction $\frac{4}{6}$. Four-sixths is $\frac{1}{6} + \frac{1}{6} + \frac{1}{6} + \frac{1}{6}$, or 4 of the sixths.)
- Cross out that many sixths on the fraction bar chart.
- On the score chart, record the die toss, the fraction created by the die toss, and the score.
- After 5 tosses, the teams total their scores. The team with the highest score wins.
- Play 2 or more games. First team to win 2 games is the winner.





Fraction Number Line Activities – Score Chart

Adding/Multiplying, Subtracting

Die Toss	Fraction	Location on Number Line

Die Toss	Fraction	Location on Number Line

Die Toss	Fraction	Location on Number Line

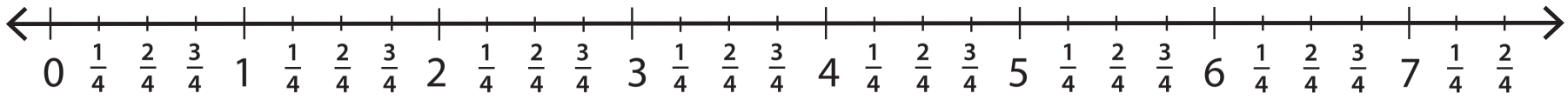
	Score
Game 1	
Game 2	
Game 3	
Total Score	

Lesson 8

Fraction Number Line – Adding/Multiplying Fourths

How to Play

- Each team gets a score chart (page 60), number line, die, and pencil.
- Toss a die.
- Make a fraction: **numerator = die toss, denominator = 4.**
- Start at 0. Move **ahead** that many fourths on the number line. (**Example:** Toss a 5. Fraction is $\frac{5}{4}$. Move ahead 5 fourths.)
- On the score chart, record the die toss, the fraction created by the die toss, and the location on the number line.
- On the next die toss, move forward from that location on the number line.
- After 5 tosses, the score closest to $3\frac{3}{4}$ on the number line wins.
- Play 2 or more games. The first team to win 2 games is the winner.

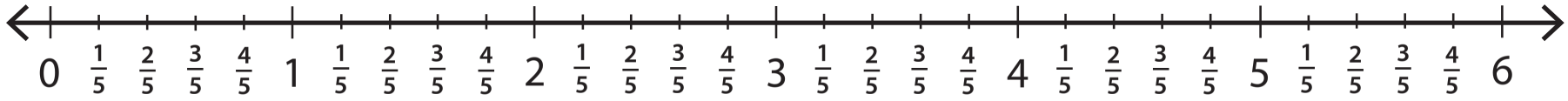


Lesson 8

Fraction Number Line – Adding/Multiplying Fifths

How to Play

- Each team gets a score chart (page 60), number line, die, and pencil.
- Toss a die.
- Make a fraction: **numerator = die toss, denominator = 5.**
- Start at 0. Move ahead that many fifths on the number line. (**Example:** Toss a 4. Fraction is $\frac{4}{5}$. Move **ahead** 4 fifths.)
- On the score chart, record the die toss, the fraction created by the die toss, and the location on the number line.
- On the next die toss, move forward from that location on the number line.
- After 5 tosses, the score closest to 3 on the number line wins.
- Play 2 or more games. The first team to win 2 games is the winner.

