

## Multiply Screen

Discover how an area model can be used to justify the product of two numbers.

**COUNT** individual units

**CHANGE** the dimensions

**CLEAR** the area rectangle

**SHOW/HIDE** total area

**ADJUST** the size of the board

Area Model Introduction Partition

## Partition Screen

Investigate how the product/area can be partitioned into smaller products/areas, and that the total area is the sum of the partial areas.

**PARTITION** the area rectangle

**SHOW** partial products on the area rectangle

**COORDINATE** the calculation with the area model

Area Model Introduction Partition

## 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.
- The count can be shown on the area model to demonstrate the total sum of square units, and can also be used to demonstrate skip counting.

## Suggestions for Use

### Sample Challenge Prompts

- What is the relationship between the dimensions of the rectangle and the total area? Find two ways to explain this relationship.
- Given a total area, find the dimensions. Can you find other dimensions that produce the same total area?
- Look at each line of the calculation. Where is that represented in the area model?
- What patterns do you notice in the total area calculation?

## Customization Options

Query parameters allow for customization of the simulation, and can be added by appending a '?' to the sim URL, and separating each query parameter with a '&'. The general URL pattern is:

`...html?queryParameter1&queryParameter2&queryParameter3`

For example, in Area Model Introduction, if you want to switch the 1st and 2nd screens (`screens=2,1`), with the 2nd screen open by default (`initialScreen=2`) use:

[https://phet.colorado.edu/sims/html/area-model-introduction/latest/area-model-introduction\\_all.html?screens=2,1&initialScreen=2](https://phet.colorado.edu/sims/html/area-model-introduction/latest/area-model-introduction_all.html?screens=2,1&initialScreen=2)

To run this in Spanish (`locale=es`), the URL would become:

[https://phet.colorado.edu/sims/html/area-model-introduction/latest/area-model-introduction\\_all.html?locale=es&screens=2,1&initialScreen=2](https://phet.colorado.edu/sims/html/area-model-introduction/latest/area-model-introduction_all.html?locale=es&screens=2,1&initialScreen=2)

⊗ Indicates this customization can be accessed from the Preferences menu within the simulation.

Query Parameter and Description	Example Links
<code>screens</code> - specifies which screens are included in the sim and their order. Each screen should be separated by a comma. For more information, visit the <a href="#">Help Center</a> .	<code>screens=1</code> <code>screens=2,1</code>
<code>initialScreen</code> - opens the sim directly to the specified screen, bypassing the home screen.	<code>initialScreen=1</code> <code>initialScreen=2</code>
⊗ <code>locale</code> - specify the language of the simulation using <a href="#">ISO 639-1</a> codes. Available locales can be found on the simulation page on the <a href="#">Translations tab</a> . Note: this only works if the simulation URL ends in “_all.html”.	<code>locale=es</code> (Spanish) <code>locale=fr</code> (French)
<code>allowLinks</code> - when <code>false</code> , disables links that take students to an external URL. Default is <code>true</code> .	<code>allowLinks=false</code>

See all published activities for Area Model Introduction [here](#).

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