

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

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

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. The main workspace contains two mixed numbers: $3\frac{2}{6}$ and $2\frac{2}{5}$. The $3\frac{2}{6}$ is represented by three red circles and two red circles divided into six equal parts. The $2\frac{2}{5}$ is represented by two blue rectangles and two blue rectangles divided into five equal parts. A toolbar at the top provides various pieces and containers. A bottom toolbar contains a number line from 1 to 8 and a fraction template. Callout boxes describe the following features:

- REMOVE** most recently added piece: A yellow arrow icon pointing to the $3\frac{2}{6}$ fraction.
- ADD** fractional pieces or new containers: A toolbar at the top showing various pieces like circles, rectangles, and fraction bars.
- ADD/REMOVE** containers: A green plus and red minus icon next to the $2\frac{2}{5}$ fraction.
- ADD** numerals or new fraction container: A dashed red box around the fraction template at the bottom.
- PARTITION** container: A green plus and red minus icon next to the fraction template at the bottom.

At the bottom of the screen, there is 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](#).