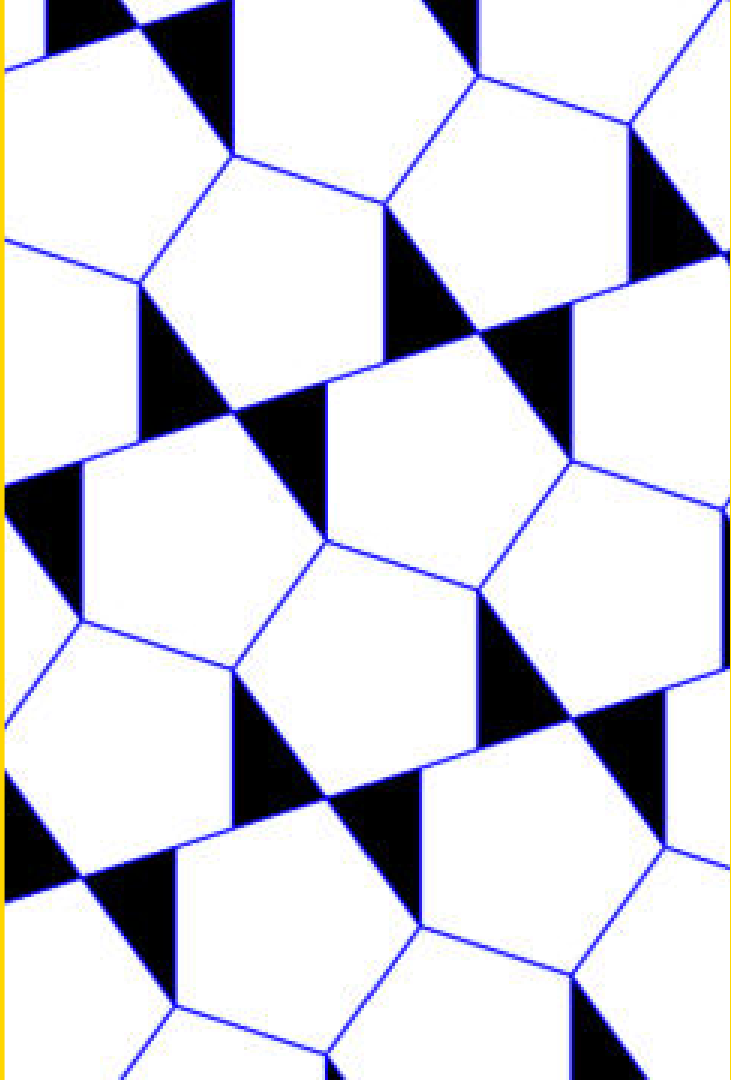
Rotate and Tessellate

Lesson 17

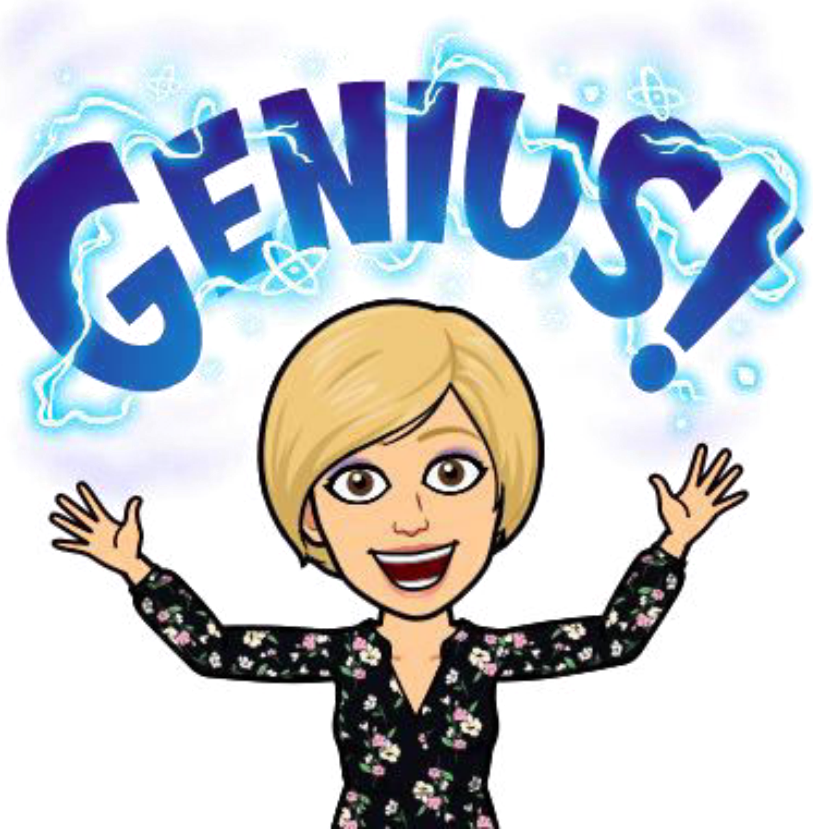
CCSS Standards: Building on	• 4.MD.C • 7.G.B.5
CCSS Standards: Addressing	• 8.G.A

Let’s make complex patterns using transformations!



