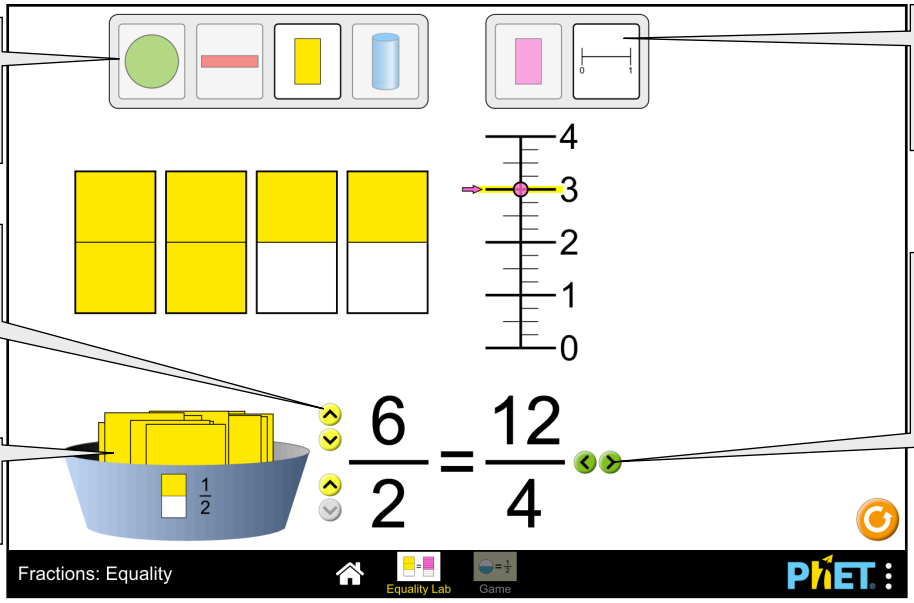
PhET Tips for Teachers

Fractions: Equality

The ***Fractions: Equality*** simulation allows students to explore equivalent fractions with different denominators, then test their understanding on the Game screen.

Equality Lab Screen

The Equality Lab screen, originally found in the legacy Fractions: Intro sim, engages students with the same representations found in Fractions: Intro



VIEW different fraction representations

MANIPULATE the fraction

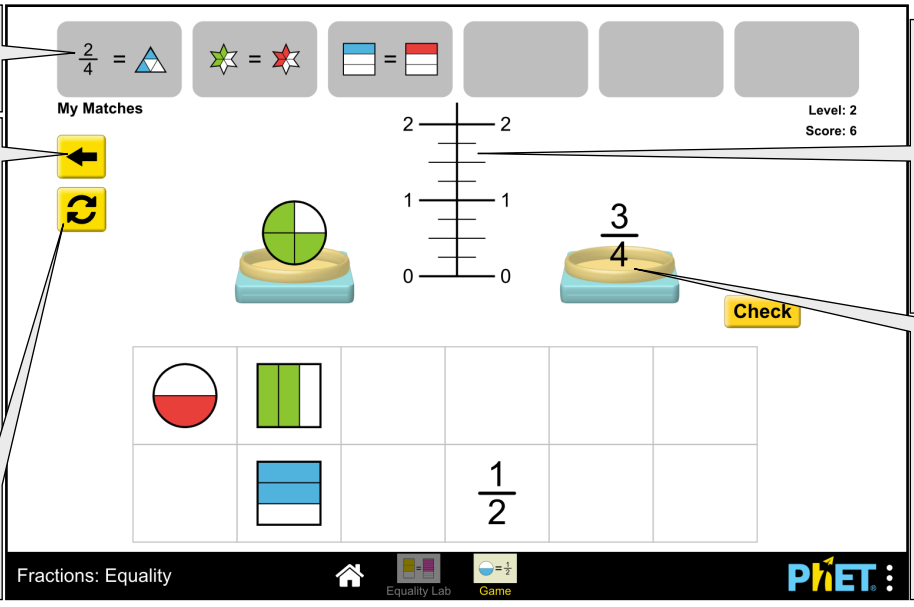
DRAG fraction pieces

COMPARE to the same shape or number line

PARTITION the denominator to create equivalent fractions

Game Screen

The Game screen contains eight levels of matching fractions using the improper fraction representations for fractions greater than 1. This game can also be found in the Fraction Matcher simulation.



SEE correct matches

RETURN to the level selection screen

REFRESH to get a new set of fractions

GET FEEDBACK about the values of your fractions in a number line representation

DRAG different representations of the fractions up to the scales and check if they are equivalent

McGarry, August 2023

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: Equality, if you only want to include the 1st screen (`screens=1`), with audio disabled (`sound=disabled`) use:
https://phet.colorado.edu/sims/html/fractions-equality/latest/fractions-equality_all.html?screens=1&sound=disabled

To run this in Spanish (`locale=es`), the URL would become:
https://phet.colorado.edu/sims/html/fractions-equality/latest/fractions-equality_all.html?locale=es&screens=1&sound=disabled

Query Parameter and Description	Example Links

`screens` - 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.	`screens=1`
	
	`screens=2,1`

`initialScreen` - opens the sim directly to the specified screen, bypassing the home screen.	`initialScreen=1` `initialScreen=2`
`locale` - 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".	`locale=es` (Spanish) `locale=fr` (French)
`audio` - if muted, audio is muted by default. If disabled, all audio is permanently turned off.	`sound=muted` `sound=disabled`
`allowLinks` - when `false`, disables links that take students to an external URL. Default is `true`.	`allowLinks=false`

Suggestions for Use

- Allow students to explore the Equality Lab screen first, then facilitate a discussion about what patterns students notice about equivalent fractions. Use this discussion to develop strategies for constructing and identifying equivalent fractions.
- Students can work at any level on any screen, but it can be helpful to differentiate instruction by assigning certain levels.

Sample Challenge Prompts

- If two fractions are equivalent, what do you know about the area of those two fractions?
- If two fractions are not equivalent, what do you know about the area of those two fractions?
- What strategies help you match two fractions? How can you use these strategies to determine if 5/8 and 10/13 are equivalent?

See all published activities for Fractions: Equality here.
For more tips on using PhET sims with your students, see Tips for Using PhET.

McGarry, August 2023