

Grade 4	Title of Lesson: Tripline Fractions
Content Standard: 4.N.F.A.2	Extend understanding of fraction equivalence and ordering.
Materials:	Clip boards, pencil, paper, chart paper, index cards
1. Shared event:	Directions get us from one place to another. Sometimes between where a journey begins and where the journey ends we stop part way. In order to give clear directions, sometimes we need more specific directions and tell what landmarks are between a beginning destination and the end destination. How can telling someone, "Your part way there!" be helpful? Let's see, if we can figure out how to give specific and more accurate directions by paying close attention to the relationship of locations compared to other locations. Students take a trip down the right side of the hall way recording landmarks between the start and stop. The students walk down the left side of the hall way recording the landmarks between the start and stop. The goal is to compare the fractional locations on one side of the hallway compared to the other.
2. Picture or model:	
3. People-talk:	Students will draw pictures of the start and stop on both sides of the hallway and determine the exact location of places part way from the beginning and the end of the trip. Students will determine how many stops or locations between the destination of the beginning and the end of the trip. Students will decide how to assign a description for each location in order to give clear directions of how to get from one place to the next. Students make statements such as the library is $\frac{3}{6}$ of the way down the hall on the right side and the clock is $\frac{1}{2}$ down the hall on the left-side. They are directly across from each other. These two fractions are the same. If I was walking on the right-side of the hallway I could count 3 landmarks and know that the library is located at the third landmark.

4. Feature-talk:

Students connect this trip to other representations of fractions such as fraction bars. Create a chart of ideas and a class representation of the trip on a bulletin board to discuss how to assign each location between point A and B a fractional description. Use index cards to draw the locations. Use multiple number lines or sentence strips creating fractions bars as an additional model as the features emerge. Through conversation or writing math concepts deepen and understanding of math language has more meaning because it is connected to a real experience. Student make connections by commenting that $\frac{2}{3}$ is more than $\frac{1}{6}$ because $\frac{4}{6}$ is more than $\frac{1}{6}$ and $\frac{2}{3}$ and $\frac{4}{6}$ are in the same location. Students may also use math symbols that are already know to compare the fractions such as $>$, $<$, or $=$. Students begin to describe the relationship between the numerator and the denominator. Students understand that the units between 0 and 1 are equally divided and fractions are evenly spaces and demonstrate the meaning of the denominator.

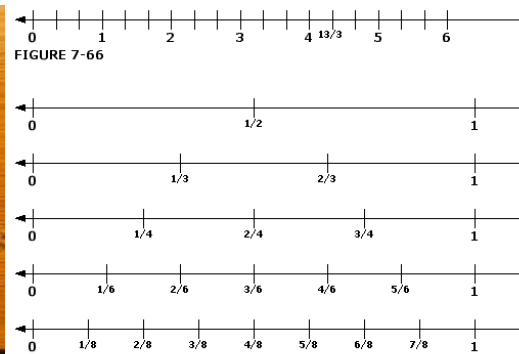


FIGURE 7-67

Possible vocabulary: Double number line, landmarks, location, count, tick marks, length, distance between zero and 1, each stop has landmark has a definite location can be described as a fraction, greater than, less than, equal to, comparisons of one location or fraction to another.

5. Symbolic representation:

Students create symbols to explain the meaning of the numerator and the denominator. Students can show how fractions that look different can be the same. Students can show some fractions can be larger or smaller than others based on the specific location of the fraction.

Ex:



(Image work of N. Ward)

This student created an image similar to a Tie Fighter from Star Wars to show number relationships. He put a 5 in the middle drew this picture to explain that numbers can tell stories and the relationship of each number describes the story it tells. He stated that fractions tell a story because you can see a picture of the numbers in your head and the numbers create different pictures even though they can mean the same thing. $1+4=5$ and $2+3=5$ so you could have $1/5$ of something with $4/5$ left over or $2/5$ of something with $3/5$ left over.

Teacher Reflective Notes: When students draw their images, they need to also add the language description or tell their explanation to a recorder right away so their ideas will not be lost. Each idea, then needs to be reviewed to determine the best symbols to relate the learning target.

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