Today's Goals

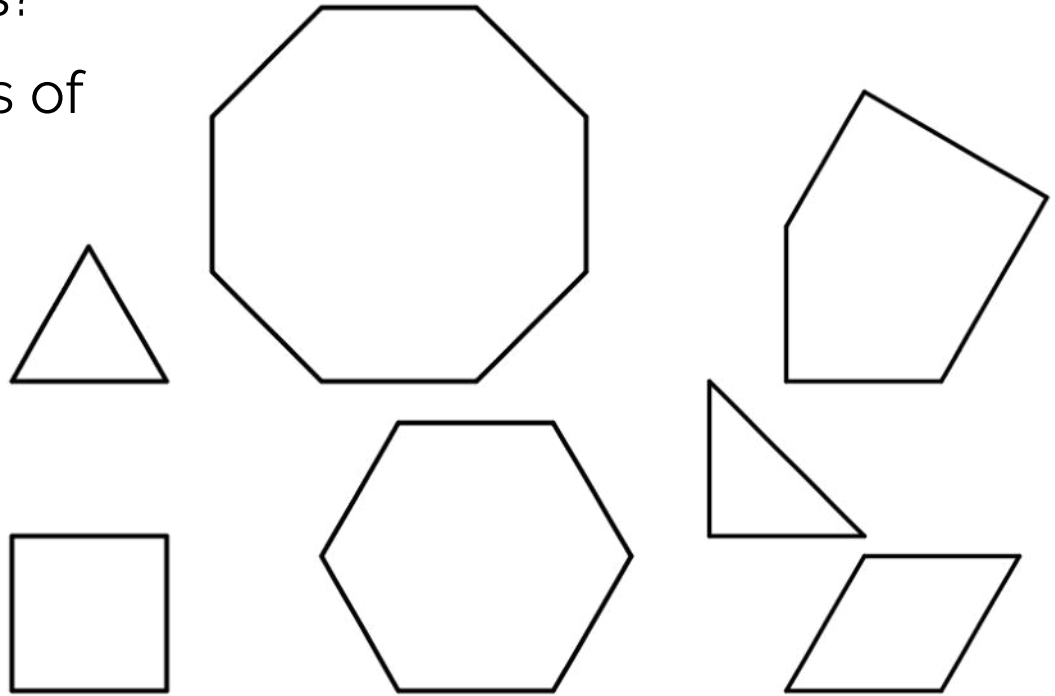
- ❑ I can use properties of angle sums to reason about how figures will fit together.
- ❑ I can repeatedly use rigid transformations to make interesting repeating patterns of figures.

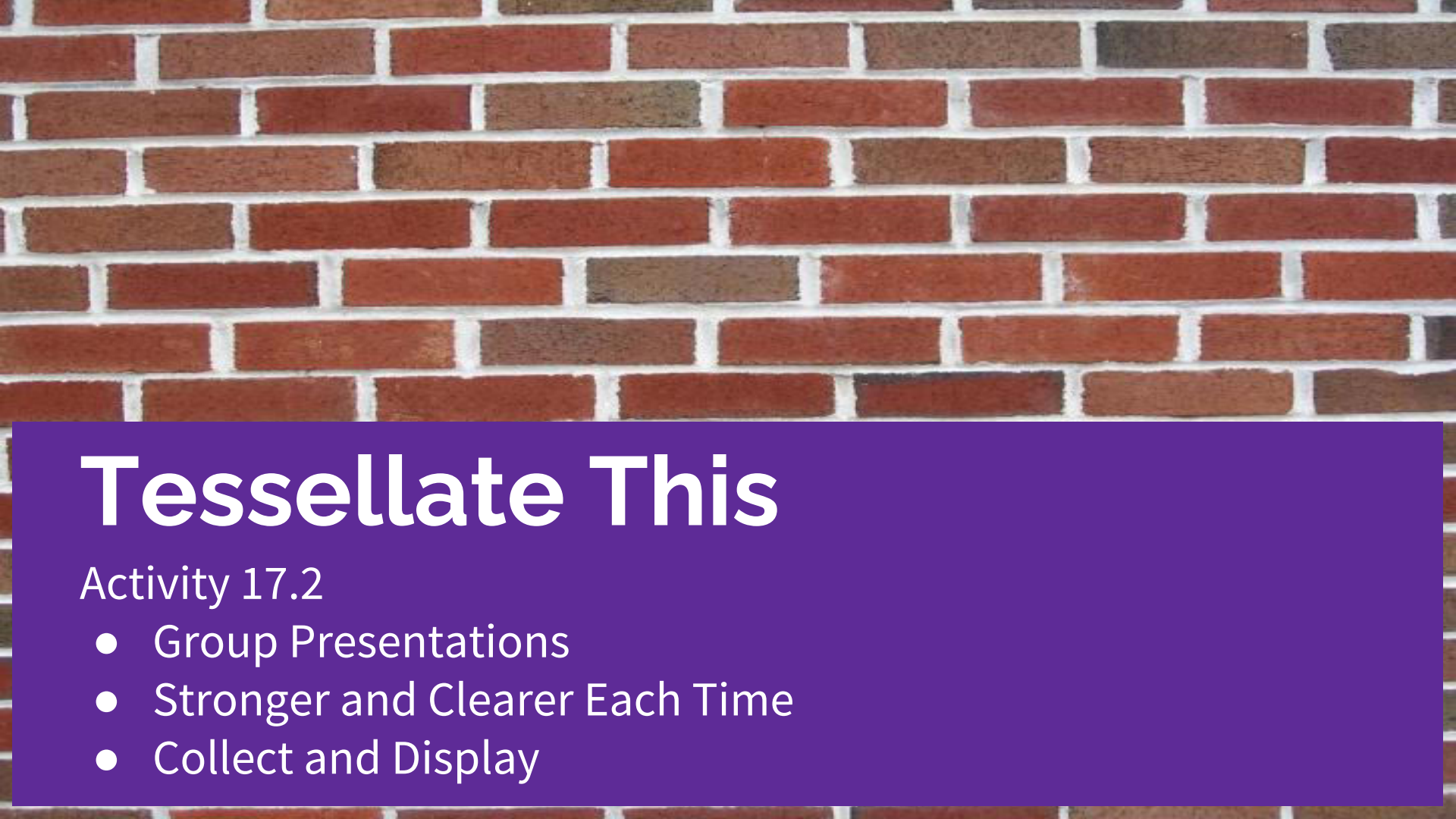


Deducing Angle Measures

Warm Up 17.1

1. How many copies of the equilateral triangle can you fit together around a single vertex, so that the triangles' edges have no gaps or overlaps? What is the measure of each angle in these triangles?
2. What are the measures of the angles in the…
    a. square?
    b. hexagon?
    c. parallelogram?
    d. right triangle?
    e. octagon?
    f. pentagon?



