

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

The interface shows a 6x6 grid with columns labeled 1-6 and rows labeled 1-6. The grid contains products of multiplication: (1,2)=2, (2,2)=4, (3,2)=6, (4,2)=8, (5,2)=10, (6,2)=12; (1,3)=3, (2,3)=6, (3,3)=9, (4,3)=12, (5,3)=15, (6,3)=18; (1,4)=4, (2,4)=8, (3,4)=12, (4,4)=16, (5,4)=20, (6,4)=24; (1,5)=5, (2,5)=10, (3,5)=15, (4,5)=20, (5,5)=25, (6,5)=30; (1,6)=6, (2,6)=12, (3,6)=18, (4,6)=24, (5,6)=30, (6,6)=36. A yellow arrow points to a back button in the top left. A score box on the right shows 'Multiply Level 1 Score: 4' and a refresh button. A number pad is on the right with digits 0-9 and a clear button. At the bottom, a yellow smiley face with '+1' indicates a correct answer. The equation $4 \times 2 = 8$ is displayed in the center.

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

The interface shows a 6x6 grid with columns labeled 1-6 and rows labeled 1-6. The grid contains products: (1,2)=2, (1,3)=3, (1,4)=4, (1,5)=5, (1,6)=6; (2,2)=4, (2,3)=6, (2,4)=8, (2,5)=10, (2,6)=12; (3,2)=6, (3,3)=9, (3,4)=12, (3,5)=15, (3,6)=18; (4,2)=8, (4,3)=12, (4,4)=16, (4,5)=20, (4,6)=24; (5,2)=10, (5,3)=15, (5,4)=20, (5,5)=25, (5,6)=30; (6,2)=12, (6,3)=18, (6,4)=24, (6,5)=30, (6,6)=36. A yellow arrow points to a back button in the top left. A score box on the right shows 'Factor Level 1 Score: 8' and a refresh button. At the bottom, a yellow question mark icon is on the left, and the equation $? \times ? = 4$ is displayed in the center. A hand cursor is shown over the grid cell (2,2).

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 PhET. It features a 6x6 multiplication grid with columns labeled 1-6 and rows labeled 1-6. The grid contains the following values: (1,4)=4, (4,6)=24, (6,3)=18. A calculator interface below the grid shows the equation $4 \times \square = 16$. A score of 2 is displayed in the top right. Three callout boxes provide instructions: 'ANIMATE answer to the board' points to the grid, 'DIVIDE to find the missing factor' points to the calculator, and 'HIGHLIGHT the given factor' points to the number 4 in the grid.

ANIMATE
answer to the board

DIVIDE to find the missing factor

HIGHLIGHT the given factor

Arithmetic Multiply Factor Divide 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](#).