



Children's Museum of Houston

Pre/Post Classroom Activities

Fill it Up!

Rationale

It is the classic good vs. evil adventure as the dastardly Hacker attempts to overtake CyberSpace, but is continuously outsmarted by three curious kids and one cyberbird pal determined to stop him. Join forces with the CyberSquad, Matt, Inez, Jackie and Digit, in their quest to save CyberSpace as they zoom into *Cyberchase – The Chase Is On!*, an out-of-this-world, educational mathematics exhibit.

In this exhibit, children will enter CyberSpace through a special portal to explore favorite cybersites, including the *Control Central*, the *Grim Wrecker* and *Poddleville*. They will help the CyberSquad protect the virtual universe from the villainous Hacker while exploring math concepts such as place value, algebra, geometry, fractions and probability.

In *Fill it Up!*, students will practice using fractions to fill their container first. This game involves a combination of fraction knowledge, measurement, and capacity. In *Cyberchase*, students will use a various fractions to complete Motherboard's circuits that have been damaged. This activity will help students review fraction concepts for this component.

TEKS Objectives

2.2, 3.2, 4.2: The student describes how fractions are used to name parts of whole objects or sets of objects

5.2: The student uses fractions in problem-solving situations.

Vocabulary

Fraction – any part of a group, number, or whole.

Background

According to the NCTM Curriculum Focal Points, practice with fractions can help children develop an understanding of fractions to represent parts of a whole or group. Understanding the size of a fractional part and how it relates to the whole is also an important concept for children to learn and practice in various ways.

Materials

- Dried beans
- Two sets of measuring cups
- 2 two-cup containers
- Cup with fraction cards or special fraction dice

Procedure

Set Up: This activity will take place over one class period and works best in small groups of 3-4 students. Prepare the cup with fraction cards ahead of time. Create fractions that are appropriate for your grade level. For example, first grade students won't need the $\frac{1}{8}$ measuring cup so don't create a $\frac{1}{8}$ fraction card.

1. In this game you will compete with another player to see who can fill up their container without going over first.
2. Taking turns, the first player picks a fraction card from the cup.
3. Use the measuring cup that matches the card. Fill it with beans and dump them into the container.
4. Keep taking turns until someone fills the container.

Questions to ask

- How many turns do you think it will take to fill up your container?
- How high do you think the beans will be after you pour it?
- How much more do you need to fill your container?
- What counts as exactly full?
- Which holds more, a $\frac{1}{2}$ cup or a $\frac{1}{4}$ cup? How do you know?

Extensions

- Use two dice and fill up a 4 cup container.
- How much will a roll of $\frac{1}{2}$ and $\frac{1}{2}$ equal?
- Begin with a full container and each time the die (dice) is rolled remove exactly that amount from the container. How does this change the game?
- Help measure ingredients for a recipe at home.

Resources

- Fraction *For Real*: A short real life clip featuring Bianca and equivalent fractions: http://pbskids.org/cyberchase/forreal/203_for_real.html
- Use equivalent fractions in this online CYBERCHASE game: <http://pbskids.org/cyberchase/games/equivalentfractions/index.html>
- Find 13 different ways to make a half: <http://pbskids.org/cyberchase/games/fractions/index.html>
- *Give Me Half!*: Book by [Stuart J. Murphy](#). The concept that " and is 1" is presented using two bickering siblings who cannot share anything without parental intervention. Funny resolution and fraction practice.
- *Funny & Fabulous Fraction Stories*: Book by [Dan Greenberg](#) and [Jared Lee](#). Hilarious stories and follow-up problems, reinforce essential fraction skills.