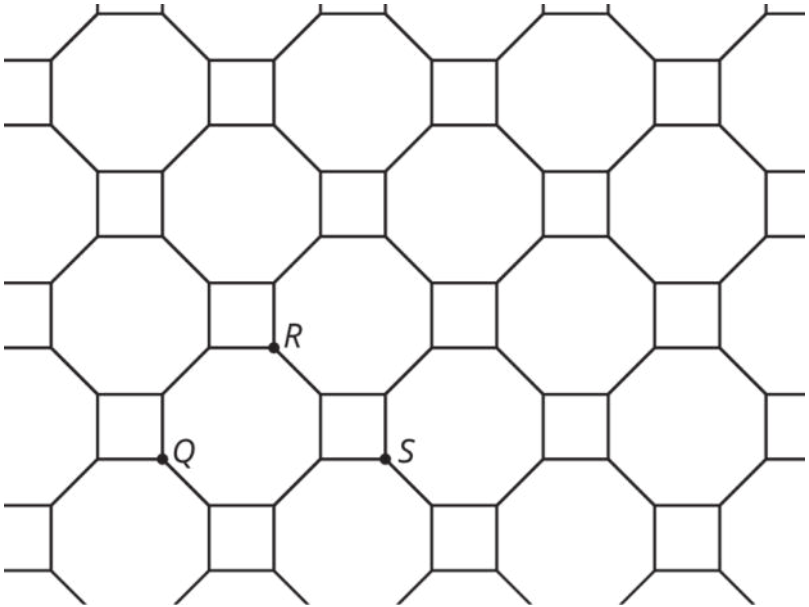


Tessellate This

Activity 17.2

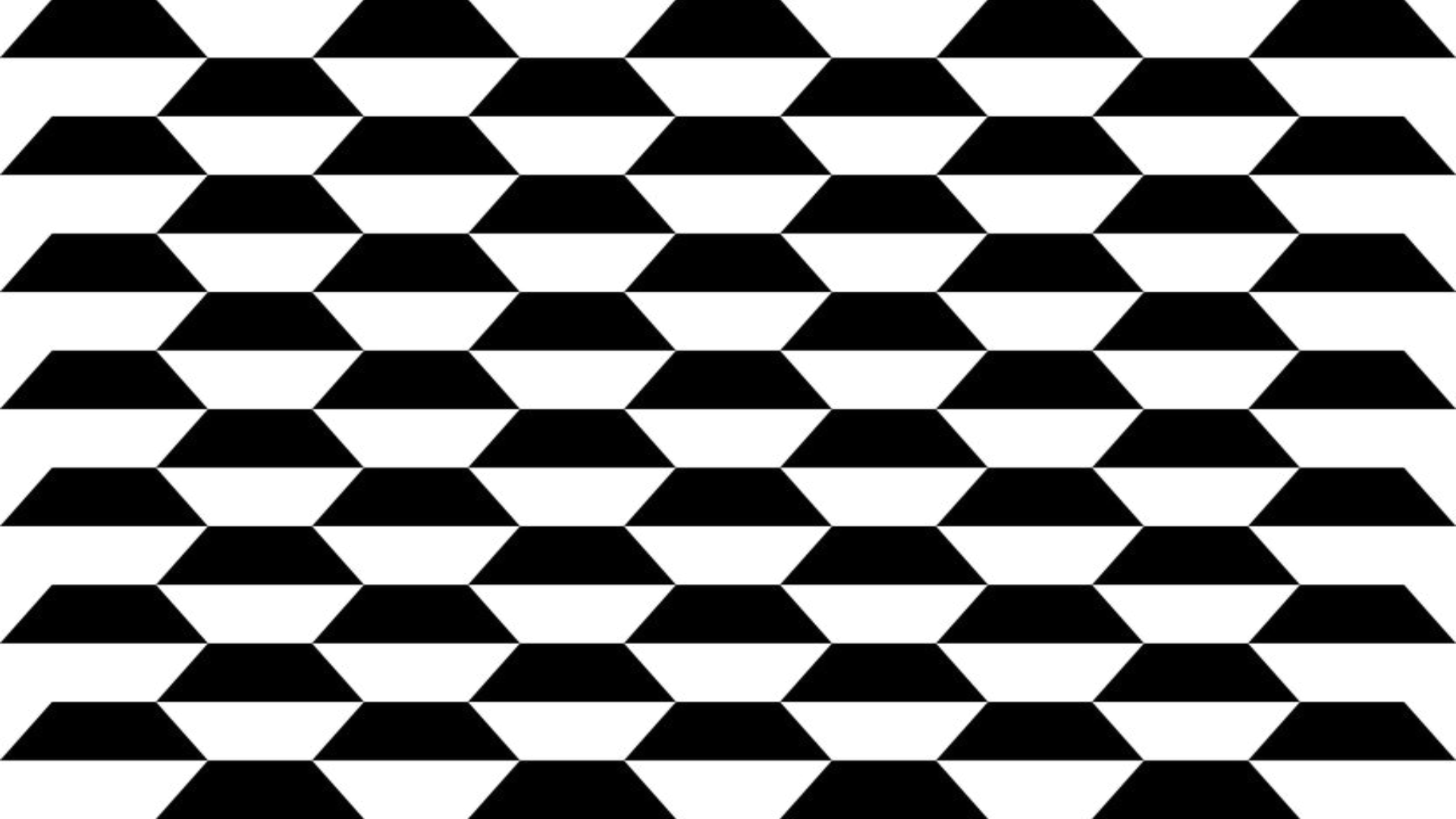
- Group Presentations
- Stronger and Clearer Each Time
- Collect and Display

