

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.

VIEW different fraction representations

EQUATE two forms of a fraction

ADJUST the number of containers

INCREASE/DECREASE the numerator and denominator of an improper fraction

SHOW the mixed number representation

Game Screen

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

RETURN to the level selection screen

BUILD fractions that match the targets

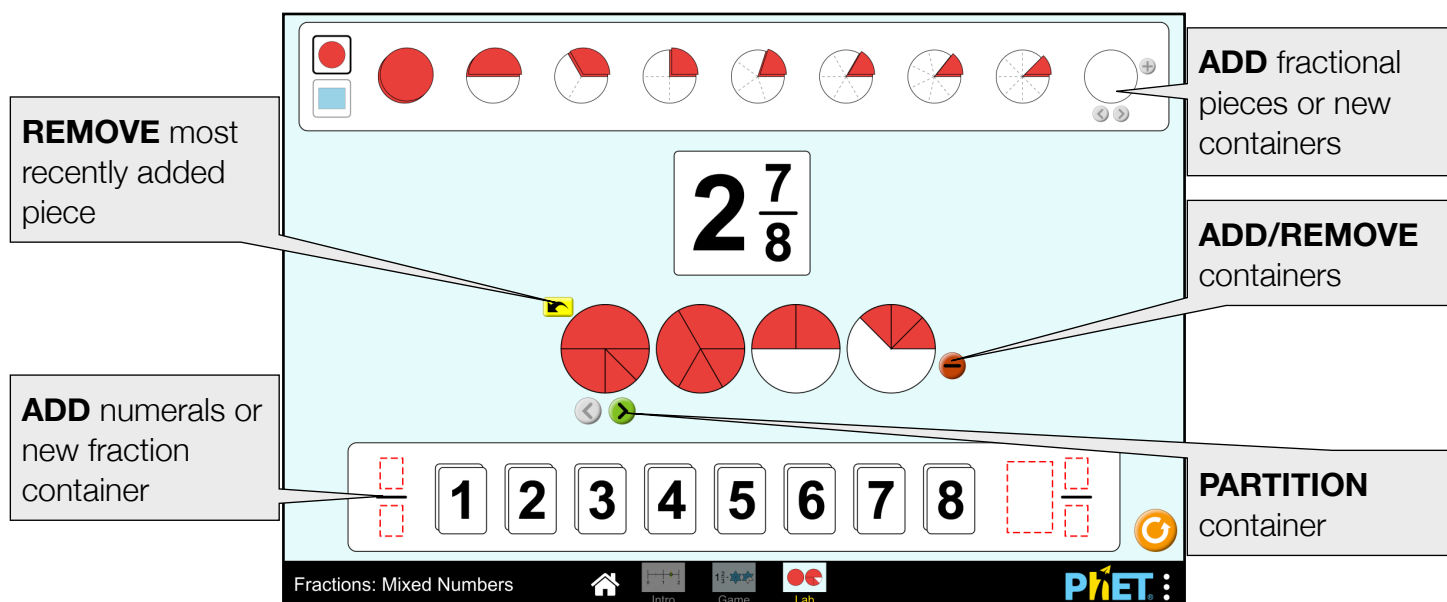
RESET to get a new set of challenges

ADD/REMOVE containers

PARTITION container

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

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

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 Help Center .	<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 ISO 639-1 codes. Available locales can be found on the simulation page on the Translations tab . 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](#).