ANTHONY
(Left Margin is Teacher. Indents are Anthony)

Wow, what'd you do?
Now what is that? Explain to me what you got there. That's interesting

I got 6 here…all these.

What were you trying to figure out?

(to another child) Look at that, Dennis. That's cool. Were you able to record that?

(back to Anthony) What is this Anthony?

I was making this. And on this one, I was making eight.

Just because they were interesting or just because you were trying to prove something?

(shakes his head)

Not sure?... So is this showing…the part underneath shows a fourth, right? This is a fourth and this is a fourth. And you were breaking this up into fourths and that was sort of interesting to you?

Yes.

Uh huh. And it looks like you broke the fourth into fourths and then you started to go further. (pointing to the fourths divided into 6 unequal pieces)

So what do you think these parts are? (pointing to the 1/8s)

They're triangles

They're 8 triangles. So you know what fraction they are?

1/8

1/8 of what? (wait time)

They're 1/8 of the fourth (outlining that fourth). Right? You made these and found 1/8 of the fourth. That's pretty cool.

(Anthony is pointing to the 6 pieces)

And what do you think those are?

1/6

Why do you think those are 1/6?

If you count these and then add these two to get this one, it's going to be sixth.

So you think these are eights, right? And they're eights of the fourth. But over here you think these are sixths. I have a question for you.

Notice how all you eighths are the same size. I notice that over here these are way bigger than these. How can they be sixths?

If you add these two together to this one, it will be the same thing.

Un huh. If you put two together you would get the same as this. So this is a sixth AND this is a sixth? They both can't be the same. They're different sizes.

Or you could take the two apart and you would get these two.

Un huh. So you're noticing that there are six shapes, six triangles, but these triangles are half the size of this triangle…Yeah?

So if I took this off for a second…can I take this off for a minute?

OK

What do you have there?

Fourths.

Fourths of what?

A fourth.

A fourth of a fourth. Right? You've got fourth of fourths.
And here you've got eights of fourths.

Now when I put this back, does this triangle seem to be the same as this triangle?

Yes.

So how could it be a sixth over there and eighth over there?

(long pause)

That's interesting, huh?

Because we said up there, if you're going to make a half, each side has to be equal?
If you're going to make eighths, each eighth has to be equal.
But here, I don't know about those being sixths. I think this has a different name than that.
Isn't that interesting? Think about that.

(Anthony is looking at board intently.)

END

Juicy, Juicy Problem

Every year, the 7th grade students at Langston Hughes School go on an outdoor education camping trip. During the week-long trip, the students study nature and participate in recreational activities. Everyone pitches in to help with the cooking and cleanup.

Arvind and Mariah are in charge of making orange juice for all the campers. They make the juice by mixing water and orange juice concentrate. To find the mix that tastes best, Arvind and Mariah decided to test some recipes on a few of their friends.

Mix A
2 cups concentrate
2 cups cold water

Mix B
1 cup concentrate
4 cups cold water

Mix C
4 cups concentrate
8 cups cold water

Mix D
3 cups concentrate
5 cups cold water

1. Which recipe will make juice that is the more "orangey?" Explain your answer.
2. Which recipe will make juice that is the least "orangey?" Explain your answer.
3. Assume that each camper will get ½ cup of juice. For each recipe, how much concentrate and how much water are needed to make juice for 240 campers. Explain your answer.

"Juicy Juice" Warm-Up

Another useful way to compare numbers is in the form of ratios. You looked at ratios informally in investigation one. In this investigation, you will learn to form and interpret ratios in order to make comparisons. Let's look at some examples of statements containing ratios.

In taste tests, people who preferred Bolda Cola outnumbered those who preferred Cola Nola by a ratio of 3 to 2.

The ratio of boys to girls in our class is 12 boys to 15 girls.

The ratio of boys to students in our class is 12 boys to 27 students.

The ratio of kittens to cats in our neighborhood is ____.

The sign in the hotel lobby says 1dollar Canadian: 0.85 U.S.

A paint mixture calls for 5 parts blue paint to 2 parts yellow paint.

Think about this: Look over the examples above. Think about what is being compared in each ratio –

- Is the ratio comparing two parts of the same whole? That is called a part to part ratio.
- Is the ratio comparing a part of a whole to the whole? This is called a part to whole ratio?
- Is the ratio comparing two different kinds of things?