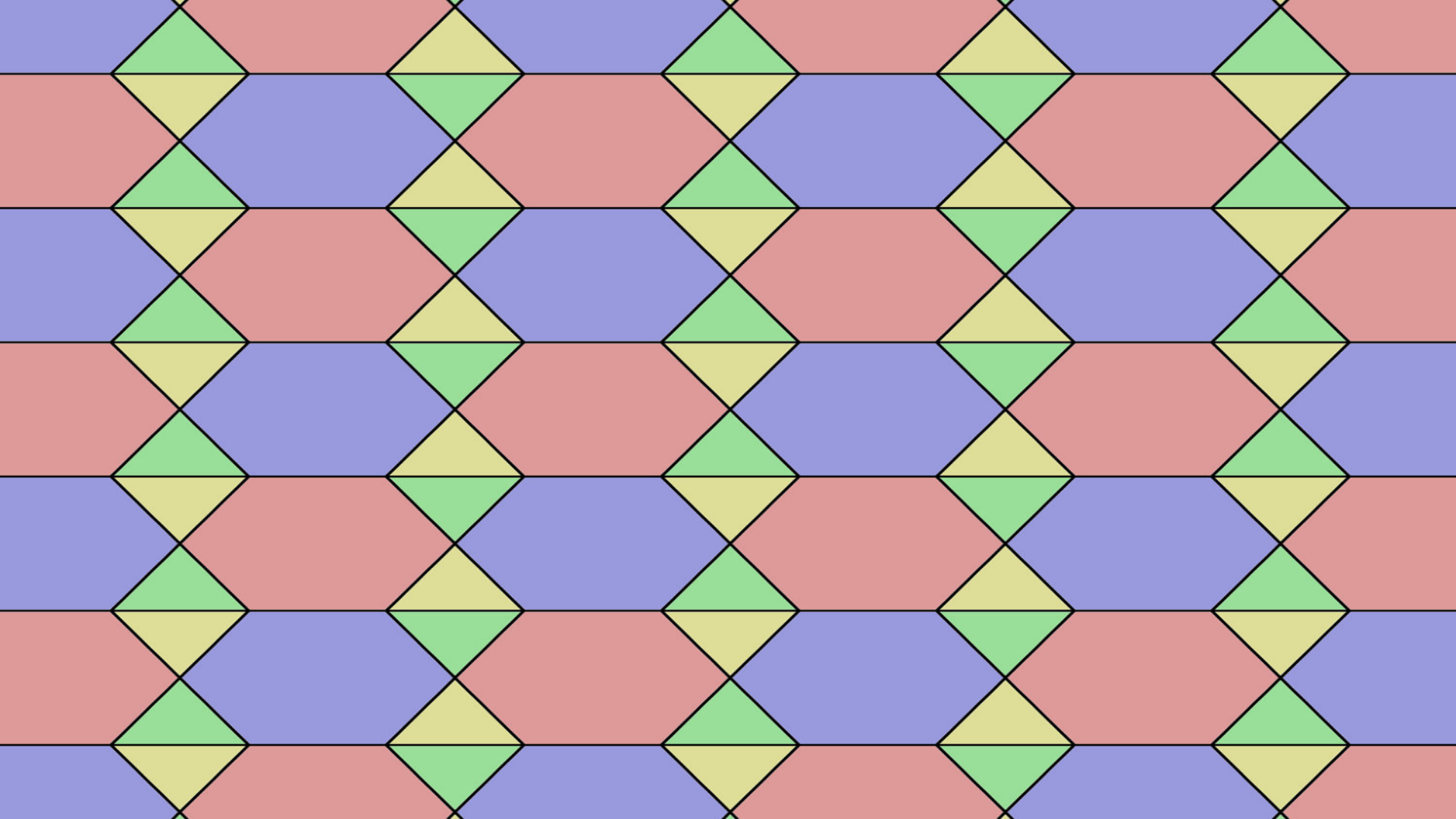
What's a **tessellation**?

