

Multiply Screen

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

COUNT individual units

CLEAR the area rectangle

CHANGE the dimensions

SHOW/HIDE total area

ADJUST the size of the board

Area Model Introduction

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

COORDINATE the calculation with the area model

SHOW partial products on the area rectangle

Area Model Introduction

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

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

⚙ 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 Help Center .	<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 ISO 639-1 codes. Available locales can be found on the simulation page on the Translations tab . 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](#).