

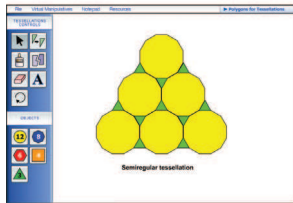
## MATH ACTIVITY 9.2

### Tessellations with Polygons

**Purpose:** Arrange regular polygons to form regular and semiregular tessellations.

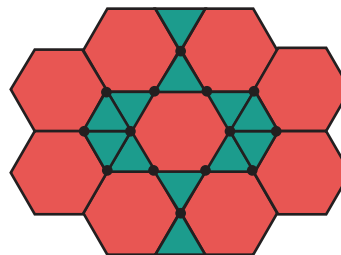
**Materials:** Polygons for Tessellations in the Manipulative Kit or Virtual Manipulatives.

#### Virtual Manipulatives

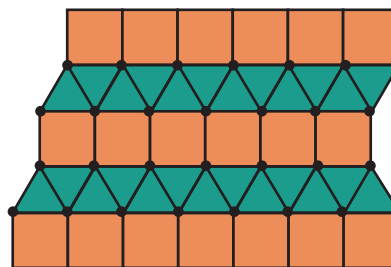


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1. An arrangement of nonoverlapping figures that are placed together to entirely cover a region is called a **tessellation**. A portion of a tessellation that uses triangles and hexagons is shown here. Form and sketch a tessellation that uses at least two different types of polygons from your set.



2. Each polygon in your set is called **regular** because all of its sides are congruent and all of its angles are congruent. If a tessellation can be formed with just one type of regular polygon, it is called a **regular tessellation**. Experiment with your polygons to find those that can be used to form a regular tessellation.
- \*3. The tessellation shown next is **semiregular** because it uses more than one type of regular polygon and each *vertex point* of the tessellation (bold point) is surrounded by the same arrangement of polygons. The pictured tessellation is denoted by the **code** 3, 3, 3, 4, 4 because a triangle has three sides and a square has four sides and each vertex is surrounded by three triangles and two squares in clockwise order. Explain why the tessellation in activity 1 is not semiregular.



4. There are other semiregular tessellations that can be formed by using two different types of regular polygons. Experiment with your polygons to find some of these. Sketch a portion of each tessellation, and write the numbers for its code.
5. There are two semiregular tessellations which use three different types of polygons. Find one of these and sketch a portion of its tessellation.
6. Is there a semiregular tessellation which uses four different types of polygons from your set? Explain your reasoning.