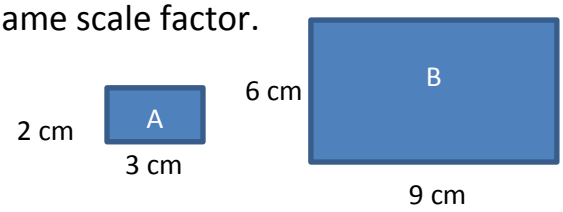
Stretching and Shrinking: Investigation 2 Big Ideas: Similar Figures

<table>
<tr><td>Problem 2.1
The Wumps</td><td>Students explored the effect of coordinate rules on resulting figures. Students determined that in order for two figures to be similar the coefficients in the coordinate rule have to be similar.</td></tr>
<tr><td>Problem 2.2
Mugs Hats</td><td>Students continued to explore the effect of coordinate rules (x, y) on resulting figures.
The Coefficient is the number that is attached to the variable, is what the variable is being multiplied by is the coefficient.
Ex. 3x the coefficient is 3; x is being multiplied by 3
<u>The X axis is the horizontal axis</u>
The coefficient of x in the coordinate rule is how many times wider the object will get.
When you <u>add or subtract to the x cooridinate the object moves right or left</u>.
When you add it moves that number of spaces right and when you subtract it moves that number of spaces left.
<u>The Y axis is the vertical axis</u>
The coefficient of y in the coordinate rule is how many times taller the object will be.
When you <u>add or subtract to the y cooridinate the object moves up or down</u>.
When you add it moves that number of spaces up and when you subtract it moves that number of spaces down.

Examples…
<table>
<tr><td>(2x, 2y)</td><td>2 times wider and 2 times taller</td></tr>
<tr><td>(3x, 5y)</td><td>3 times wider and 5 times taller</td></tr>
<tr><td>(x + 3, y -4)</td><td>Same height and width moved right 3 spaces and down 4 spaces on the graph.</td></tr>
<tr><td>(x – 5, y +6)</td><td>Same height and width moved left 5 spaces and up 6 spaces.</td></tr>
<tr><td>(3x + 4, ½ y + 3)</td><td>3 times wider and right 4 spaces, half as tall and up 3 spaces.</td></tr>
</table>
</td></tr>
<tr><td>Problem 2.3
Mouths and Noses</td><td>Scale Factor and Similarity.
Similar figures – have congruent corresponding angles, have the same general shape but are different sizes.
Scale Factor: is how many times larger one image is than the other. In order for a figure to be similar the height and width between two figures has to have the same scale factor.
 

The scale factor from A to B is 3 because 2x3 = 6 and 3x3= 9
The scale factor from B to A is $\frac{1}{3}$ because $\frac{1}{3}$x 6 = 2 and $\frac{1}{3}x\ 9 = 3$</td></tr>
</table>