

### Multiply Screen

In the Multiply screen, users can answer multiplication problems and receive immediate feedback on their arithmetic board.

**SELECT** more difficult levels with larger boards

**ANIMATE** answer to the board

**REFRESH** board and try again for a higher score!

**STRATEGIZE** how to answer the problem

**ENTER** answer using the number pad

### Factor Screen

In the Factor screen, users drag their cursor or finger around the arithmetic board to find two numbers that multiply to equal the given product.

**DRAG** the corner of the grid until you make the product

**FIND** two numbers that make this statement true

## Divide Screen

In the Divide screen, users can use division to find the missing factor in a multiplication problem.

The screenshot shows the 'Divide' screen in the PhET Arithmetic simulation. It features a 6x6 grid with a multiplication table. The top row is labeled with factors 1 through 6, and the left column is labeled with factors 1 through 6. The grid contains the following values:

×	1	2	3	4	5	6
1						
2						
3						
4						24
5						
6			18			

Below the grid is a calculator interface showing the equation  $4 \times \square = 16$ . The number 4 is highlighted in purple. To the right of the grid, there is a 'Divide' panel with 'Level 1' and 'Score: 2'. A yellow arrow points to the number 4 in the grid, and another yellow arrow points to the number 4 in the calculator. A callout box on the left says 'ANIMATE answer to the board' with an arrow pointing to the grid. A callout box on the right says 'HIGHLIGHT the given factor' with an arrow pointing to the number 4 in the calculator. A callout box at the bottom left says 'DIVIDE to find the missing factor' with an arrow pointing to the empty box in the calculator equation. The bottom of the screen shows navigation icons for 'Arithmetic', 'Multiply', 'Factor', 'Divide', and 'Home', along with the PhET logo.

## Insights into Student Use

- Students can use the purple highlighted cells to answer a multiplication problem, whether it is using an area model for multiplication, an additive strategy, or skip-counting.
- The problems posed on the Divide screen are framed as a multiplication problem. This might be different from what students are used to, but can also be powerful in helping students see the connection between multiplication and division.

## Suggestions for Use

### Sample Challenge Prompts

- Why can two numbers be multiplied in any order?
- On the Multiply screen, how can you use the purple squares to help you answer a multiplication problem?
- On the Division screen, there is no division symbol. How is this a division problem? Re-write one of these problems as a division statement.
- Which numbers form a purple square on the arithmetic board?
- Which numbers do not appear on the arithmetic board?
- After you complete a board, what patterns do you notice? How do those patterns compare on differently sized boards?

See all published activities for Arithmetic [here](#).

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