PRACTICE TASK: TRASH CAN BASKETBALL

Adapted from a 1st Grade GPS Frameworks Task
Suggested Time for Task: 1 class period

Students will play a game where they record a tally mark each time they shoot a trash ball into a trashcan. Students will write a fraction that represents the number of shots made and then create a poster that represents their results using an inequality.

STANDARDS FOR MATHEMATICAL CONTENT

MCC3.NF.1 Understand a fraction 1/*b* as the quantity formed by 1 part when a whole is partitioned into *b* equal parts; understand a fraction *a*/*b* as the quantity formed by *a* parts of size 1/*b*.

MCC3.NF.2 Understand a fraction as a number on the number line; represent fractions on a number line diagram.

a. Represent a fraction 1/*b* on a number line diagram by defining the interval from 0 to 1 as the whole and partitioning it into *b* equal parts. Recognize that each part has size 1/*b* and that the endpoint of the part based at 0 locates the number 1/*b* on the number line.
b. Represent a fraction *a*/*b* on a number line diagram by marking off *a* lengths 1/*b* from 0. Recognize that the resulting interval has size *a*/*b* and that its endpoint locates the number *a*/*b* on the number line.

MCC3.NF.3 Explain equivalence of fractions in special cases, and compare fractions by reasoning about their size.

a. Understand two fractions as equivalent (equal) if they are the same size, or the same point on a number line.
b. Recognize and generate simple equivalent fractions, e.g., 1/2 = 2/4, 4/6 = 2/3). Explain why the fractions are equivalent, e.g., by using a visual fraction model.
c. Express whole numbers as fractions, and recognize fractions that are equivalent to whole numbers. *Examples: Express 3 in the form 3 = 3/1; recognize that 6/1 = 6; locate 4/4 and 1 at the same point of a number line diagram.*
d. Compare two fractions with the same numerator or the same denominator by reasoning about their size. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with the symbols >, =, or <, and justify the conclusions, e.g., by using a visual fraction model.

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.

BACKGROUND KNOWLEDGE

Students have learned to write fractions as part of a whole and part of a group. They have also learned to compare fractions. This task allows students to practice their new knowledge in a game format.

COMMON MISCONCEPTIONS

Students do not understand the importance of the whole of a fraction and identifying it. For example, students may use a fixed size of ¼ based on the manipulatives used or previous experience with a ruler.

ESSENTIAL QUESTIONS

- How can I write a fraction to represent a part of a group?
- When we compare two fractions, how do we know which has a greater value?

MATERIALS

- "Trash Can Basketball" student recording sheet
- Each group will need 10 pieces of "trash" (paper balls).
- Box, tub, or trash can for a container
- Crayons or markers and construction paper for making a poster

GROUPING

Partner/Small Group Activity

NUMBER TALKS

By now number talks should be incorporated into the daily math routine. Continue utilizing the different strategies in number talks and revisiting them based on the needs of your students.

TASK DESCRIPTION, DEVELOPMENT, AND DISCUSSION (SMP 1, 2, 4, 5, and 6)

Students collect data from playing "Trash Can Basketball." They use the data to write and compare fractions.

1. Students use scrap paper to make 10 paper balls per group. (Wad the paper balls up tightly so they are easier to aim.)
2. Place a trash can (or other large container) 5 feet away.

3. Students predict how many paper balls they will be able to get into the basket. Predictions should be written in the chart on the student recording sheet.
4. Students take turns with their partner(s) throwing the ten paper balls into the trash can. The partner will collect data using tally marks on the chart to show how many of the 10 paper balls went into the trash can.

The copy room is a good source of trash paper. Be sure the paper balls are tight. Loosely packed ones make it really difficult to throw accurately. Before beginning the throwing contest, as a class, decide on any rules regarding practice throws.

FORMATIVE ASSESSMENT QUESTIONS

- How did you determine your score? How many times did you throw the paper ball? How many times did you "make a basket"?
- How did you compare your fraction to your opponent's?

DIFFERENTIATION

Extension

- Repeat the activity as time permits. (Try different types of paper balls, distances, types of shots, etc.)

Intervention

- Have the chart pre-made on the poster for student use and/or allow student to write his/her results on a computer, print, and attach to the poster.

TECHNOLOGY RESOURCES

http://www.mathsisfun.com/numbers/fractions-match-words-pizza.html

Name _____ Date _____

TRASH CAN BASKETBALL

This is your chance to demonstrate your basketball skills! You have been chosen to participate in a paper-ball throwing contest.

Directions:

1. Use the scrap paper to make 10 paper balls per group. (Wad the paper balls up tightly so they are easier to aim.)
2. Place a trash can (or other large container) 5 feet away.
3. Predict how many paper balls you will be able to get into the basket. Write your prediction in the chart below.
4. Take turns with your partner(s) throwing the ten paper balls into the trash can. Your partner will collect data using tally marks on the chart below to show how many of the 10 paper balls went into the trash can.

Player #1 _____	Number of Tosses	Prediction for Number of "Baskets"	Number of "Baskets" (Use tallies)	Fraction of Baskets Made
	10			
Player #2 _____	Number of Tosses	Prediction for Number of "Baskets"	Number of "Baskets" (Use tallies)	Fraction of Baskets Made
	10			

5. On a sheet of unlined paper, create a poster to display your group's results. Your poster should include the following. Write to explain the results of the contest. Be prepared to share your poster and results with the class. Represent the number of good throws for each partner as a fraction and express a comparison of fraction scores using a >, <, or = symbol. Make your poster colorful and informative!

Example:
Player #1 $\frac{6}{10}$
Player # 2 $\frac{7}{10}$

$\frac{6}{10} < \frac{7}{10}$