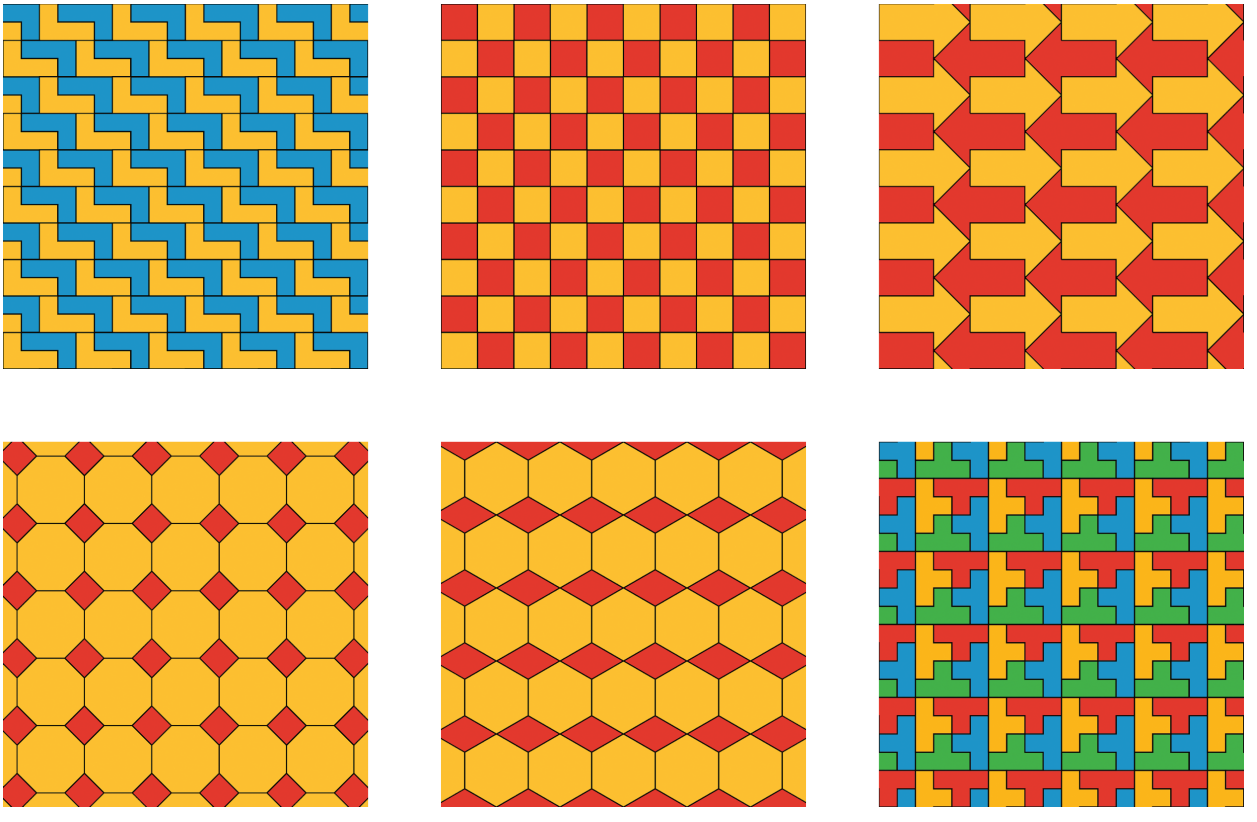
Unit 9 Lesson 2: Regular Tessellations

