*Teacher:* All right, let’s go ahead and talk about those. The first problem, Problem A. What do you think, Student J?

*Student:* 4/9 is greater than 4/20.

*Teacher:* 4/9 is greater than 4/20. How did you do it?

*Student:* Well, I know that 4 goes into 20 five times, and the 4 does not go into 9 five times, so I just reasoned it out *[inaudible].*

*Teacher:* And what do you know about that? If the denominator is that many times bigger, then what about the value of the number? What do you think, Student L?

*Student:* It’s smaller.

*Teacher:* It’s much smaller, absolutely. Did anyone think about that one a different way? What did you do, Student S?

*Student:* 4/9 is a bigger space than 4/20.

*Teacher:* So you were thinking about it as a picture, like an area? *[PA interruption; some students file out.]* What Student S was saying is she’s thinking about it as a picture, maybe an area model. What shape were you thinking about, Student S? Say again?

*Student:* A pie.

*Teacher:* A pie or a circle, so 4/9 would take up a bigger part of that circle. That’s a good way to do it. What do you notice about those two fractions? What do you notice, Student A?

*Student:* The numerators are the same.

*Teacher:* The numerators are the same. Did that make it easier? In fact, if the numerators are the same, what can you do? Is there a shorter way to think about that? If the numerators are the same, what can you do?

*Student:* You can also look at the denominator to see which one is bigger.

*Teacher:* That’s right, and then the larger denominator would be the small. You’ve only got 4 little parts of something broken into 20 parts; 4 of something broken into 9. That’s different from what we normally do, because a lot of times we work on finding common denominators. Part B, who’s got B? What did you do for that one, Student T?

*Student:* 11/15 is greater than 6/15.

*Teacher:* So 11/15 is greater? So I would put which sign in here? This one here? All right, let’s go through that again. We talked about it a little bit. We kind of joked about it. It points to the smaller number, right? That is the is-less-than sign. It points to which direction? The left. Is left than, is less than – nice way to remember that for you. So you guys have no problem putting the symbol in there, but when we start communicating or talking about it, we want to have a good way of doing that. Cool, that works. How did you know that?

*Student:* Because 11 is greater than 6 and there is a common denominator.

*Teacher:* And there is a common denominator, so we’ve got something. Maybe if you’re thinking about Student S’s visual picture, they’re both broken into 15 total pieces, and you’ve got 6 out of those 15. You’ve got 11 out of 15. It’s like having the same label – 6 centimeters, 11 centimeters, 6/15, 11/15. That’s always been easy for us. In fact, the first thing you were doing was comparing fractions that had common denominators. That’s true for C as well. Which sign? 16/40 is greater than 15/40, absolutely, and I think we said the first one is, is greater than as well. How about D? What do you think on that one, Student J?

*Student:* I think they’re equal.

*Teacher:* You think they’re equal?

*Student:* Yeah.

*Teacher:* I’m going to write that in there. Tell me why you think they’re equal.

*Student:* Because I simplified 4/15 down to 2/7?

*Teacher:* You simplified 4/14?

*Student:* Yeah, that’s what I meant, to 2/7 and 6/21.

*Teacher:* 2/7? How did you do that?

*Student:* Well I divided 4 by 2 and 14 by 2.

*Teacher:* There you go.

*Student:* And then I did the same thing with the 6.

*Teacher:* And did the same thing here, and you got 2/7 here?

*Student:* Yep.

*Teacher:* So, just like you guys have known from sixth grade, any time we multiply numerator and denominator by the same factor, or in this case, divide both of them by the same factor, we get an equivalent fraction. When she checked them both in simplest form they’re equivalent. Did anyone find them to be equal but thought about it a different way? All right, we’re going to have a fancy new term for what Student J did on this today. We’re going to call it scaling down. How about the last one? What do you think, Student L?

*Student:* Three-fourths is the greater one.

*Teacher:* This is the greater one, so I’m going to put which symbol?

*Student:* Less than.

*Teacher:* Yup, read it just like a sentence from left to right. 28/5 is less than 28/4. How do you know that one?

*Student:* Because they have the same numerator but the 5 is greater than 4, which means it’s smaller.

*Teacher:* Sure.

*Student:* I did it differently.

*Teacher:* You did it differently? Tell us about it, Student J.

*Student:* I divided by 28 and I got 25, which is 5 x 5 is 25; then I got three fourths … I mean, three fifths.

*Teacher:* So five and three fifths?

*Student:* Five and three fifths for that, and then I divided 4 into 28 and I got 7.

*Teacher:* You’ve got it. In fact, that’s the first time we’ve talked about that, thinking of your fraction as a division problem, changing the form of it. That works as well. I made this one kind of easy for you. I could have put maybe a 6. I wanted the denominators to be one apart, one unit different from each other, but by putting the 4 there, you could see immediately 28/4 is 7, and you know this is, of course, less than 7.