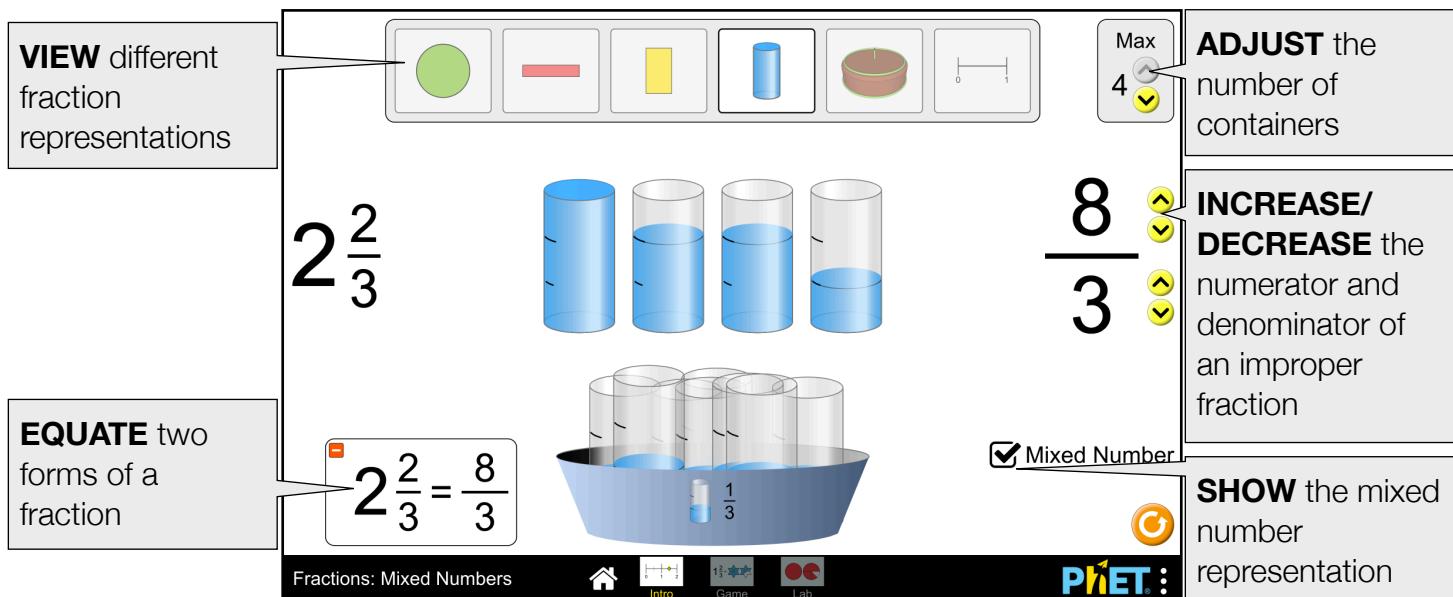


The **Fractions: Mixed Numbers** simulation allows students to engage with and compare multiple representations of fractions, including a mixed number.