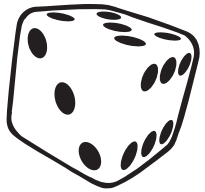


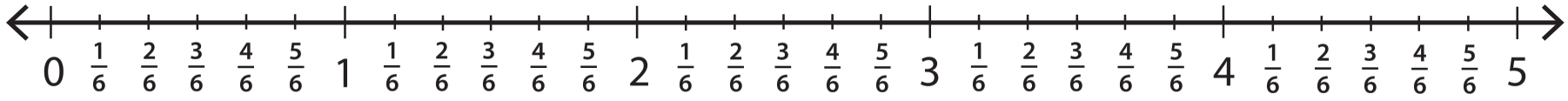
Lesson 8

Fraction Number Line – Adding/Multiplying Sixths

How to Play

- Each team gets a score chart (page 60), number line, die, and pencil.
- Toss a die.
- Make a fraction: **numerator = die toss, denominator = 6.**
- Start at 0. Move **ahead** that many sixths on the number line. (**Example:** Toss a 5. Fraction is $\frac{5}{6}$. Move ahead 5 sixths.)
- On the score chart, record the die toss, the fraction created by the die toss, and the location on the number line.
- On the next die toss, move forward from that location on the number line.
- After 5 tosses, the score closest to $2\frac{3}{6}$ on the number line wins.
- Play 2 or more games. The first team to win 2 games is the winner.



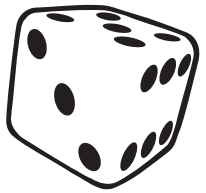


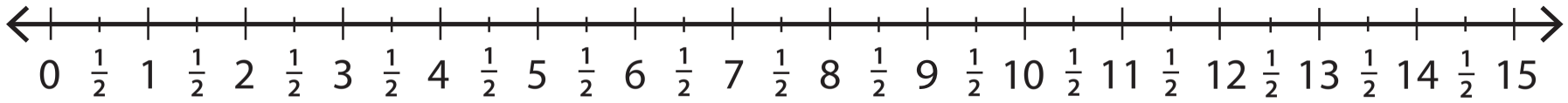
Lesson 9

Fraction Number Line – Subtracting Halves

How to Play

- Each team gets a score chart (page 60), number line, die, and pencil.
- Toss a die.
- Make a fraction: **numerator = die toss, denominator = 2.**
- Starting at 15, **move back** that many **halves** on the number line. Record the new location on the score chart. (**Example:** Toss a 4. Fraction is $\frac{4}{2}$. Move back 4 halves. Record the fraction $\frac{4}{2}$ and the location, 13.)
- On the next toss, move back from the current location to the next location on the number line. Record the toss and the new location on the score chart.
- After 5 tosses, the score closest to $7\frac{1}{2}$ on the number line wins.
- Play 2 or more games. The first team to win 2 games is the winner. OR:
- After 3 games, tally the 3 scores. The score closest to $22\frac{1}{2}$ wins.





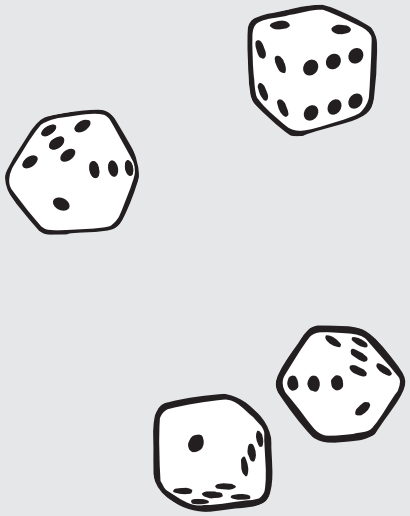
Notes to Teachers/Fraction Equalities and Inequalities

Objectives

- Students understand relationships among fractions and the values of denominators.
- Students understand that a fraction with a smaller denominator is a larger quantity than a fraction with a larger denominator, assuming the numerator is constant.

Overview

The **Fraction Equalities/Inequalities activities** are "fill the chart" activities. Students toss 2 dice to make a proper fraction. Using the fraction chart provided on the activity page for reference, students determine whether the fraction is more than, less than, or equal to (<, >, +) a specific fraction on the chart. Students write the proper fraction in the appropriate box to make a true statement.



Each of the first five activities deal with a specific denominator—halves, thirds, fourths, fifths, and sixths. The last four activities involve more than one denominator.

Materials

- "Fraction Equalities/Inequalities" charts (pages 79–83)
- 2 colored pencils (different colors)
- 2 dice

Getting Started

Jump in and have fun!

