

PERFORMANCE TASK: THE FRACTION STORY GAME

Suggested Time for Task: 1-2 class periods

Students create a game while reviewing all the different aspects of fractions they have studied.



STANDARDS FOR MATHEMATICAL CONENT

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

While this task may serve as a summative assessment, it also may be used for teaching and learning. It is important that all elements of the task be addressed throughout the unit so that students understand what is expected of them.

COMMON MISCONCEPTIONS

Students do not understand that when partitioning a whole shape, number line, or a set into unit fractions, the intervals must be equal.

ESSENTIAL QUESTION

- How are fractions used in problem-solving situations?

MATERIALS

- Materials Required Per Group
- “The Fraction Story Game, Directions” student sheet
- “The Fraction Story Game, Game board” student sheet
- Colored pencils or crayons
- Index cards (about 60)
- Common classroom materials -
Recycled items for game pieces
(about 6)

GROUPING

Small Group Task

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

Students create a game while reviewing all the different aspects of fractions they have studied.

Comments

Students may not understand what you mean by “common classroom materials.” While many classrooms have standard dice that can be used, give alternative examples such as a penny can be flipped to determine how many spaces the players get to move (heads = 2

Georgia Department of Education
Common Core Georgia Performance Standards Framework
Third Grade Mathematics Unit 5

spaces, tails =1 space). For game pieces, extra marker caps, plastic soda lids, manipulatives, or coins can be used.

Part I (SMP 1, 2, and 6)

Begin by having students review lessons or activities that have been done during the fraction unit. Record their thoughts on chart paper or the board. You may want to post a list of the elements of the standards covered during the unit and reflect on tasks and activities which addressed each element.

Students will write 20 – 30 word problems that assess the standards covered. You may want the children to work with a partner or in small groups to create enough questions.

This culminating task represents the level of depth, rigor, and complexity expected of all third grade students to demonstrate evidence of learning.

Additional Comments:

- Students should have had multiple opportunities to write story problems by this time in the school year.
- Questions should match a standard.
- Index cards may be used for the problem cards. Insist that the students write legibly. All problem cards should have the solutions on the back
- Solutions should be accompanied by an explanation/illustration.
- Game boards, playing pieces, and cards can be stored in large Ziploc bags or manila folders.

The cards students create for their games can be used in a variety of ways. The problem cards can be used to create a Jeopardy type game which can be played as a review of the unit. Also the problem cards can be reproduced and used as a set of review question before the unit assessment.

Part II (SMP 1, 2, 3, 4, 5, 6, 7, and 8)

Students will follow the directions below from “The Fraction Story Game, Directions” student sheet.

Your task is to create a fraction story game using what you learned about fractions. Use the fraction game board on “The Fraction Story Game, Game Board” student sheet to create a game that other students will want to play.

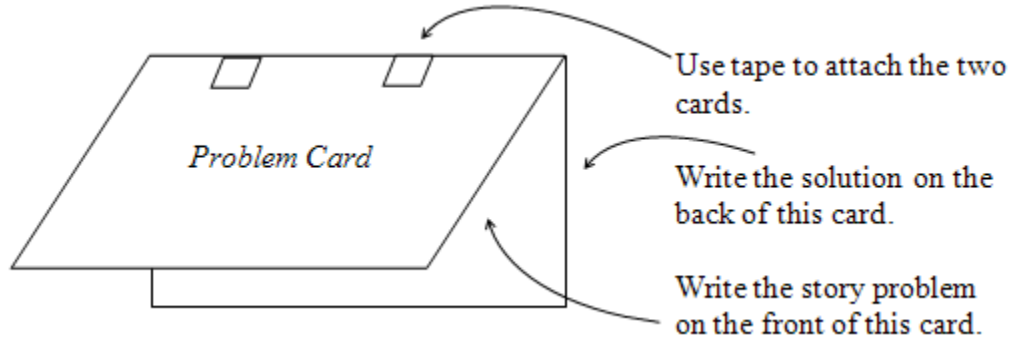
Directions:

- Look at the list of the standard that you studied in class. The problem cards you create must match those standards.
- You will need to make approximately 30 problem cards for your game. Most of the cards should be written in story problem form.
- Be sure you have some problem cards for each of the standards addressed in this unit.

Georgia Department of Education
Common Core Georgia Performance Standards Framework
Third Grade Mathematics Unit 5

- Each problem card must have the correct answer on the back. Cover each problem card with a blank index card so players cannot see the problems before their turn. See sample below.
- Write the rules for your game.

Things to remember:



- You can only use common classroom materials.
 - You may decorate your game board in a way that makes the game interesting and fun to play.
 - Be sure to play your game with a partner to be sure it works.

FORMATIVE ASSESSMENT QUESTIONS

- What are the skills you learned during this unit?
- What kind of problem can you create for ____ (one of the elements of the standard)?
- How do you know this is the correct solution for your problem?

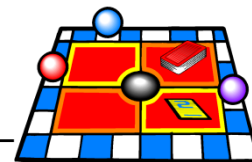
DIFFERENTIATION

Extension

- Students can create their own game board format with penalties, rewards, and more complex rules.

Intervention

- Allow students to work in a small group so each student will need to make only one card per standard.
- For some of the parts of a standard, give the students the problem and require them to create the solution to the problem.



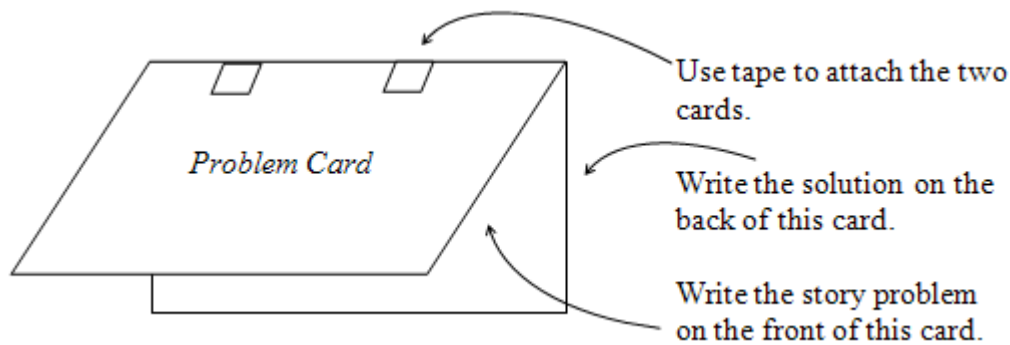
Name _____ Date _____

THE FRACTION STORY GAME

Your task is to create a fraction story game using what you learned about common fractions and decimal fractions. Use the fraction game board on "The Fraction Story Game, Game Board" student sheet to create a game that other students will want to play.

Directions:

- Look at the list of the standards that you studied in class. The problem cards you create must match the standard.
- You will need to make approximately 30 problem cards for your game. Most of the cards should be written in story problem form.
- Be sure you have some problem cards for each of the standards addressed in this unit. Make sure you use both fractions in your problem cards.
- Each problem card must have the correct answer on the back. Cover each problem card with a blank index card so players cannot see the problems before their turn. See sample below.



- Write the rules for your game.

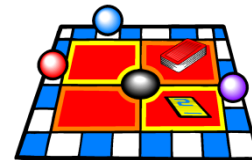
Things to remember:

- You can only use common classroom materials.
- You may decorate your game board in a way that makes the game interesting and fun to play.
- Be sure to play your game with a partner to be sure it works.

Name _____ Date _____

The Fraction Story Game

Game Board



Finish

Start

Problem Cards