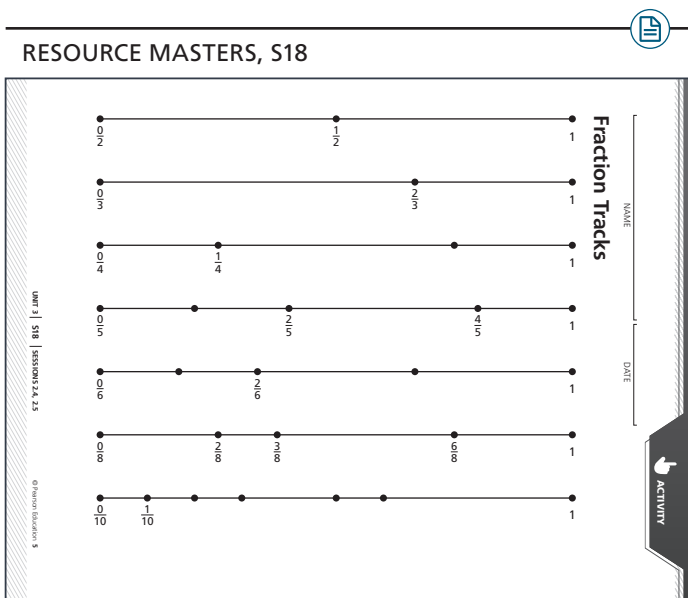


Equivalents on the Fraction Tracks

In Session 2.4, the teacher introduces Fractions Tracks (S18) to students. As she gives them instructions, she is also listening carefully to students, assessing their understanding of fractions and equivalent fractions.

Teacher: We're about to learn a new game called *Fraction Track*. We're going to be using a set of number lines called Fraction Tracks. [The teacher displays S18.] The top track shows halves. What fractions are the other tracks showing?



Individual students easily name the other tracks: thirds, fourths, fifths, sixths, eighths, and tenths.

Teacher: Today you're going to finish labeling all of the tracks. Suppose there is a little ant, and he starts walking across this track [points to the halves track] and stops halfway. What do we call this point?

Most students respond, "One half."

Teacher: That's right. Now suppose he goes to the fourths track and has to rest halfway. Where is he going to stop?

Mercedes: Two fourths. That's halfway.

Teacher: So I can take this ruler and use it as a straightedge to line up the halfway point on the fourths track with the halfway points on other tracks. [The teacher lines up the ruler vertically down the tracks.] I'll label this $\frac{2}{4}$. What other tracks have halfway stopping points?

Walter: The sixths.

Teacher: What should I label that?

Walter: $\frac{3}{6}$.

Tamira: $\frac{5}{10}$ is $\frac{1}{2}$, too.

Shandra: So is $\frac{4}{8}$.

The teacher labels the fractions on the tracks.

Tavon: I'm not sure, but it seems like we could put a dot halfway on the thirds track too. One-and-a-half thirds is the same as $\frac{1}{2}$.

Teacher: What do you all think about what Tavon is saying? Should we label one-and-a-half thirds? Talk in your small groups.

The students have a brief discussion with people in their small groups. Then the teacher asks for their ideas.

Nora: You know what? I think Tavon is right! One-and-a-half thirds is equivalent to one half. But we don't think we should label it because where would you stop labeling? You could label a million points on the track if you used fractions in the numerator.

Teacher: Yes, that's right. Of course each of these tracks has a halfway point, but we're only going to label those where the numerators are whole numbers. That's true for each of the tracks—not just halves. Nora is right; if we started labeling everything, where would we stop?

Teacher: Your job now is to label all the tracks. Some of the tracks have dots—label all those. On some tracks you have to add dots—on the sixths track, I see only three dots between 0 and 1, and I know there should be more. I think you can figure out where to put dots on each line and how to label them.

As the students begin to work in pairs to complete the task, the teacher moves around the room, interacting with students and assessing their understanding of fractions and equivalents. She stops and watches Samantha and Zachary.

Zachary: Samantha, let's find what this fraction is. [He points to the dot for $\frac{3}{4}$.]

Samantha: I know the equivalent fraction is $\frac{6}{8}$, but let's line up the ruler to make sure it's right. I'm right! So it's equal to $\frac{6}{8}$, and it's fourths, so it has to be $\frac{3}{4}$.

The teacher points to $\frac{4}{10}$.

Teacher: How did you find this fraction? How do you know it's $\frac{4}{10}$? How did you know where to put the dot?

Zachary: Well, we already labeled $\frac{3}{10}$ and $\frac{5}{10}$, so we knew $\frac{4}{10}$ had to go in between. Then I told Samantha we could use a ruler to find out how far it is between $\frac{5}{10}$ and $\frac{6}{10}$ and measure that far from $\frac{3}{10}$ to make the dot for $\frac{4}{10}$. So that's what we did.

Teacher: Is there any other way you could check to make sure that it's in the right place? Are there any equivalent fractions you could use?

Samantha: Oh yeah! It's the same as $\frac{2}{5}$. Let's check to make sure it's right.

As the teacher interacts with students, she notices which equivalent fractions they are using and asks questions to highlight others they may not be noticing to help them prepare for playing *Fraction Track*. She also makes sure that they are thinking about how to space the fractions equally along each number line.