# Developing Fraction Sense Using Benchmark Fractions

Grade Level: 4/5

Objective: The students will be able to think about fractions in terms of their relative size when compared to 0, ½, or 1.

*Why is this knowledge important? Students often jump to applying procedures when comparing fractions or computing with fractions without using reasoning. Because these procedures are often tenuous and shaky, students make many mistakes. Helping students develop fraction sense, can empower them to first think about what is reasonable and makes sense, which can help them to avoid unreasonable answers.*

Materials needed:

Benchmark sorting cards, sorting category cards, sorting chart, small post-it notes (1½ x 2”), a set of benchmark sorting cards for the overhead projector

Preferred class structure: Pairs (this allows for students to share ideas and challenge each other to test out their reasoning)

Lesson Outline:

1. Anticipatory set: Pass out the sorting cards (one set to each pair of students) and ask students to describe what they see on the cards.
2. Explain that today we are going to be thinking about fractions that are close to 0, ½, and 1. Give students the category cards and ask them to work with their partner to sort the cards into these three categories. When all groups have finished, ask students to share what they thought about and what helped them make decisions as they were sorting. Allow students to move cards to other categories if they change their minds as others are sharing their thinking. For fractions that are close to ½, you can also prompt students to explain whether they are a little less than half or a little more than half.
3. Give students Post-it notes and ask students to write the name of the fraction shown on each model and attach it to each card. (Keep the cards in the same categories.)
4. Pass out the sorting chart and have students transfer the post it notes to the charts, while putting the pictorial models away. If you do as a teacher directed activity, one card at a time, it helps to ensure students get everything in the correct category. This also gives the teacher a chance to be sure all groups have named the fractions correctly and allows for the opportunity to ask student to “defend” the fraction names. – “Why does this card show 3/5?”
5. Now looking at only the numerical representations for fractions, ask students to look for patterns and relationships among the fractions in each category. (It may be easiest for students to see the relationship between the numerator and denominator in fractions close to 1, so this is a good category to begin these discussions.)

Fractions close to 1 – the numerator and denominator are close

Fractions close to 0 – the numerator is small compared to the denominator (or far away from the denominator)

Fractions close to ½ - the numerator is about half of the denominator (could be a little more or a little less)

1. Check for understanding/ practice: Write various fractions on the board and have students tell whether the fraction is close to 0, ½, or 1. Be sure to ask students to justify their answer.

Follow up journal writing (closure):

1. Explain what you learned about fractions that are close to 0, ½, and 1.
2. There was a cake divided into 8 pieces. Your little brother ate 2 pieces and announced that he had eaten more than half of the cake. Do you agree? Explain why or why not.

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**1**

**1**

**0**

**0**

**0**

**1**

**0**

**1**

**0**

**1**

**0**

**1**

**1**

**0**

**1**

**1**

**0**

**1**

**0**

**0**

Close to

half

Close to

1

Close to

0