Fraction Bricks

Grade 3 ⬜ Fraction Equivalence and Ordering ⬜ 3 levels

Probing Questions
• Which bars can make an equivalent fraction? Which can't?

Emphasize the Connection
Different fractions can represent the same amount. This was not true in students' previous schema with whole numbers.
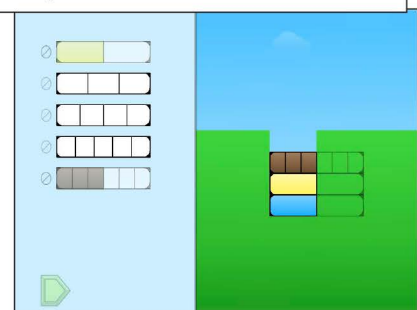
What Strategies Are Being Used?
Are students using a vertical line or straight edge to find equivalent fractions? Notice that equivalent fractions can only be made with some of the fraction strips.
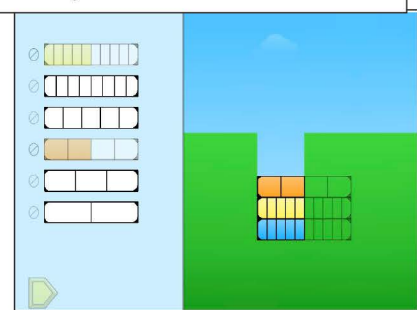
ST Math

The fraction bar choices and arrangement change from level to level.

Ask students to say the fractions they are choosing.

Equivalent Fractions

Grade 3 ⬜ Fraction Equivalence and Ordering ⬜ 4 levels

Probing Questions
• What do you notice about the pieces in the numerator when you scroll over the different denominators? How many do you need?

The Bigger Picture
Some students may struggle on the challenging second level, but it builds a foundation for levels 3 and 4 and later games. Some productive struggle now will pay off down the road.
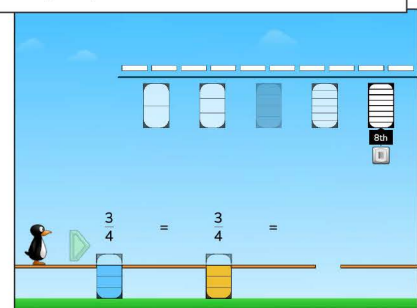
What's Important Here?
This game emphasizes the different roles of the numerator and denominator. Notice that the size of the pieces in the numerator change as you scroll over the different denominators.
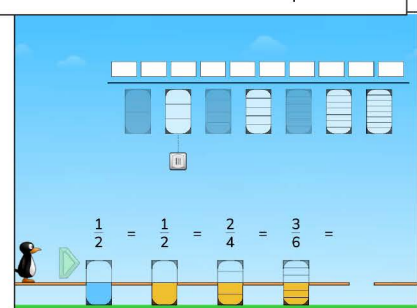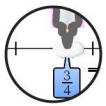
ST Math

Starting at level 2 students must generate multiple equivalent fractions.

$$\frac{3}{4} = \frac{3}{4} =$$

Extension: Ask students to look for patterns.

$$\frac{1}{2} = \frac{1}{2} = \frac{2}{4} = \frac{3}{6} =$$

Number Line Trap

Grade 3   ⬡ Fraction Equivalence and Ordering   ⬕ 3 levels

Probing Questions
- How do you compare fractions with the same numerator or denominator?

Classroom Connection
Project puzzles in Levels 1 and 2: and ask students how they can use the first fraction(s) to help them place the other fractions on the number line.
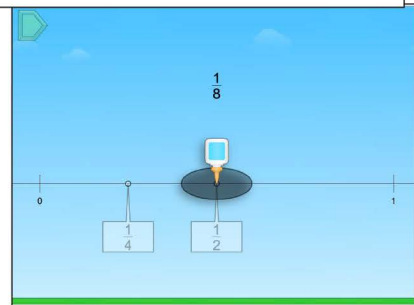
Uncover the Thinking
Level 3: How are students figuring out where to place fractions such as 3/3 and 10/5?

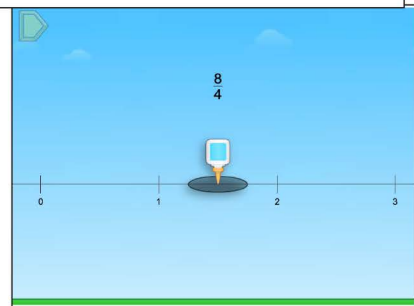Level 1 uses unit fractions.

