

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

Fractions: Mixed Numbers

## 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

Fractions: Mixed Numbers

## Lab Screen

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

The screenshot shows the PhET 'Fractions: Mixed Numbers' Lab screen. The central display shows the mixed number  $2\frac{7}{8}$ . Below it are four circular fraction pieces: a full red circle, a circle with 3/4 red, a circle with 1/2 red, and a circle with 1/4 red. A yellow arrow points to the first piece, and a red minus sign is over the last. A top toolbar contains various icons for adding and removing pieces and containers. A bottom toolbar contains a numeric keypad with digits 1-8, a fraction bar, and a refresh button. A bottom navigation bar includes 'Fractions: Mixed Numbers', 'Intro', 'Game', 'Lab', and the PhET logo.

**REMOVE** most recently added piece

**ADD** fractional pieces or new containers

**ADD/REMOVE** containers

**ADD** numerals or new fraction container

**PARTITION** container

## 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.

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

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