PhET Tips for Teachers

Area Builder

Explore Screen

In this screen students can build any shape and explore the relationship between area and perimeter.

DRAG up squares to build your shape

SHOW background grid

SHOW dimensions

MINIMIZE the information panel

TOGGLE between one and two boards

Area Builder

Game Screen

There are two kinds of challenges: Build a Shape and Find the Area. Each level contains challenges of increasing difficulty.

BUILD A SHAPE given area; **FIND THE AREA** of basic shapes

FIND THE AREA using limited tools

BUILD A 2-COLOR SHAPE given fractional areas

BUILD A SHAPE given area and perimeter

FIND THE AREA of more difficult shapes

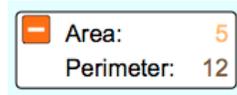**BUILD A TWO COLOR SHAPE** given fractional area, perimeter
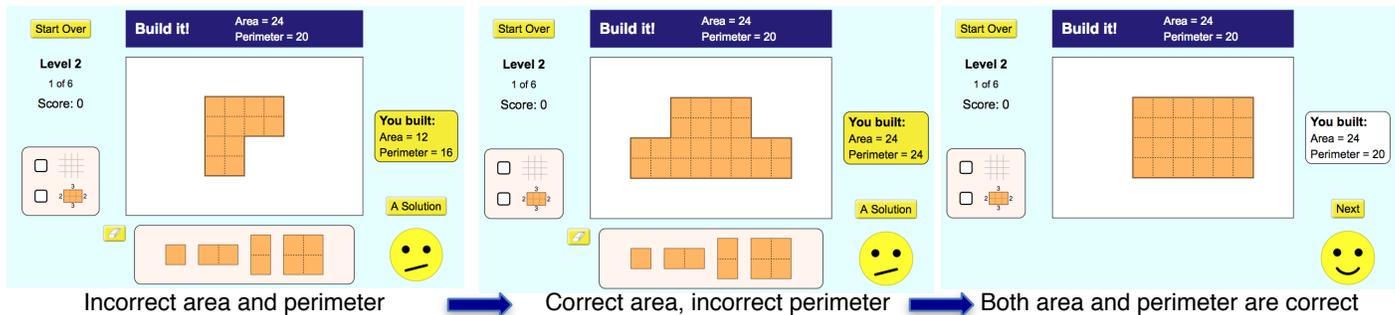
Choose Your Level!

Area Builder

Insights into Student Use

- The information panel may go unnoticed by students until they are prompted to use it in a task (see below for a sample task).

- In the game screen, after two incorrect answers on Build It! challenges, a "You built" panel appears to help students compare their solution to the goal (still stated in the prompt). Students can continue working to achieve the correct solution and watch the banner update.

Incorrect area and perimeter → Correct area, incorrect perimeter → Both area and perimeter are correct

Suggestions for Use

Sample Challenge Prompts

- What is area? How is it calculated?
- What is perimeter? How is it calculated?
- How might you use the dimensions tool to calculate area and/or perimeter?
- Without adding/removing blocks, can you rearrange the blocks in a shape to form a different area? Can you form a different perimeter? What kind of shapes have a bigger perimeter? What kind of shapes have a smaller perimeter?

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