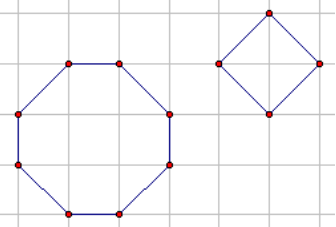
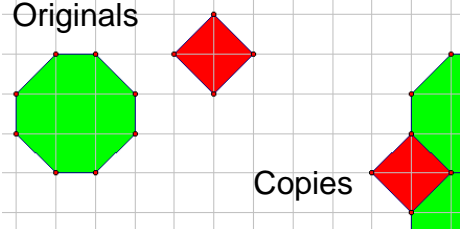
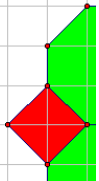


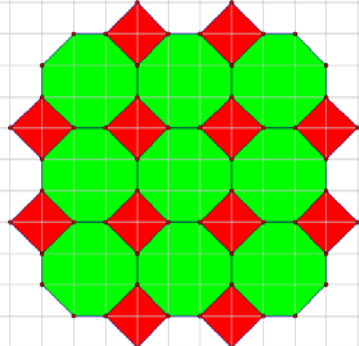
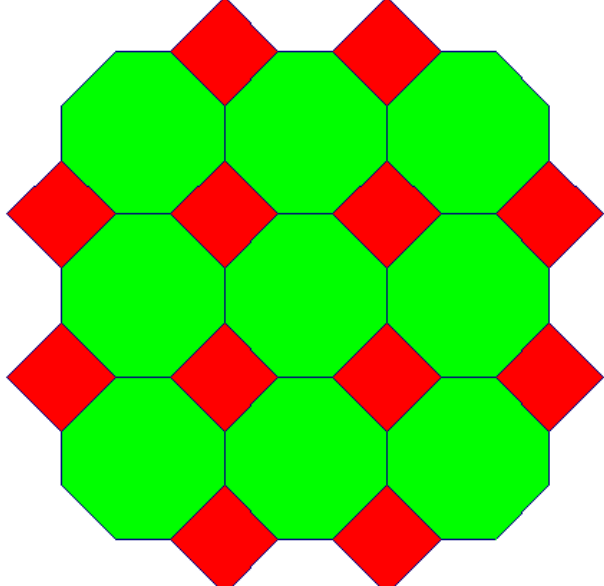
# Creating Patterns on a Computer

- **Alternate Activity** for “Technology”, *Math Makes Sense Grade 4* text, pages 390-392.
- **Using Geometer’s Sketchpad** instead of *Appleworks*.


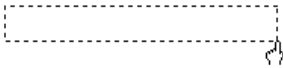
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 You can use a computer to make patterns with a grid and transformations.

- Work with a partner.
- Use Geometer’s Sketchpad.
- Follow these steps to make a pattern with a grid and transformations.
- This exercise will have you use skills you used when you made Pentominoes, and when you did Transformations. If you need detailed directions, refer to the help sheets for these topics.

1	Open up <b>Geometer’s Sketchpad</b> .	2	If you get a blank sketch called “Untitled 1”, skip to the next step. If not, then click “File” > “New Sketch” (or click CTRL+N) to get a blank sketch. You should maximize both the programme and the new sketch.				
3	You need to turn on a grid: <table style="width: 100%; border: none;"> <tr> <td style="width: 50%; border: none;">           A. “Graph” &gt; “Show Grid”         </td> <td style="width: 50%; border: none;">           B. “Graph” &gt; “Snap Points”         </td> </tr> <tr> <td style="border: none;">           C. Hide the axes – Use SHIFT+Click to select both the vertical and horizontal axes. “Display” &gt; “Hide Axes” (this will make the work area easier to use)         </td> <td style="border: none;">           D. Hide the two points that left over – “Display” &gt; “Hide Points”         </td> </tr> </table>			A. “Graph” > “Show Grid”	B. “Graph” > “Snap Points”	C. Hide the axes – Use SHIFT+Click to select both the vertical and horizontal axes. “Display” > “Hide Axes” (this will make the work area easier to use)	D. Hide the two points that left over – “Display” > “Hide Points”
A. “Graph” > “Show Grid”	B. “Graph” > “Snap Points”						
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4	On the grid, make an octagon and a square that match the ones in this image:						
5	Fill each one with an interesting color. Suggestion: use colors what are “opposite” each other on a color wheel for maximum effect.	6	Make about 8 copies of each. You may need to make more copies later, so slide and work with the copies in a different part of the screen from the originals.  <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;"> <p>Originals</p>  </div> <div style="text-align: center;"> <p>Copies</p>  </div> </div>				

7	Duplicate this pattern, using as many copies as you need.	
8	<p>You can <b>hide points</b> by holding down the SHIFT key as you use the arrow to select points. Once you have the points selected, use “Display” &gt; “Hide Points” in the menu bar to hide the points. You will have to repeat this step because points overlap. Also, <b>hide the grid</b> (“Graph” &gt; “Hide Grid”).</p> <p>When you have finished hiding the points and the grid, your pattern should look like the one at right:</p>	
9	<p>Now start to experiment, using a new sketch with a grid each time (steps 2 and 3 above).</p> <p>What pairs of shapes will tile to make a tiling pattern?          If you make the octagon with a different size, will it still tile with the square?          Can tiling patterns be made with combinations of three shapes? What color combinations make the most pleasing effects with three shapes?</p>	
10	<p>Print some of your patterns.          Depending on your pattern, you may have to change the page orientation (Portrait or Landscape).</p>	

**Hint:** Putting your name on a Geometer’s Sketchpad project:

A	Click the text tool in the toolbox	B	Click and drag near your project to get a text box
			
C	Type inside the text box	D	Change to the Arrow tool & click outside the text box to “cement” the text