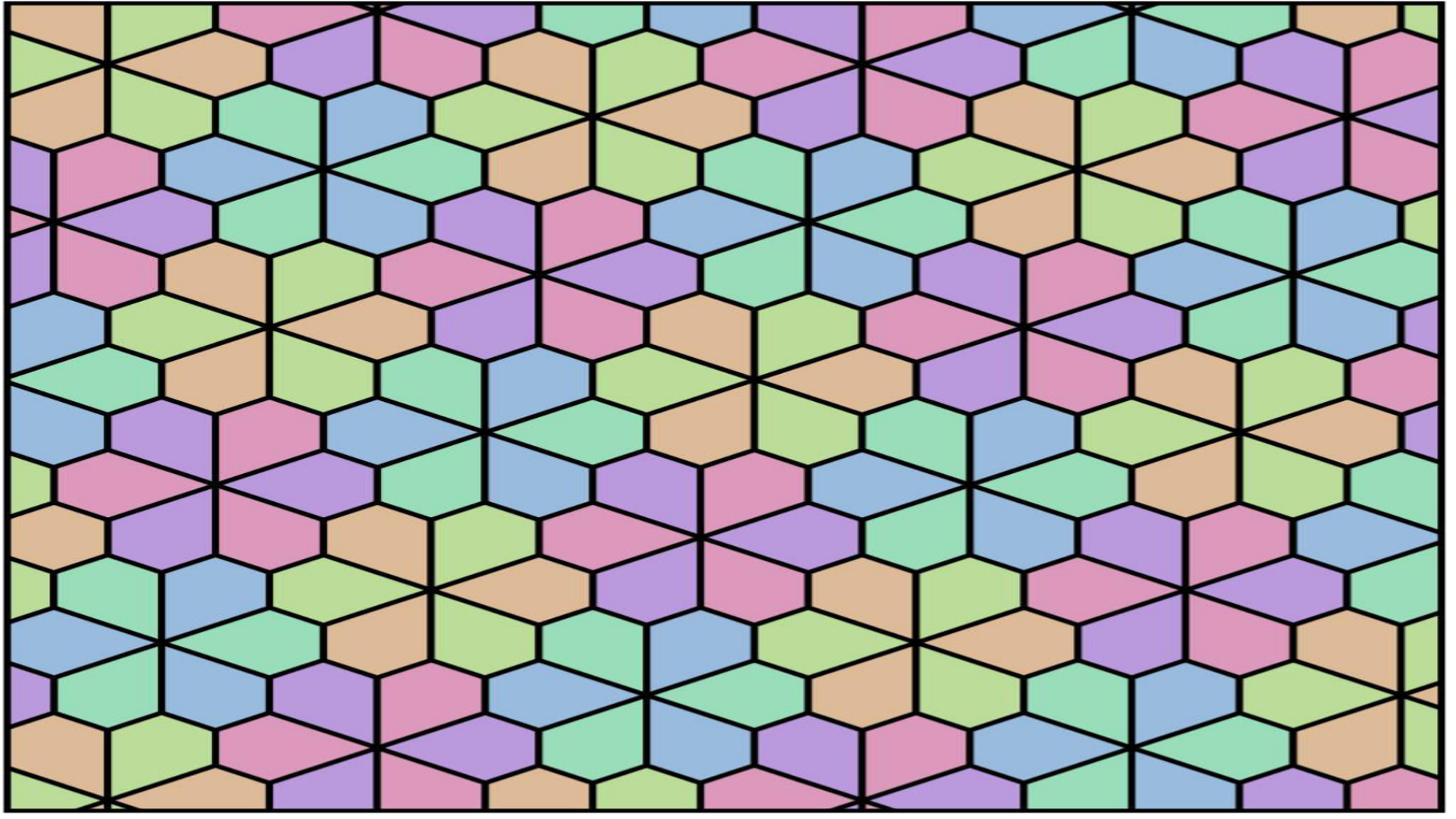


a regular repeating pattern of one or more shapes that covers the entire plane

The pattern continues forever in all directions.







1. **Design your own tessellation.** You will need to decide which shapes you want to use and make copies. Remember that a tessellation is a repeating pattern that does on forever to fill up the entire plane.
2. **Find a partner and trade pictures. Describe a transformation of your partner's picture that takes the pattern to itself.** How many different transformations can you find that take the pattern to itself? Consider translations, reflections, and rotations.
3. If there's time, **color and decorate** your tessellation.

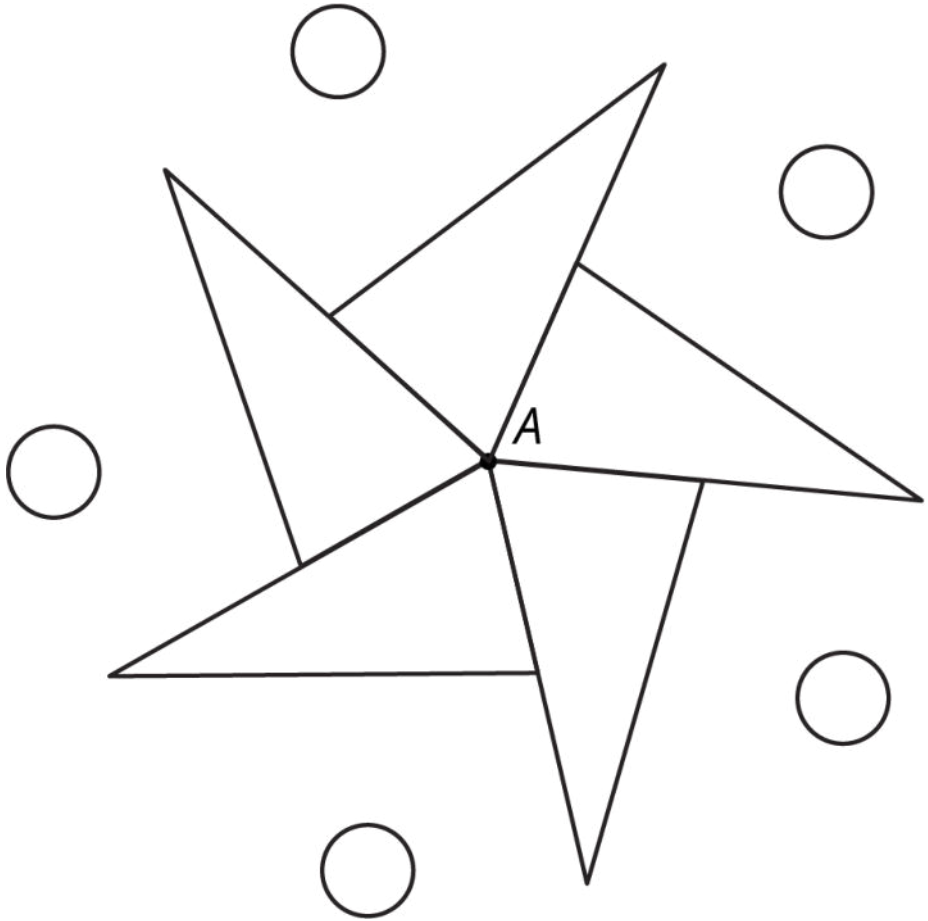
Share your designs.

Describe a transformation that takes the design to itself.