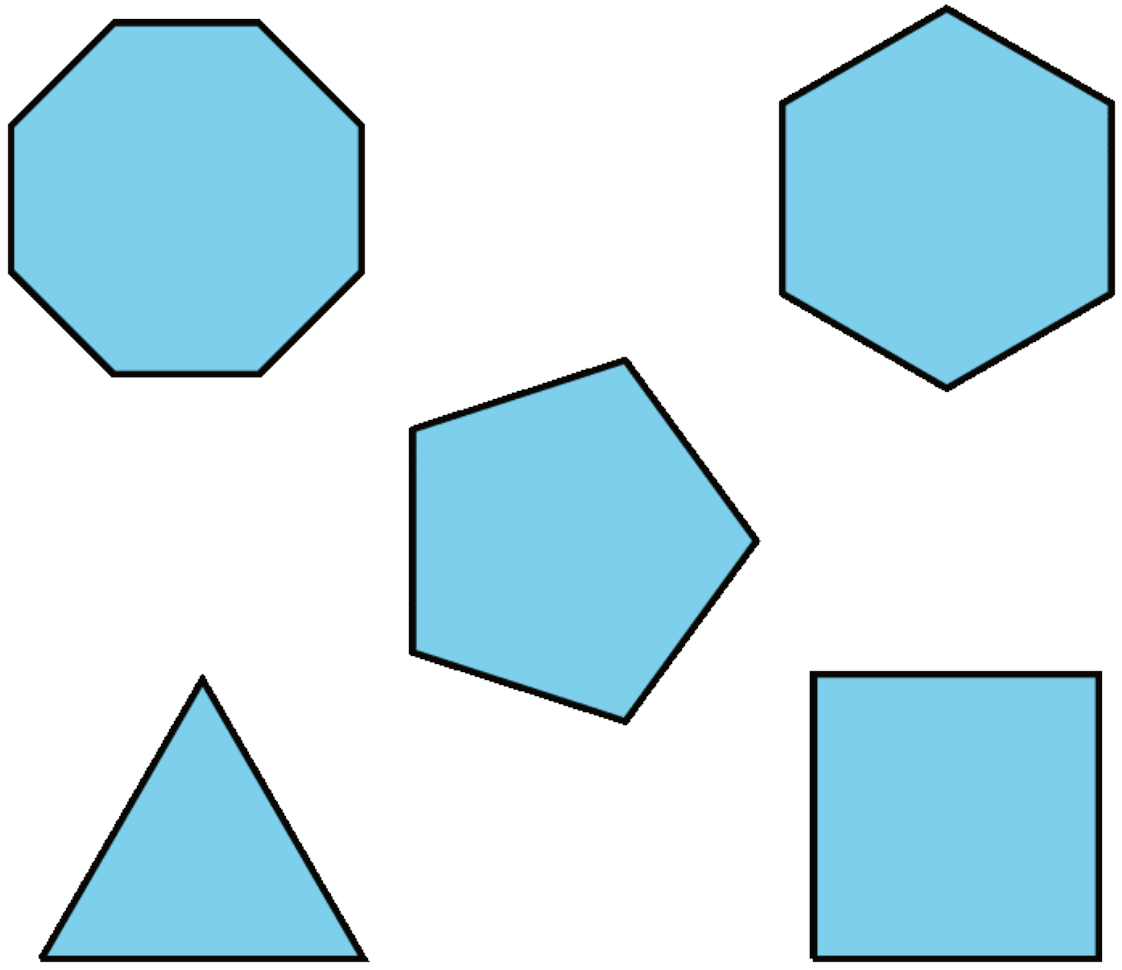
1 Regular Tessellations (Optional)

