

Build rectangles of various sizes and relate multiplication to area. Partition a rectangle into smaller areas and discover new strategies for multiplying decimals.

CLEAR the area rectangle

PARTITION the area rectangle

COORDINATE the calculation with the area model

CHANGE the dimensions

SHOW/HIDE total area

SHOW partial products on the area rectangle

Area Model Decimals

Dimensions: 1.4×2.5

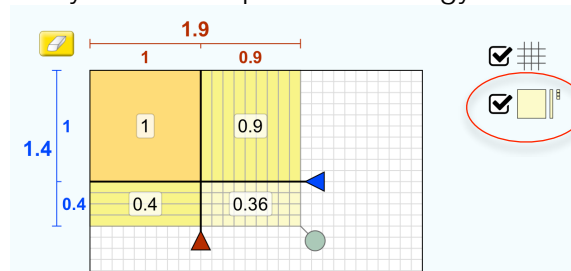
Total area model: Area = 3.5

Partial products: A , $a \times b$

Area model calculation: $(1 \times 1) + (1 \times 1.5) + (0.4 \times 1) + (0.4 \times 1.5)$
 $1 + 1.5 + 0.4 + 0.6$

Design Notes

- The area rectangle drag handle is useful for initial exploration, and the number spinners are useful for more precise configurations.
- Use the base-ten tiles for discovery of a useful partition strategy.



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.
- 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?
- When multiplying decimals smaller than 1, why is the total area smaller than the individual factors?
- Determine a useful location to partition factors when multiplying decimals larger than 1.

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 Decimals, if you want to run the sim in Spanish (`locale=es`) and disable external links (`allowLinks=false`) use:

```
https://phet.colorado.edu/sims/html/area-model-decimals/latest/area-model-decimals_all.html?locale=es&allowLinks=false
```

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

Query Parameter and Description	Example Links
⚙ <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 Decimals [here](#).
For more tips on using PhET sims with your students, see [Tips for Using PhET](#).