Pathway Patterns

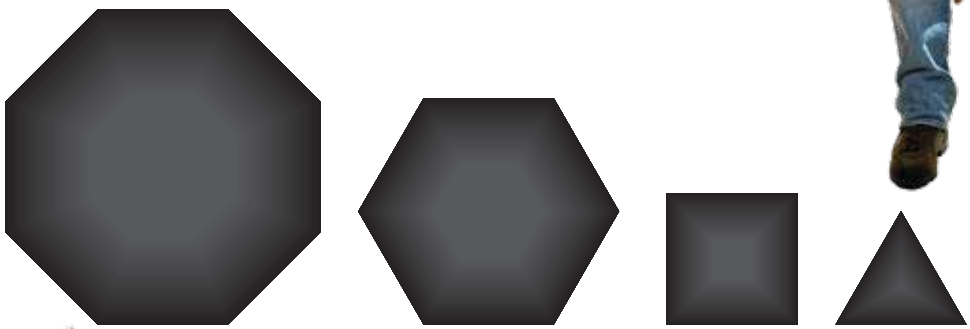
You need: pattern blocks (you will have to make the octagon) or geoshapes

ACTIVITY

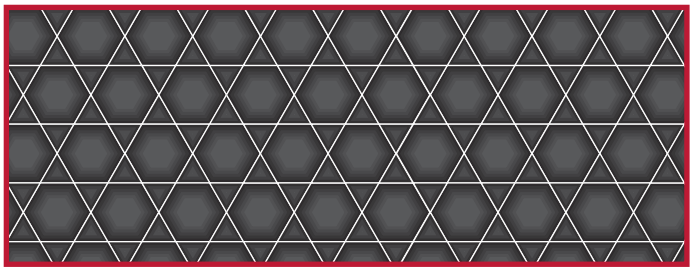
Cobblestones are blocks that fit together in a repeating pattern without any gaps. Con lays cobblestone paths and driveways.

Most of these cobblestone patterns are so boring. There must be a better way!

He tries combining the following different cobblestone shapes to make interesting patterns. The sides of all the shapes are the same length.

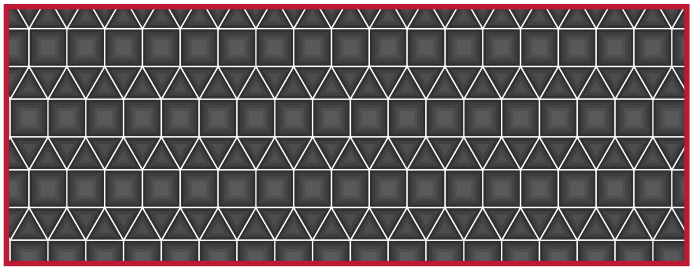


1. Combining hexagons and triangles gives this pattern:



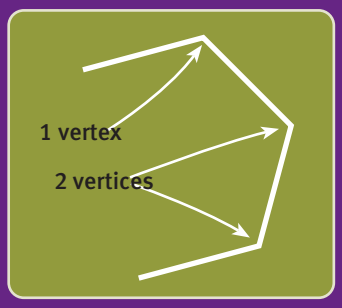
What other repeating patterns with hexagons and triangles can you find?

2. Combining squares and triangles gives this pattern:

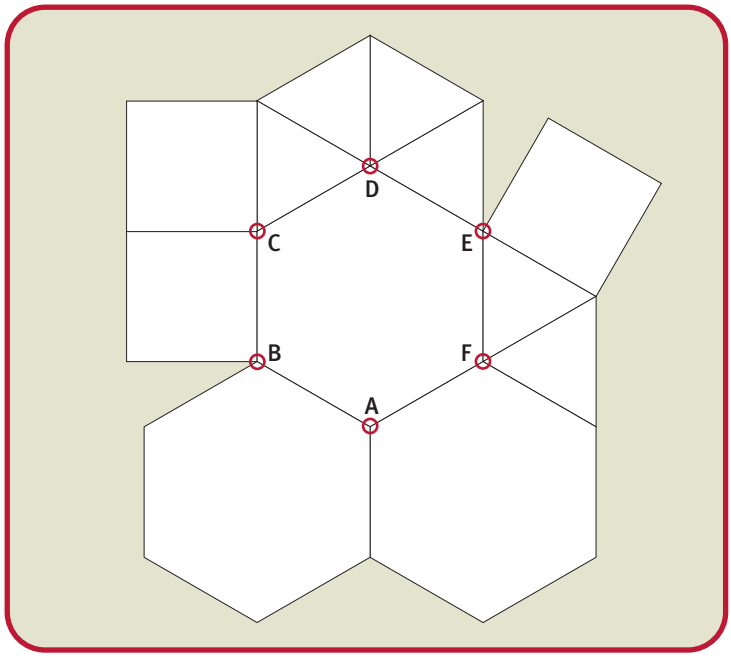


Create another pattern using these shapes.

A tessellation is a tiled pattern. Tiles tessellate if they fit together without gaps. The "corners" of a tile are known as vertices.



3. Con wants to know why some blocks fit together and others don't. He plays around with different shapes and fits them together like this:



a. Make your own copy of this layout. Label all the vertices of each tile with their size in degrees.

b. Add up the total of the tile angles at each named point.

c. What is different about the angles at points B and E?

d. Why do some groups of blocks tessellate and others do not?

4. Con has a customer who wants squares used in the pattern of his cobblestone driveway.

Con shows him the two patterns from question **2**.

Design another pattern for this customer, using:

a. just squares and octagons

b. just triangles, squares, and hexagons.