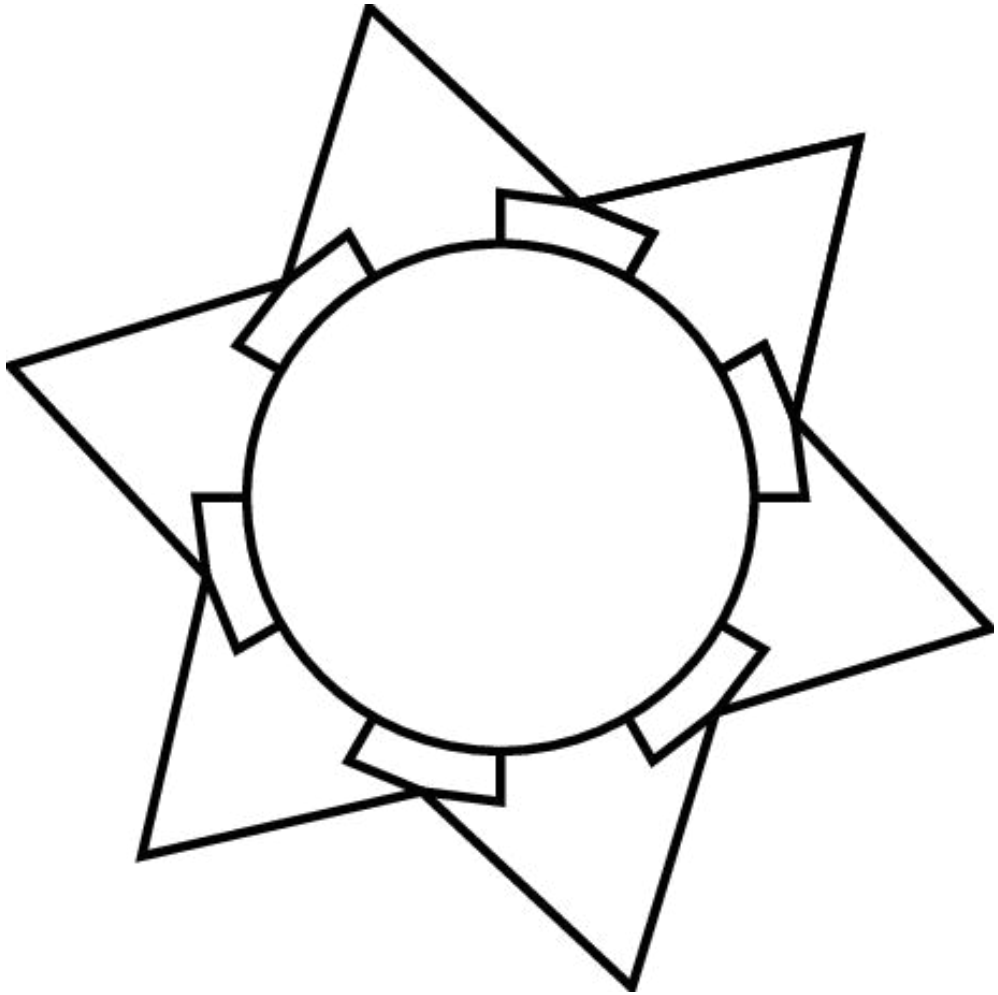
Rotate That

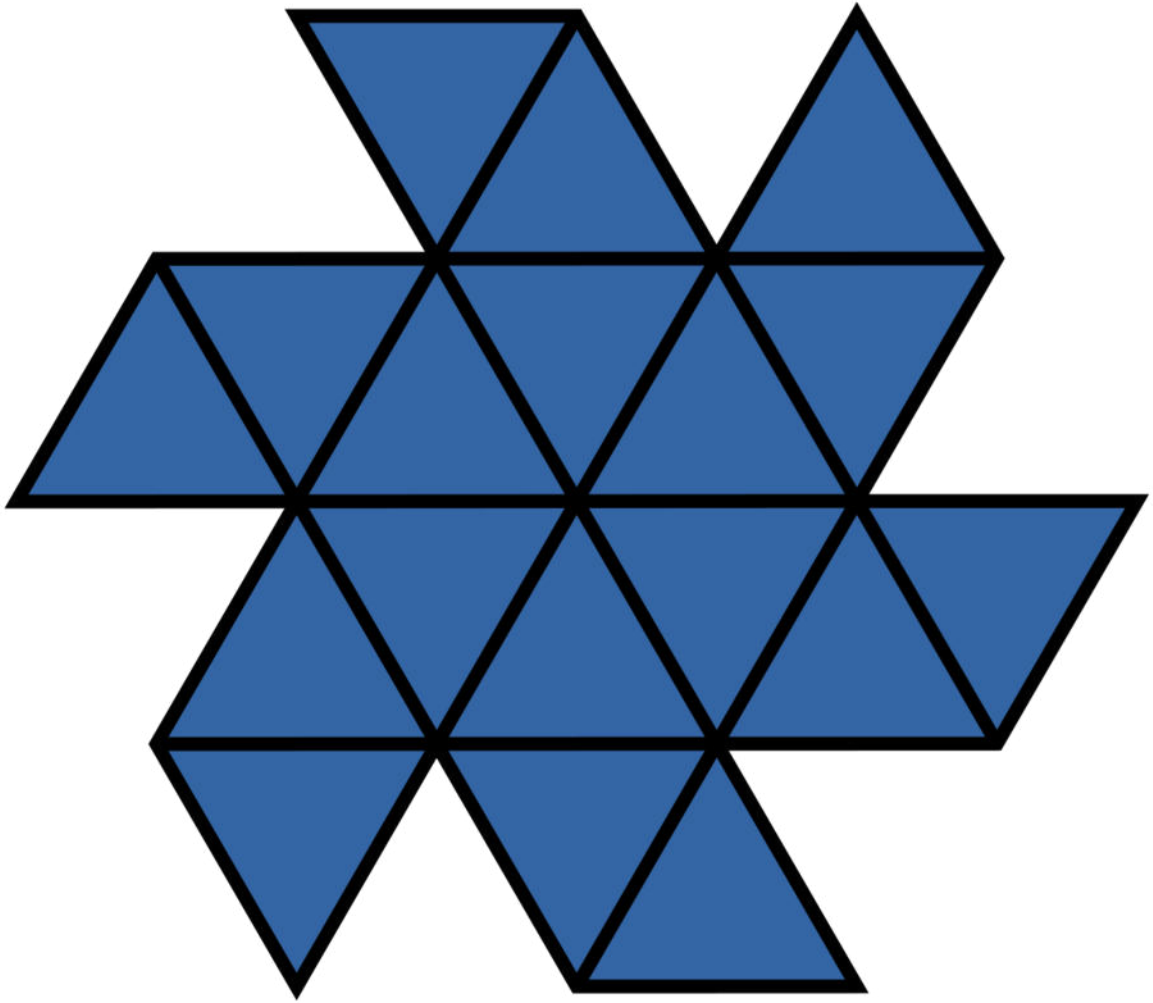
