

Fraction Pictionary

by Tammy Boone, Alyssa Gardner, Christi Sather, Jessica Alfsen, and Kristina Hensley
Edited by Laurie Burton, Western Oregon University, Monmouth, Oregon, burtonl@wou.edu



Source

The game Fraction Pictionary was created by the authors for their final project in "Manipulatives in Mathematics," a mathematics education course taught by Dr. Laurie Burton at Western Oregon University.

Brief Game Overview

Fraction Pictionary is a game that combines understanding and recognizing fractions with drawing. The goal is to have your teammates guess the fraction and the symmetrical object that you are drawing.

Math Skills Emphasized

Fraction Pictionary emphasizes the following skills:

- Dividing a whole into parts
- Recognizing parts of a whole
- Recognizing the denominator vs. the numerator of a fraction

Game Player Configurations

Fraction Pictionary is played in teams of three or four students. Each team plays against the other teams in the class.

Needed Materials for the Classroom

Materials for Teacher

1. One 1-minute timer. Although it is not mandatory to have a timer, it is more convenient than using the clock on the wall.
2. A board or projector to model a sample round of game play for the students.

Materials for students

For each group:

1. Scratch paper.
2. A pencil.
3. A scorecard (see page 22).
4. A set of Fraction Pictionary Game Cards.

To Make the Fraction Pictionary game cards:

- Photocopy each page of game cards (pages 23 – 26) on cardstock or construction paper and then cut with a paper cutter into individual cards.
- You may wish to laminate the cards to reduce wear and tear. If you wish, you may make your own game cards.

- Come up with many ideas for symmetrical objects (example: pie, window, stop sign, etc.) If the objects are symmetrical, they will be easy to divide into equally sized parts. On each of at least 35 3"×5" or 3"×2.5" cards (per set), write one named (not drawn) object and the fraction of that object to model. Make sure your object can be divided into the correct number of parts. It could be a nice class project to have kids make their own sets of cards and trade sets when playing the game.

The Classroom and how to play the game and notes for the teacher

Before the Game

1. Gather or make the game cards.
2. Photocopy the scorecards.
3. Gather plenty of scratch paper.
4. Gather pencils.
5. Demonstrate several sample turns to show the class how the game works.
6. Put desks into groups and divide the class into teams of three or four students.
7. Pass out the materials.

During the Game

1. One person per team draws at a time (the DRAWER).
2. The first DRAWER should be the person whose first name comes first alphabetically. After that play rotates around the team to the left.
3. When it is their turn, each DRAWER will choose a game card which will state a fraction and an object. The DRAWER will draw this object on paper and divide it into the correct number of equal parts, without using any words, letters, numbers or fraction bars.
4. The other people in the team will be the GUESSERS. They are trying to guess the fraction and what the object is. They shout out guesses as the DRAWER is drawing the object and fraction until someone correctly shouts out the object being drawn. Once the team determines the object, they shout out guesses about the fraction.
5. If the team guesses the object and the fraction correctly, the team earns two points. If they guess only the object or only the fraction correctly, the team earns one point.

Continued...

6. The person who will be drawing next is the SCOREKEEPER and they keep track of points during a round. At the end of a round, the role of DRAWER and SCOREKEEPER both rotate.
7. The teacher times the one-minute rounds and observes all the students to make sure everything is carried out correctly.
8. The object is to have the group guess as many fractions and objects in each round as they can. You may not move on to a new game card until at least the fraction or the object of the previous card is guessed. You may not pass on a game card during a round. If a team cannot solve a card, they pick a new card for the next round. If a round ends in the middle of a card, the students place that card on the bottom of the card pile for a new round.
9. When the students have used all of their cards or the time for the game is up, help the students complete their score cards and announce a winning team.

After the Game

The following questions could be asked as a way to help students review what they learned while playing the game:

- What did you find challenging?
- What objects were hard to draw?
- Why is using equally sized parts important in this game?
- Why does using symmetrical objects help?


Extensions

1. Use mixed numbers and improper fractions as skills increase.
2. Use more difficult objects.
3. Make separate fraction cards and object cards to add variety.
4. Use fractions with larger denominators (e.g. $\frac{1}{32}$ vs. $\frac{1}{4}$).

Concluding Comments

Fraction Pictionary is an extremely fun game and uses a familiar setting to connect students with fractions in a fast-paced atmosphere. This game emphasizes a visual understanding of fractions using a large variety of objects — this is particularly valuable as it steers students away from thinking that visual fractions are all portions of circles, squares or rectangles.

You may choose to adjust the timing of the rounds to match the skill level of your students. By varying the objects and fractions on the game cards, this game can be used as an introduction to help students think about new fractions and as a review to help students quickly think about fractions they already know. By allowing students to make up their own card sets to challenge the other teams you can engage your students in thinking about fractions both visually (what objects work) and numerically (what fractional parts can we ask for).



Fraction Pictionary

Check here
if you only guessed the fraction or the object.

Check here
if you guessed both the fraction and the object.

Number of boxes checked on top: x2 =

Number of boxes checked on bottom: x2 =

Total:

<p>$\frac{7}{8}$ of a Chalkboard</p>	<p>$\frac{4}{4}$ of a Piece of Notebook Paper</p>	<p>$\frac{3}{8}$ of a Sun</p>
<p>$\frac{1}{2}$ of a Moon</p>	<p>$\frac{2}{8}$ of a Soccer Ball</p>	<p>$\frac{1}{6}$ of a Basketball</p>
<p>$\frac{8}{12}$ of a Baseball</p>	<p>$\frac{1}{4}$ of a Tennis Ball</p>	<p>$\frac{1}{2}$ of a Tooth</p>

$\frac{3}{8}$
of a
Stop Sign

$\frac{2}{4}$
of a
Pie

$\frac{5}{6}$
of a
Pizza

$\frac{1}{2}$
of a
Box of
Crayons

$\frac{3}{7}$
of a
Pillow

$\frac{3}{4}$
of a
TV

$\frac{2}{3}$
of a
Carton of
Eggs

$\frac{4}{6}$
of a
Six Pack
of Coke

$\frac{2}{5}$
of a
Bed

<p>$\frac{1}{5}$ of a Peppermint Candy</p>	<p>$\frac{2}{2}$ of an Apple</p>	<p>$\frac{1}{8}$ of an Orange</p>
<p>$\frac{5}{12}$ of a Clock</p>	<p>$\frac{1}{3}$ of a Book</p>	<p>$\frac{5}{8}$ of a Checker- board</p>
<p>$\frac{1}{2}$ of a Tennis Racket</p>	<p>$\frac{1}{4}$ of a Window</p>	<p>$\frac{4}{6}$ of a Door</p>

$\frac{1}{2}$ of a Light Switch	$\frac{10}{12}$ of a Ruler	$\frac{2}{2}$ of a Sandwich
$\frac{4}{9}$ of a Softball Team	$\frac{1}{4}$ of a Button	$\frac{3}{4}$ of an Eyeball
$\frac{6}{7}$ of a CD	$\frac{4}{5}$ of a Beach Ball	$\frac{1}{2}$ of a Wedding Ring