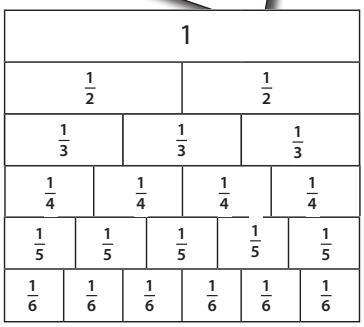
Fraction Equalities/Inequalities – Halves

Lessons 3 & 4

- Teams share a chart.
- Teams toss a die.
- Higher number goes first.

How to Play

- **Toss 2 dice.** Using the two numbers tossed, **make a proper fraction or a fraction that equals 1.**
- Write the fraction in one of the spaces on the chart. Explain why the fraction makes the equation or inequality true.
- **Example:** Toss a 4 and a 6. Make the fraction $\frac{4}{6}$. Write the fraction in the box, $\frac{1}{2} < \frac{4}{6}$. Explain why the inequality is true. ("One-half is the same as $\frac{3}{6}$, and $\frac{3}{6}$ is less than $\frac{4}{6}$.")
- If it is not possible to place a fraction on the chart, the team loses a turn.
- The team that makes the most "true statements" wins.



$\_\_\_\_ > \frac{1}{2}$	$\frac{1}{2} > \_\_\_\_$	$\frac{1}{2} = \_\_\_\_$
$\frac{1}{2} < \_\_\_\_$	$\_\_\_\_ = \frac{2}{2}$	$\_\_\_\_ < \frac{1}{2}$
$\frac{1}{2} > \_\_\_\_$	$\_\_\_\_ = \frac{1}{2}$	$\frac{1}{2} < \_\_\_\_$
$\_\_\_\_ = \frac{1}{2}$	$\frac{1}{2} < \_\_\_\_$	$\frac{1}{2} > \_\_\_\_$
$\frac{1}{2} < \_\_\_\_$	$\_\_\_\_ = \frac{2}{2}$	$\_\_\_\_ < \frac{1}{2}$

Fraction Equalities/Inequalities – Thirds

Lessons 3 & 4

- Teams share a chart.
- Teams toss a die.
- Higher number goes first.

How to Play

- **Toss 2 dice.** Using the two numbers tossed, **make a proper fraction or a fraction that equals 1.**
- Write the fraction in one of the spaces on the chart. Explain why the fraction makes the equation or inequality true.
- **Example:** Toss a 4 and a 6. Make the fraction $\frac{4}{6}$. Write the fraction in the box, $\frac{1}{3} < \frac{4}{6}$. Explain why the inequality is true. ("One-third is the same as $\frac{2}{6}$, and $\frac{2}{6}$ is less than $\frac{4}{6}$.")
- If it is not possible to place a fraction on the chart, the team loses a turn.
- The team that makes the most "true statements" wins.

1					
$\frac{1}{2}$	$\frac{1}{2}$				
$\frac{1}{3}$	$\frac{1}{3}$	$\frac{1}{3}$			
$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{4}$		
$\frac{1}{5}$	$\frac{1}{5}$	$\frac{1}{5}$	$\frac{1}{5}$	$\frac{1}{5}$	
$\frac{1}{6}$	$\frac{1}{6}$	$\frac{1}{6}$	$\frac{1}{6}$	$\frac{1}{6}$	$\frac{1}{6}$

$\_\_\_\_ > \frac{1}{3}$	$\frac{1}{3} < \_\_\_\_$	$\frac{3}{3} = \_\_\_\_$
$\frac{1}{3} < \_\_\_\_$	$\_\_\_\_ = \frac{2}{3}$	$\_\_\_\_ > \frac{1}{3}$
$\frac{2}{3} > \_\_\_\_$	$\_\_\_\_ = \frac{1}{3}$	$\frac{1}{3} < \_\_\_\_$
$\_\_\_\_ = \frac{1}{3}$	$\frac{2}{3} < \_\_\_\_$	$\frac{1}{3} > \_\_\_\_$
$\frac{1}{3} < \_\_\_\_$	$\_\_\_\_ = \frac{3}{3}$	$\_\_\_\_ > \frac{1}{3}$