

### 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 header row labeled 'x' and '1' through '6', and a header column labeled '1' through '6'. The grid contains the numbers 24 and 18. A calculator interface is visible on the right, and a navigation bar is at the bottom. Three callout boxes provide instructions:

- ANIMATE** answer to the board (points to the grid)
- DIVIDE** to find the missing factor (points to the calculator)
- HIGHLIGHT** the given factor (points to the number 4 in the grid)

| x | 1 | 2 | 3  | 4 | 5 | 6  |
|---|---|---|----|---|---|----|
| 1 |   |   |    |   |   |    |
| 2 |   |   |    |   |   |    |
| 3 |   |   |    |   |   |    |
| 4 |   |   |    |   |   | 24 |
| 5 |   |   |    |   |   |    |
| 6 |   |   | 18 |   |   |    |

Calculator display:  $\text{ } | \times 4 = 16$

Navigation bar: Arithmetic | Multiply | Factor | Divide | Home | PhET

## 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](#).