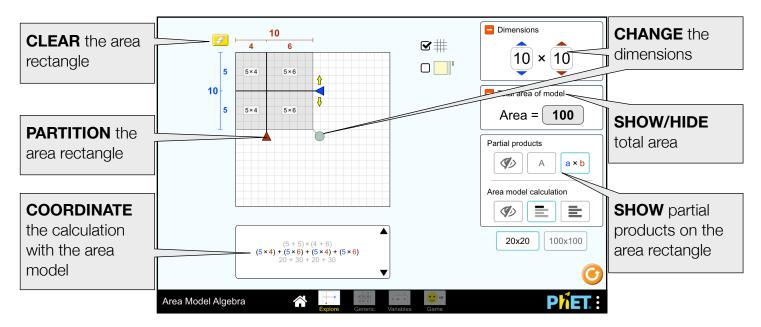


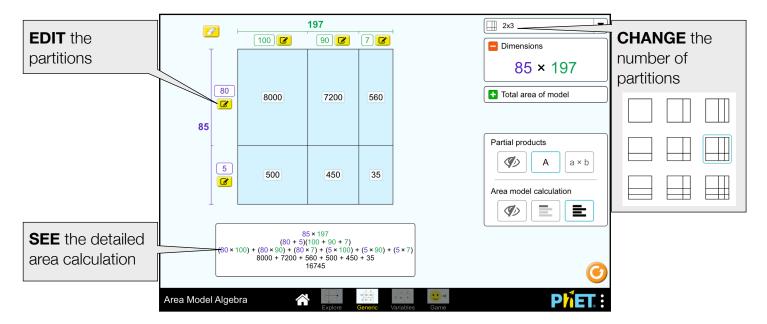
Explore Screen

Re-discover how an area model can be used to justify the product of two numbers, that the product/ area can be partitioned into smaller products/areas, and that the total area is the sum of the partial areas.



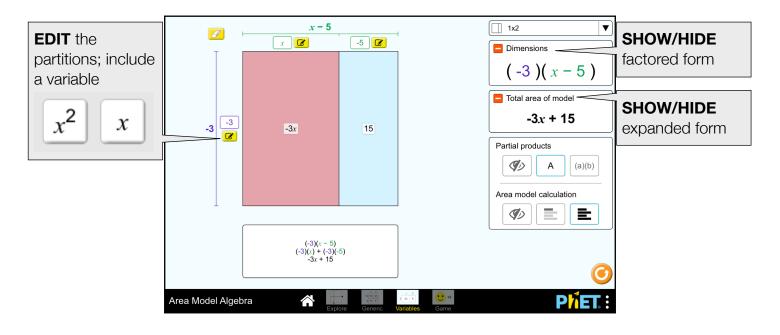
Generic Screen

Apply the area model to justify the product of two integers using a generic model.



Variables Screen

Use the generic area model to multiply algebraic expressions and justify the distributive property.



Game Screen

Test your understanding of the area model by finding missing partial products, dimensions, or total area. **Level 1:** Find 1 partial product or total area

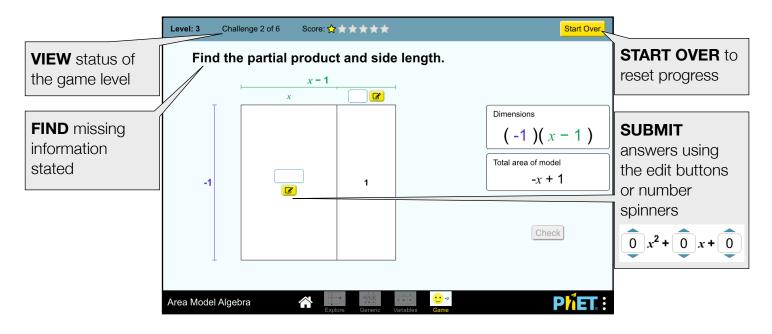
Level 2: Find 2 partial products or 1 partial product and total area

Level 3: Find 2 partial dimensions or 1 partial dimension and 1 partial product

Level 4: Find 2 partial dimensions or 1 partial dimension and 1 partial product

Level 5: Factor a 1x2 or 1x3 expression

Level 6: Factor a 2x2 expression



Design Notes

- On the Explore screen, the area rectangle drag handle is useful for initial exploration, and the number spinners are useful for more precise configurations.
- On the Explore screen, multiplying numbers less than 10 in the 100x100 grid will result in very small areas displayed on the area grid.
- Multiplication of 5×7 will not lead to as rich of a discussion as 15×7 or 15×17 . Encourage students to justify why partitioning dimensions larger than 10 is useful, and describe a useful partition strategy.

Suggestions for Use

- Use the area model for justifying multiplication of algebraic expressions.
- Use an area model to determine a strategy for factoring an algebraic expression.

Sample Challenge Prompts

- How is partitioning numbers similar to partitioning expressions?
- Look at each line of the calculation. Where is that represented in the area model?
- Given a total area, find the dimensions. Can you find other dimensions that produce the same total area?

See all published activities for Area Model Algebra here.

For more tips on using PhET sims with your students, see Tips for Using PhET.