

IT'S ALL RELATIVE

STARTING OUT TOGETHER

Hold up $\frac{1}{2}$ slice of bread and $\frac{1}{4}$ slice of bread. **Which is greater, this $\frac{1}{2}$ or this $\frac{1}{4}$? How do you know?**

Now tell me this: Which is greater, $\frac{1}{2}$ of an elephant or $\frac{1}{4}$ of a mouse? How about $\frac{1}{2}$ of an elephant or all of a mouse? Let volunteers answer a few more questions such as, **Which is greater:**

- $\frac{1}{2}$ of an apple or $\frac{1}{4}$ of an orange?
- $\frac{1}{2}$ of a car or $\frac{1}{4}$ of a bicycle?
- $\frac{1}{2}$ of a calculator or $\frac{1}{4}$ of our classroom door?

Now try a few questions that involve fractions as parts of sets.

Let's try a slightly different kind of question. You may want to use your Rainbow Cubes to help you solve this problem. Which is greater, $\frac{1}{2}$ of 10 apples or $\frac{1}{4}$ of 12 apples? Have students help you model this question with Rainbow Cubes on the overhead projector. Let volunteers answer, model, and discuss a few more questions, such as, **Which is greater:**

- $\frac{1}{4}$ of 9 raisins or $\frac{1}{2}$ of 4 raisins?
- $\frac{1}{2}$ of 12 crackers or $\frac{1}{4}$ of 20 crackers?
- $\frac{1}{4}$ of 16 books or $\frac{1}{2}$ of 24 books?

With your partner, think of your own Which is greater? questions. Think of some silly and easy ones, and some tricky ones. Have pairs write their questions on the eight sheets of paper you prepared, and record the answers on a separate sheet of paper.

WHILE THE STUDENTS ARE WORKING

As the students work on their Which is greater? questions, take time to ask them about their thinking.

- **What is your favorite question of the questions you have thought of so far?**
- **How did you come up with that question?**
- **What is the answer to that question? How do you know?**

If you have time, this would be an excellent opportunity to conduct informal assessment. Ask each student the following question and make note of their answer and their reasoning: **If you had $\frac{1}{2}$ of 12 graham crackers and your friend had $\frac{1}{4}$ of 24 graham crackers, who would have more graham crackers? Tell me why.**

REFLECTING TOGETHER

Collect the slips of paper and put them in a bag or box. Take out questions and read them to the class. If the answer is funny and obvious, let a volunteer answer and tell why. If the answer is difficult or debatable, encourage class discussion.

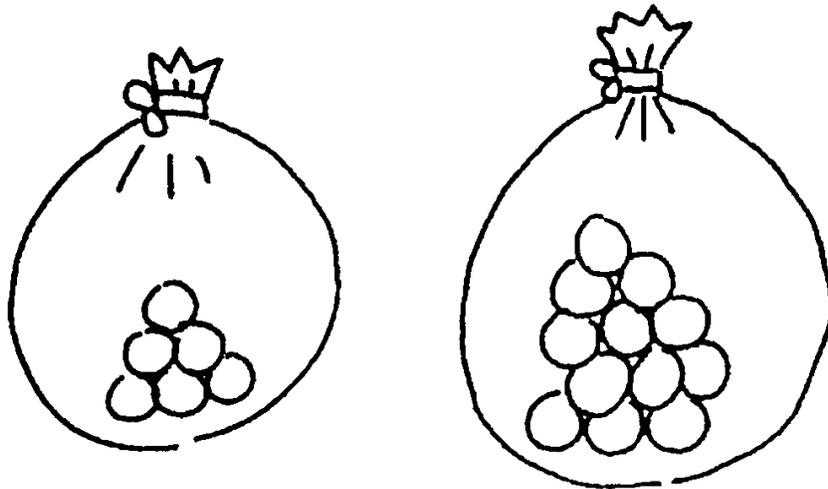
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Exploring fractions as parts of sets helps students see the relationships between fractions and division. Capitalize on students' intuitive understandings of fractions and division; encourage them to talk about their thinking.

[Source: Constructing Ideas About Fractions Grades 3-6, Creative Publications]

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With your partner think of some of your own *Which is greater?* questions.

1. Write each question you think of on a separate slip of paper. Each question should begin with, *Which is greater?*
2. On a separate sheet of paper, keep a list of the questions you write and their answers.
3. Try to write a variety of questions. Write one that are about parts of wholes and ones about parts of sets of objects. Also try to use a variety of fractions in your questions.
4. When you have finished your questions, put them in the bag or box your teacher has provided.



Which is greater,  of 6 marbles or  of 12 marbles?

[Source: Constructing Ideas About Fractions Grades 3-6, Creative Publications]