## U1Ch1L3_Finding Patterns and Writing Protocols

## Challenge \#3: Finding Patterns \& Writing Protocols?

Step back and view the geometric shape combinations that you assembled. Was there a particular way that you organized it so that you could come to a final answer? Do you see any patterns? If not, then rearrange the shapes to create a pattern.
Draw your pattern below left (Ask Instructor for colored pencils). Then write a protocol or guideline that will allow anyone to easily recreate your pattern - below right. When complete, hand this page to the instructor. The instructor will fold the page so that the image of the pattern will be hidden behind the protocol. The instructor will hand your protocol to one of your classmates so that when they follow your basic instructions, they should be able to easily recreate the pattern that you discovered. Finally, your classmate will unfold the page to see your pattern and can then compare it to the one they drew.

| Draw Your Pattern Here | State Your Protocol or Guideline Here |
| :---: | :---: |
|  | $\square$ |


| Example of My Pattern |  | An Example of My Protocol (Guideline) |
| :---: | :---: | :---: |
| $3^{3}=\square \Delta 0$ | $\begin{aligned} & \square 0 \triangle \\ & \square \Delta \triangle \\ & \square \square \Delta \\ & \Delta O \triangle \\ & \triangle \Delta \triangle \\ & \Delta \square \triangle \\ & 0 \bigcirc \Delta \\ & O \triangle \Delta \\ & O \square \Delta \end{aligned}$ | My Explanation: I noticed that when I was writing the combinations in Challenge \#1, I kept writing from Left to Right. So, why not try writing from the Top to Bottom. <br> I learned in Challenge \#1 that there were 27 combinations, that is $3^{3}$. I thought I would create 3 columns and limit each to 9 combinations. At the core of each column, I repeated the same geometric pattern over (circle, triangle, square) and over and then surrounded this core with variations. <br> My Protocol: <br> 1. Create the Core - Write a circle/triangle/square from Top to Bottom, 3 times, in 3 separate columns. T <br> 2. On the left side of the Core on all the columns, write 3 squares, then 3 Triangles and then three circles from Top to Bottom. <br> 3. On the right side of the core in column 1, write 9 squares. On the right side of the core in column 2 , write 9 circles. On the right side of the core in column 3 , write 9 triangles. |

