

Explore Screen

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

The screenshot shows the 'Area Builder' interface. At the top, a box displays 'Area: 5' and 'Perimeter: 12'. The main area is a grid with a shape made of orange squares. A blue boat icon is at the bottom center. Callouts point to various features:

- Minimize the information panel:** Points to the 'Area: 5' and 'Perimeter: 12' box.
- Drag up squares to build your shape:** Points to the orange shape on the grid.
- Show background grid:** Points to a checkbox and a grid icon in the bottom-left control panel.
- Show dimensions:** Points to a checkbox and a small grid with dimensions (3x2) in the bottom-left control panel.
- Toggle between one and two boards:** Points to a toggle switch and a grid icon in the bottom-right control panel.

The bottom navigation bar includes 'Area Builder', 'Explore', 'Game', a home icon, and the 'PhET' logo.

Game Screen

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

The screenshot shows the 'Choose Your Level!' screen with six challenge cards numbered 1 to 6. Callouts describe the challenge types:

- Build a shape given area; Find the area of basic shapes:** Points to level 1.
- Find the area using limited tools:** Points to level 2.
- Build a 2-color shape given fractional areas:** Points to level 4.
- Build a shape given area and perimeter:** Points to level 3.
- Find the area of more difficult shapes:** Points to level 5.
- Build a 2-color shape given fractional area, perimeter:** Points to level 6.

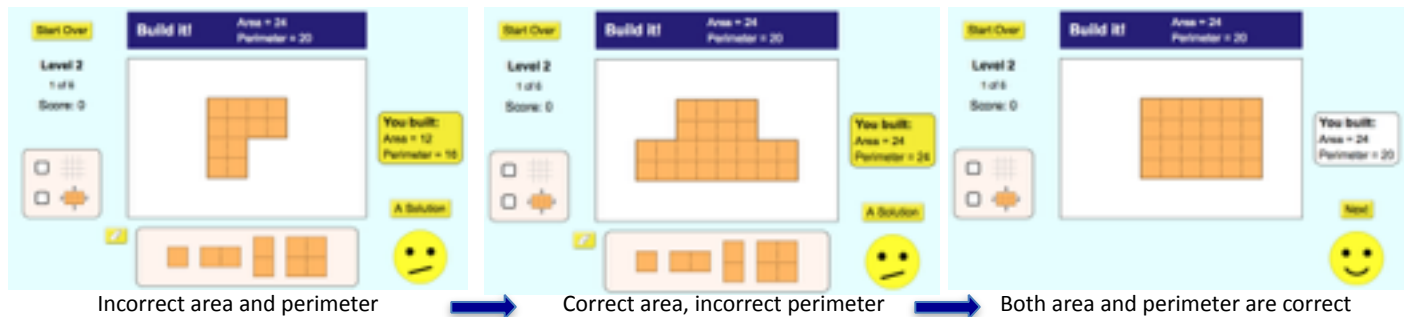
The bottom navigation bar includes 'Area Builder', 'Explore', 'Game', a home icon, and the 'PhET' logo.

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.



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 activities for Area Builder [here](#).

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