Level 3 gives whole numbers shown as fractions.

Fractions on Number Line

Grade 3   ⬡ Fraction Equivalence and Ordering   ⬕ 4 levels

Probing Questions
- How do the ticks help you place the fraction?

Pause the Animation
Pause the animation to show the unit fractions iterated on the number line. Ask the student what they notice about where the pieces land in relation to the tick marks. How do they line up?
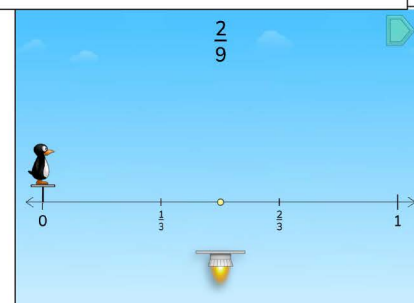
What's Important Here?
The number line is ticked in increments that aren't the same as the denominator. Students may need facilitation to notice the relationship between the denominator and the ticks.

The tick marks are different than the number in the denominator.
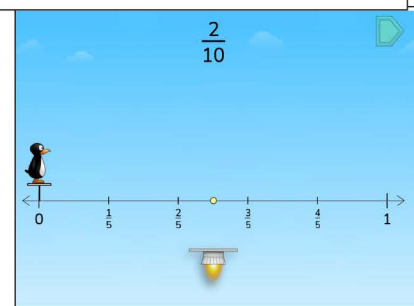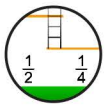
Some fractions are between the tick marks.

More or Less

Grade 3   ⬠ Fraction Equivalence and Ordering   ⬚ 4 levels

Probing Questions
- How do you decide if the first fraction is bigger or smaller than the second?

Supporting Struggling Students
Emphasize not finding the bigger fraction, but finding the size of the first fraction in relation to the second. This will help decide where to place the ladder.
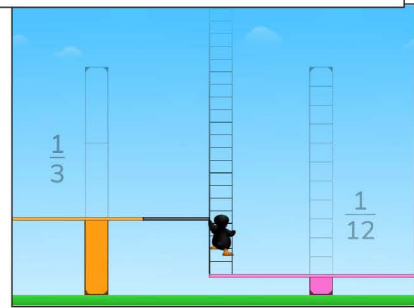
Emphasize the Connection
Have students speak the relationship with words in levels 1 and 2 to make the connection to using the symbols in levels 3 and 4.
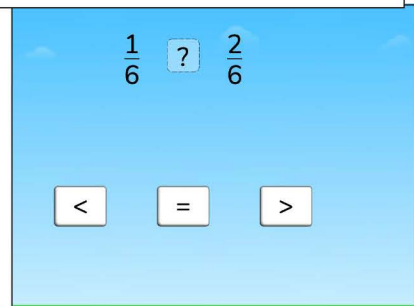
Levels 1 and 2 use the ladders.

Levels 3 and 4 use symbols.

Fraction Order Fill

Grade 3   ⬠ Fraction Equivalence and Ordering   ⬚ 4 levels

Probing Questions
- How do the numerators and the denominators help you put the fractions in order?

What Concepts Are Being Developed?
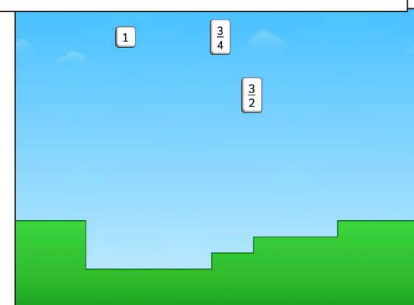Students compare and order fractions by using a visual fraction model.

Classroom Connection
How are students figuring out the relative size of the fractions? Are they able to use a benchmark of one whole or one half? Or are they seeing a fraction less than one, greater than one and comparing those to the one whole?

In level 1, all denominators are the same.
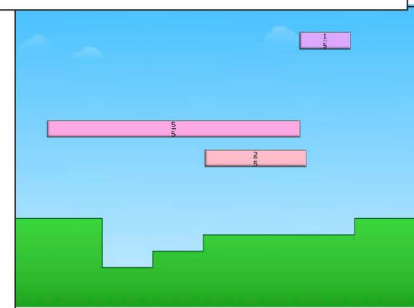
The fraction choices in Level 3 make it challenging.