Images for Launch



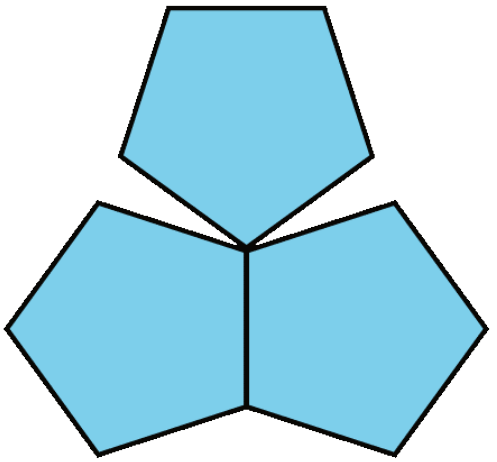
Student Task Statement

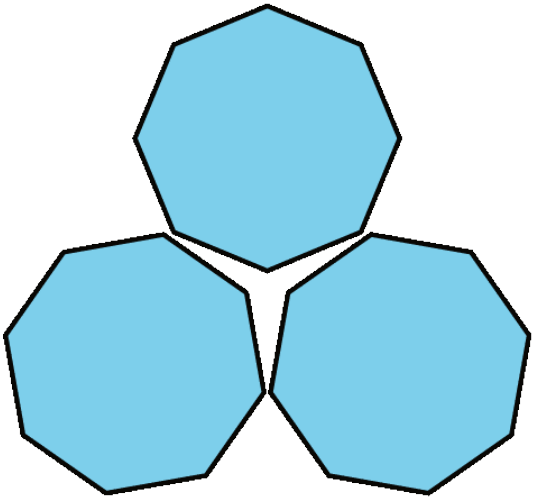
1. For each shape (triangle, square, pentagon, hexagon, and octagon), decide if you can use that shape to make a regular tessellation of the plane. Explain your reasoning.



2. For the polygons that do not work, what goes wrong? Explain your reasoning.

Activity Synthesis





2 Equilateral Triangle Tessellation (Optional)

Student Task Statement

1. What is the measure of each angle in an equilateral triangle? How do you know?

2. How many triangles can you fit together at one vertex? Explain why there is no space between the triangles.

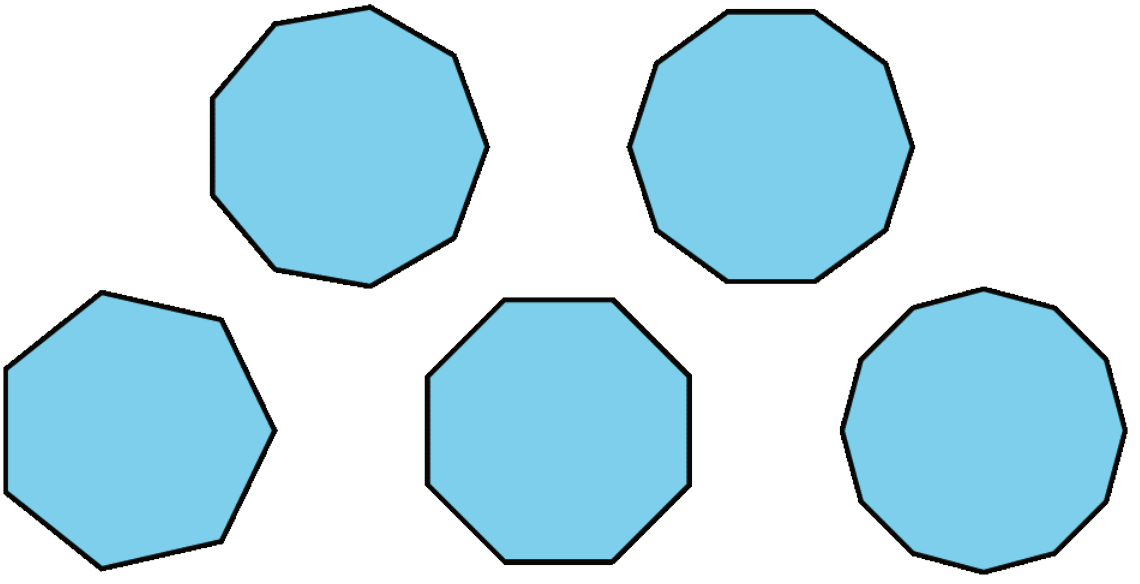
3. Explain why you can continue the pattern of triangles to tessellate the plane.

4. How can you use your triangular tessellation of the plane to show that regular hexagons can be used to give a regular tessellation of the plane?

3 Regular Tessellation for Other Polygons (Optional)

Student Task Statement

1. Can you make a regular tessellation of the plane using regular polygons with 7 sides? What about 9 sides? 10 sides? 11 sides? 12 sides? Explain.



2. How does the measure of each angle in a square compare to the measure of each angle in an equilateral triangle? How does the measure of each angle in a regular 8-sided polygon compare to the measure of each angle in a regular 7-sided polygon?

3. What happens to the angles in a regular polygon as you add more sides?

4. Which polygons can be used to make regular tessellations of the plane?