

# Dilations

The contents of this content module were developed by special educator Bethany Smith, PhD and validated by content expert Drew Polly, PhD at University of North Carolina at Charlotte under a grant from the Department of Education (PR/Award #: H373X100002, Project Officer, [Susan.Weigert@Ed.gov](mailto:Susan.Weigert@Ed.gov)). However, the contents do not necessarily represent the policy of the Department of Education and no assumption of endorsement by the Federal government should be made

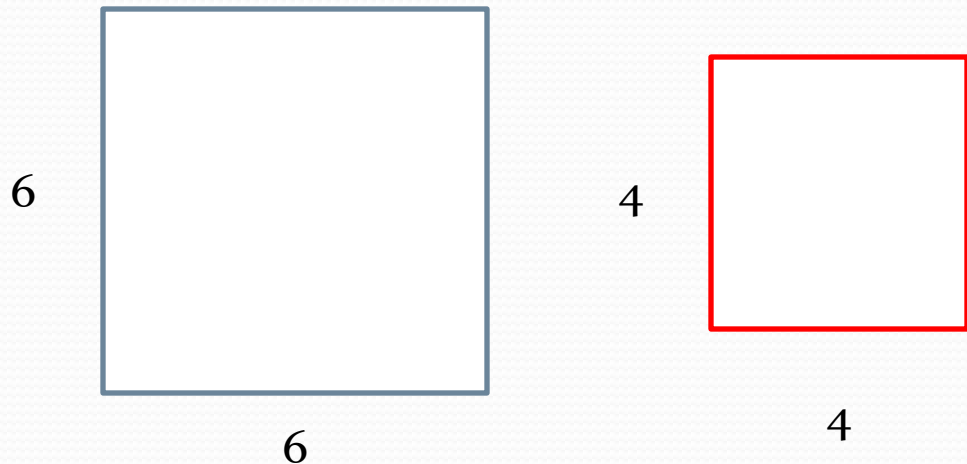
# What is a dilation

- A dilation is a transformation that changes the size of a figure
  - The size of the figure changes but shape of the figure does not

# Scale factors

- The scale factor of a dilation describes how much a figure is enlarged or reduced.

For example: the scale factor of these squares is 2



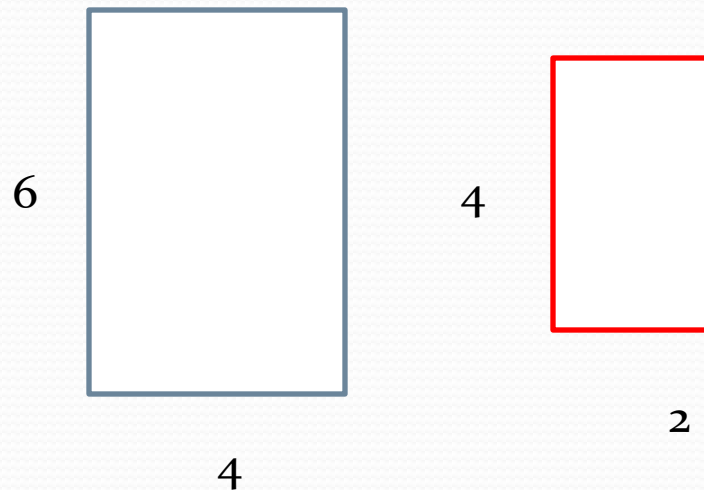
# Is it a dilation?

To find out if a transformation is a dilation, compare the ratios of the corresponding side lengths

The ratio for the blue rectangle is  $\frac{6}{4} = \frac{3}{2}$

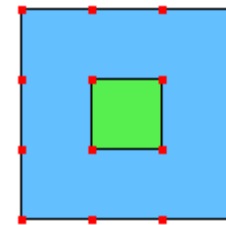
The ratio for the red rectangle is  $\frac{4}{2} = \frac{2}{1}$

**This is not a dilation because the ratios are not equal**  $\frac{3}{2} \neq \frac{2}{1}$



# Ideas for application

- Use manipulatives to create concrete examples of dilations
  - Make a scale model of a local building
  - Use a geoboard to make a square. Then double the side lengths (dilation) with the same point



# Making connections

- Dilations addresses the high school Core Content Connectors of
  - H.ME.2b1 Determine the dimensions of a figure after dilation
- Understanding proportional relationships are prerequisites for addressing this content standard