

Ordering Fractions on the Number Line

The interactive white board tool for this lesson can be found on our website under Resources and Teacher Tools. (www.dreambox.com/teachertools)



Just as the number line is a useful tool for helping students compare and order whole numbers, this Interactive Whiteboard Teacher Tool uses a virtual manipulative to help students compare and order fractions from 0 to 1. In addition to understanding that fractions can be used to represent a part of a whole, it's critical for students to learn and understand that fractions are numbers with actual values that can either be ordered or considered equivalent. Your class will use landmark fractions and fraction equivalence to place fractions on the number line.

Sample Lesson

Objective: Students will place a fraction on the number line between 0 and 1.

Background: Students should understand that fractions represent a part-to-whole relationship.

- Instruction:**
- Bring up the DreamBox interactive white board lesson. Let students know, "We need to place a tree marker on the trail at $\frac{4}{6}$ " (or whatever value is generated). Ask a student explain his or her choice and place the marker on the line.

Possible responses:

 - "I know $\frac{4}{6}$ is more than half, so I'll place the marker closer to 1." The student places the marker close to 1, but not at $\frac{4}{6}$.
 - "I can see that the line is already divided into six equal parts. I'll place the marker at the fourth mark." The student places the tree marker at $\frac{4}{6}$.
 - "I don't know where to place the marker, so I'd like a hint." The student presses the 'hint' button.
 - "I don't know where to place the marker, so I'm going to try an answer." The student places the marker randomly on the line.
 - "I don't know where to place the marker, so I would like to add a sign post.
 - If the student had an incorrect response or used the 'hint' button, ask the class, "We now have added a sign post added to the line. Is this particular signpost helpful? If so, how will it assist us with placing the tree marker?"

Possible responses:

 - "I can see that $\frac{3}{6}$ is in the middle at the third mark on the line. This lets me know that I can place the tree marker at the fourth mark which is $\frac{4}{6}$." The student places the marker at $\frac{4}{6}$.
 - "I can see that $\frac{3}{6}$ is half way between 0 and 1. I think I should place the tree marker half way between $\frac{3}{6}$ and 1 since it is more than $\frac{1}{2}$." The student places the marker between $\frac{4}{6}$ and $\frac{5}{6}$. Note: With this incorrect response, blocks appear below the line as an additional layer of scaffolding.

- “We are looking for $\frac{4}{6}$ not $\frac{3}{6}$. I don’t see how those two fractions are related. I would like another sign post.” The student adds a signpost to the number line and it appears at $\frac{1}{3}$ or $\frac{2}{6}$.
 - “I don’t know what to do next. I’d like to add another hint.” The student presses the hint button and blocks appear below the line.
 - “I still don’t know what to do, so I’m going to guess.” The student places the tree marker at a random place and blocks appear below the line. Note: Suggest to this student that getting a hint or adding a signpost would be OK.
3. After the correct response or additional scaffolding, the teacher should question students about their choices and how the additional scaffolding aids or does not aid them with placing the tree marker correctly on the number line. After correct responses and modeling the tool will begin with another prompt on the same number line while taking away some of the scaffolding. Then a new number line will appear with a new set of prompts.