Activity 17.3

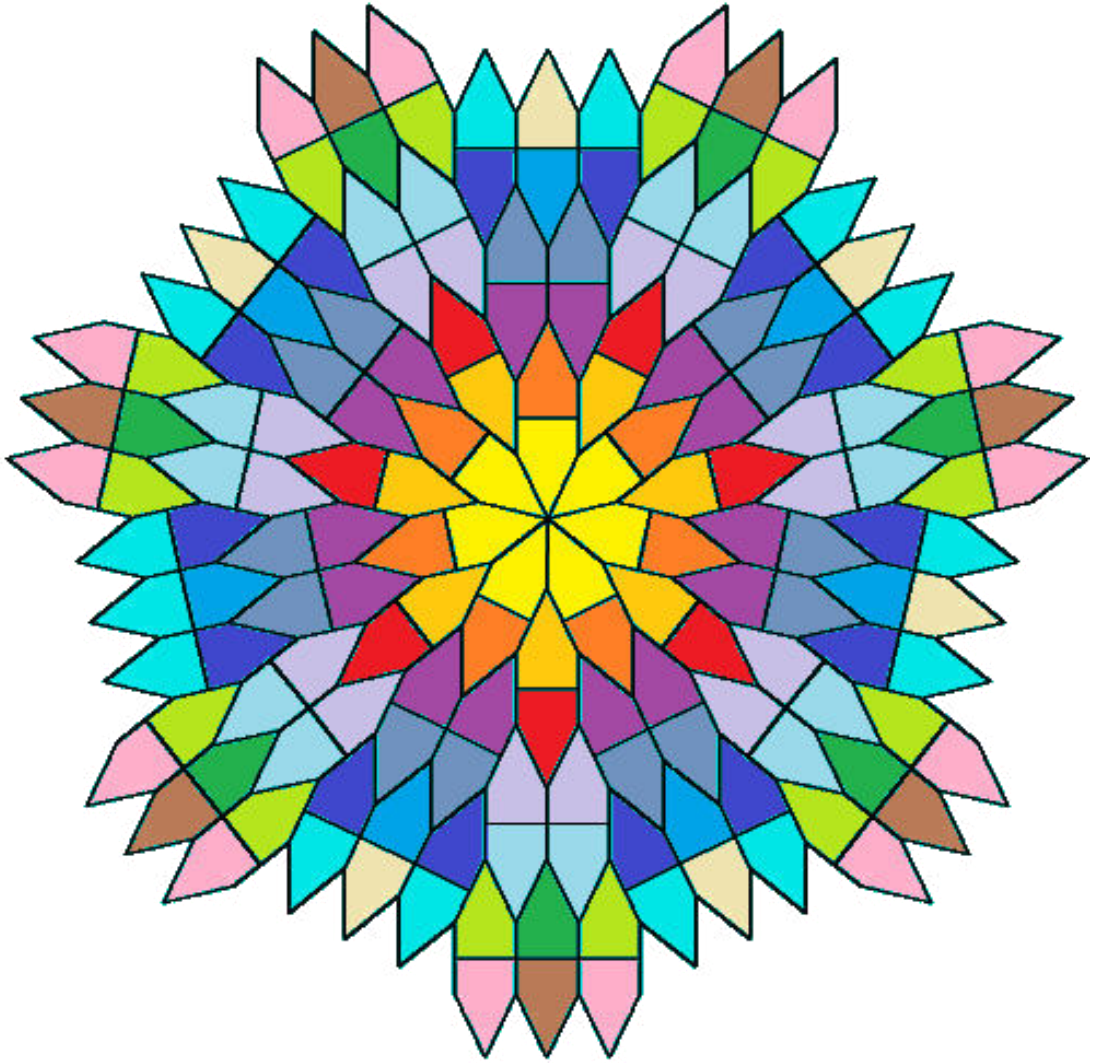
- Group Presentations
- Collect and Display