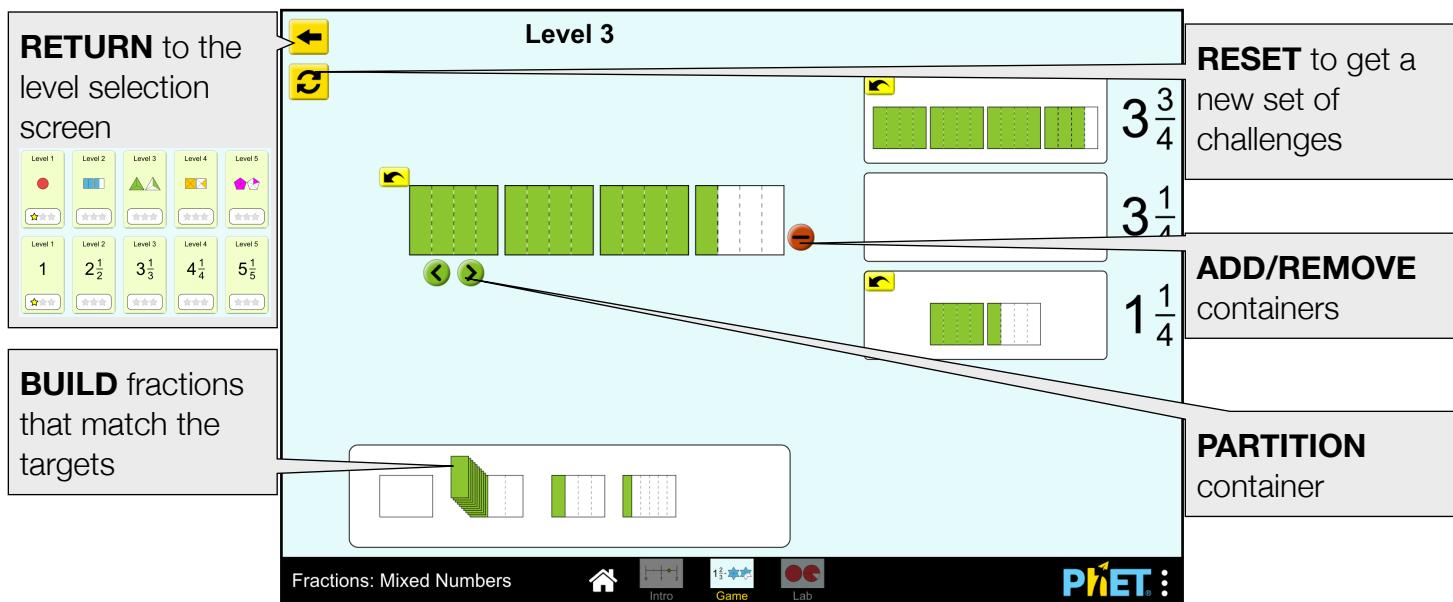
## Intro Screen

In the Intro screen, students can build their own fraction and see it represented as a pie, rectangle, cylinder, cake, or number line, and compare it to the numerator and denominator of an improper fraction and a mixed number.



