

The **Build a Fraction** simulation allows students to build fractions with differently sized pieces by playing a game or experimenting in the lab screen.

Build a Fraction Screen

In the Build a Fraction game, students can build fractions to match different targets. Some challenges have numeric targets, others have pictorial targets. This game is also found in [Fractions: Intro](#).

Level 4

RETURN to the level selection screen

RESET to get a new set of challenges

RETURN fraction to play area

BUILD fractions that match the targets

Build a Fraction | Home | Build a Fraction | Mixed Numbers | Lab | PhET

Mixed Numbers Screen

The Mixed Numbers game has similar sets of challenges as the previous screen, but all targets are over 1, and all fractions are in mixed number form. This game is also found in [Fractions: Mixed Numbers](#).

Level 8

RETURN to the level selection screen

BUILD fractions that match the targets

ADD/REMOVE containers

PARTITION container

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Lab Screen

The Lab screen is an open-ended environment for constructing fractions with differently sized pieces. This screen can also be found in the [Fractions: Mixed Numbers](#) simulation.

The screenshot shows the 'Lab' interface of the 'Build a Fraction' simulation. At the top, a toolbar contains various pieces: a red circle, a blue square, and several blue rectangles of different sizes. Below the toolbar, two mixed numbers are displayed: $3\frac{2}{6}$ and $2\frac{2}{5}$. To the right of these are four red circles, each divided into a different fraction (1/2, 1/3, 1/4, 1/5). Below the circles are three blue rectangles, each divided into a different fraction (1/2, 1/3, 1/4). At the bottom, a row of buttons contains numerals 1 through 8, and a 'PARTITION' button. A 'REMOVE' button is located on the left side. Callout boxes provide the following descriptions:

- REMOVE** most recently added piece
- ADD** numerals or new fraction container
- ADD** fractional pieces or new containers
- ADD/REMOVE** containers
- PARTITION** container

The bottom of the screen features a navigation bar with icons for 'Build a Fraction', 'Mixed Numbers', and 'Lab', along with the PhET logo.

Suggestions for Use

- Assign specific Game levels to address your learning goals.
- Use this sim as a “station” in your classroom for students to practice building fractions.
- Use the Lab screen to facilitate a discussion around how to build fractions with differently sized pieces.

Sample Challenge Prompts

- Is there more than one way to answer those challenges correctly?
- Why can't you put any number in the denominator of a mixed number? Can you come up with a rule for mixed number form?
- Using the Lab screen, create multiple fractions that are equal. Challenge yourself to use differently sized pieces.

See all published activities for Build a Fraction [here](#).

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