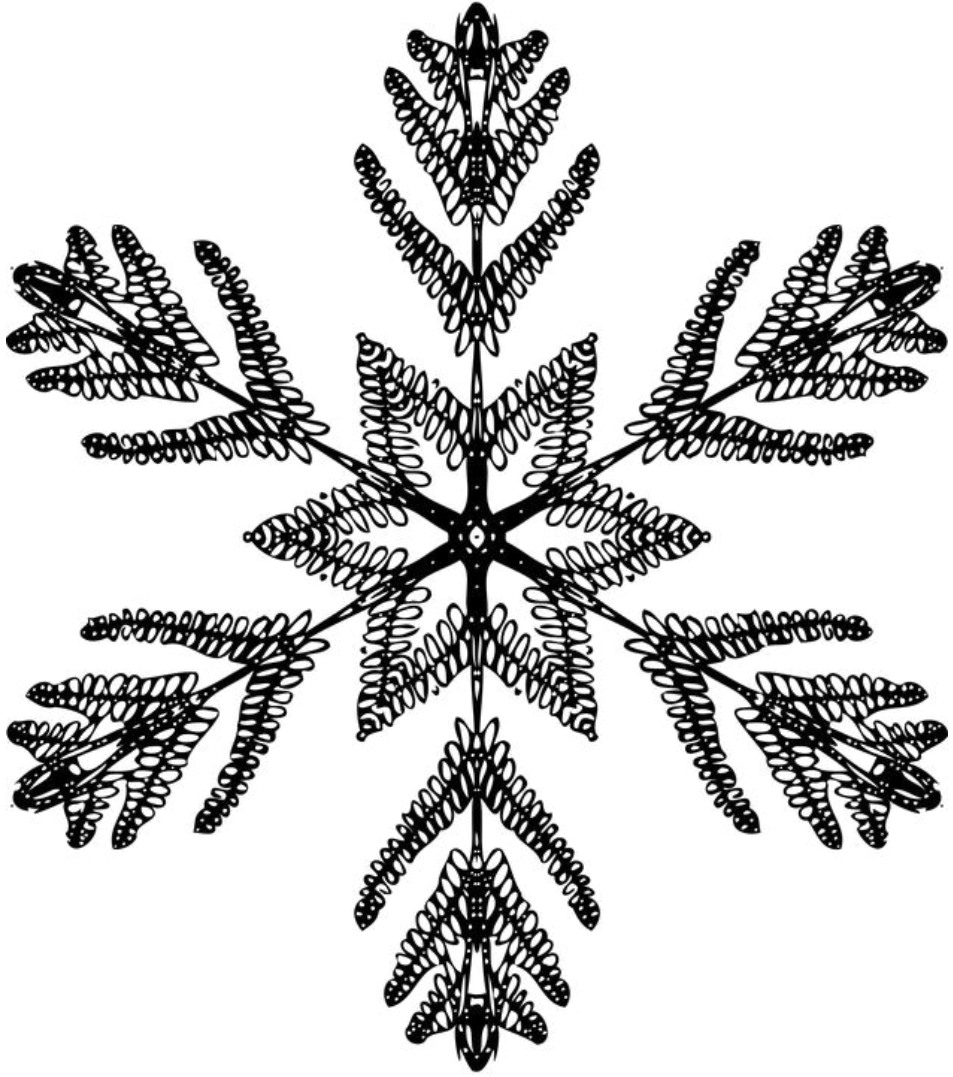


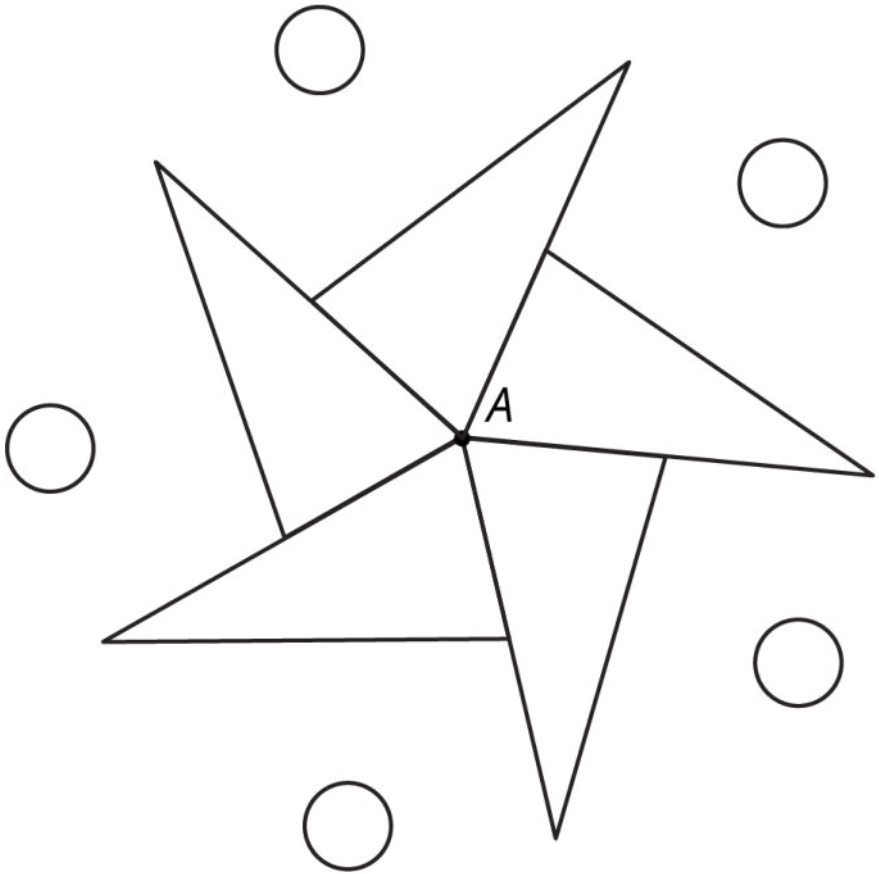
What transformation could you perform on the figure so that it matches up with its original position?











1. Make a design with rotational symmetry.
2. Find a partner who has also made a design. Exchange designs and find a transformation of your partner's design that takes it to itself. Consider rotations, reflections, and translations.
3. If there's time, color and decorate your design.

Share your designs.

Describe a transformation that takes the design to itself.

Today's Goals

- ❑ I can use properties of angle sums to reason about how figures will fit together.
- ❑ I can repeatedly use rigid transformations to make interesting repeating patterns of figures.