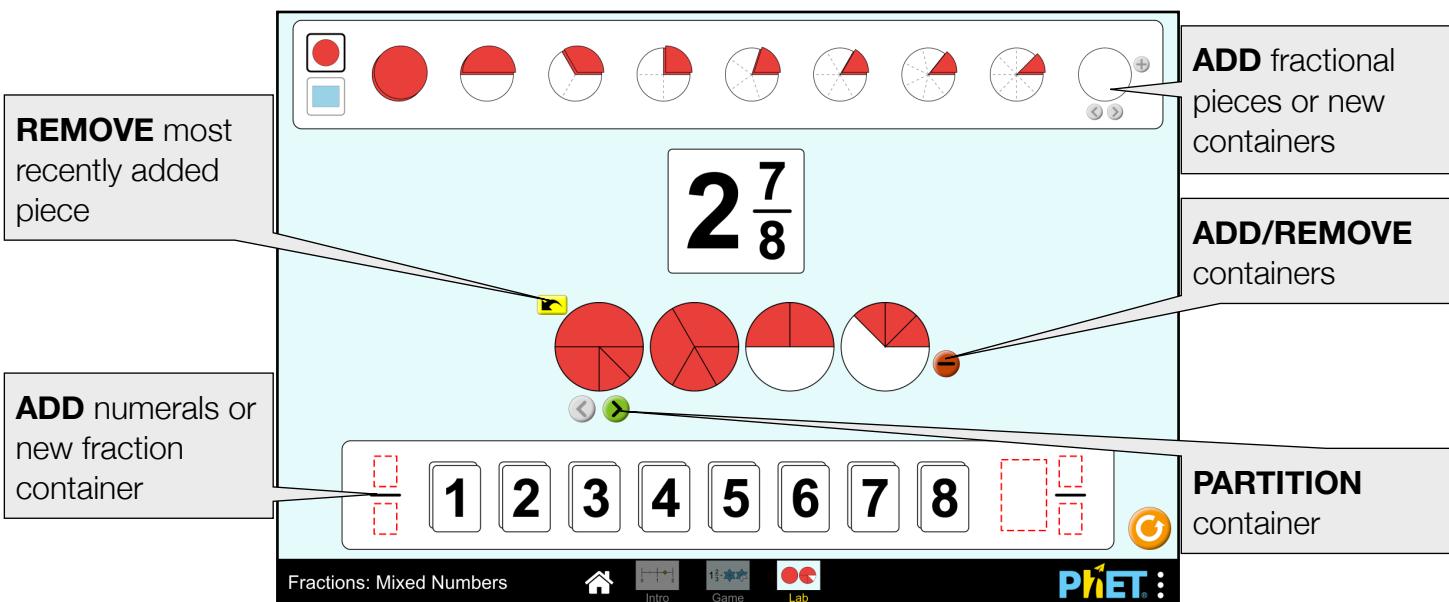
## Game Screen

This Game screen can also be found in the [Build a Fraction](#) simulation.



## Lab Screen

The Lab screen can also be found in the [Build a Fraction](#) simulation.



## Suggestions for Use

- Allow students to explore the Intro screen, then facilitate a discussion about the relationship between the improper fraction and mixed number forms. Use this discussion to invent a strategy for interpreting either form and converting between forms.
- Assign specific Game levels to address your learning goals.

## Sample Challenge Prompts

- Play on the Intro screen. What does the top number of the fraction mean? What does the bottom number mean? In a mixed number, what does the large number mean? What do the top and bottom numbers mean?
- If you are building a fraction, where can you place the fraction pieces? Does it matter which container you put it in?
- Using the Lab screen, create multiple fractions that are equal. Challenge yourself to use differently sized pieces.

## Customization Options

Query parameters allow for customization of the simulation, and can be added by appending a '?' to the sim URL, and separating each query parameter with a '&'. The general URL pattern is:

`...html?queryParameter1&queryParameter2&queryParameter3`

For example, in Fractions: Mixed Numbers, if you only want to include the 1st and 2nd screens (`screens=1,2`), with the 2nd screen open by default (`initialScreen=2`) use:

[https://phet.colorado.edu/sims/html/fractions-mixed-numbers/latest/fractions-mixed-numbers\\_all.html?screens=1,2&initialScreen=2](https://phet.colorado.edu/sims/html/fractions-mixed-numbers/latest/fractions-mixed-numbers_all.html?screens=1,2&initialScreen=2)

To run this in Spanish (`locale=es`), the URL would become:

[https://phet.colorado.edu/sims/html/fractions-mixed-numbers/latest/fractions-mixed-numbers\\_all.html?locale=es&screens=1,2&initialScreen=2](https://phet.colorado.edu/sims/html/fractions-mixed-numbers/latest/fractions-mixed-numbers_all.html?locale=es&screens=1,2&initialScreen=2)

Query Parameter and Description	Example Links
<code>screens</code> - specifies which screens are included in the sim and their order. Each screen should be separated by a comma. For more information, visit the <a href="#">Help Center</a> .	<code>screens=1</code> <code>screens=2,1</code>
<code>initialScreen</code> - opens the sim directly to the specified screen, bypassing the home screen.	<code>initialScreen=1</code> <code>initialScreen=3</code>
<code>locale</code> - specify the language of the simulation using <a href="#">ISO 639-1</a> codes. Available locales can be found on the simulation page on the <a href="#">Translations tab</a> . Note: this only works if the simulation URL ends in “_all.html”.	<code>locale=es</code> (Spanish) <code>locale=fr</code> (French)
<code>allowLinks</code> - when <code>false</code> , disables links that take students to an external URL. Default is <code>true</code> .	<code>allowLinks=false</code>

See all published activities for Fractions: Mixed Numbers [here](#).

For more tips on using PhET sims with your students, see [Tips for Using PhET](#).