

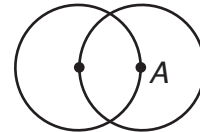
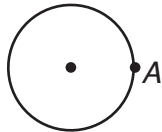
CHAPTER 11 Project
11 Elegant Eggs

Activity 1: Constructing a Circle Flower *Use after Lesson 11-2*

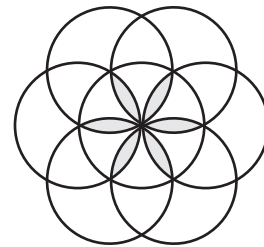
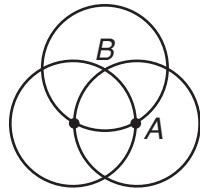
A *circle flower* is formed when several circles meet at the center of another circle, forming “petals.”

Use a compass and straightedge or geometry software for this activity.

1. Draw a circle. Then choose a point on the circle and label it A .
2. Draw another circle congruent to the first one with A as its center.



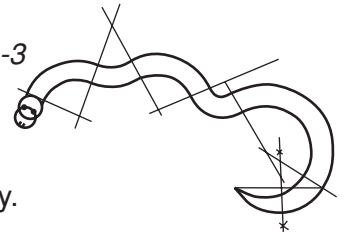
3. Choose one of the points where $\odot A$ intersects the original circle. Label it B . Use B as the center to draw another circle congruent to the first.
4. Continue in this way until you have gone all the way around the original circle.



5. Each petal is formed by two arcs. What is the measure of each arc? Why?

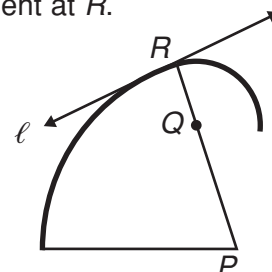
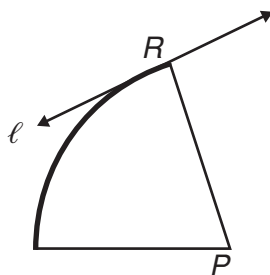
Activity 2: Constructing Smooth Curves *Use after Lesson 11-3*

The “snake” shown consists of reverse curves. The lines in the picture show how it was constructed.



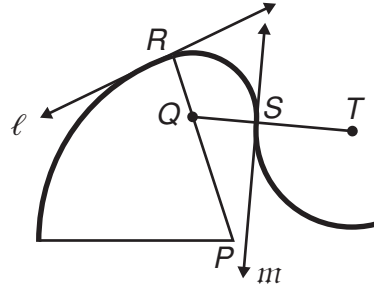
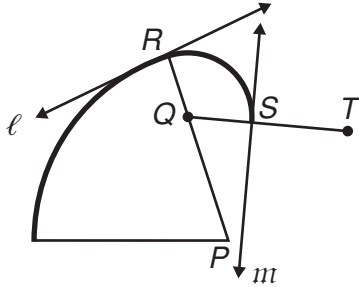
Use a compass and straightedge or geometry software for this activity.

1. Draw a sector of $\odot P$ with radius \overline{PR} . Then construct ℓ tangent to $\odot P$ at R .
2. For another circle to have the same tangent ℓ at R , its center must be on \overline{PR} . Choose another point on \overline{PR} . Label it Q . Draw a portion of $\odot Q$ with radius \overline{QR} . $\odot P$ and $\odot Q$ have the same tangent at R .



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- Use the same method to reverse the curve. Construct m tangent to $\odot Q$ at S . Extend \overline{QS} and choose a point T on \overline{QS} in the exterior of $\odot Q$.
- Draw a portion of a circle centered at T with radius \overline{TS} . $\odot T$ and $\odot Q$ have the same tangent at S .



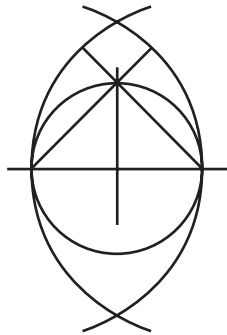
- Use this method to construct a “snake” similar to the one pictured in Activity 2.

Activity 3: Creating a Design Use after Lesson 11-4

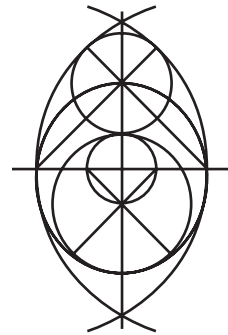
An *egg shape* can be formed by connecting an arc with a small radius at one end of the egg and an arc with a larger radius at the other end of the egg with a smooth curve.

Use a compass and straightedge or geometry software for this activity.

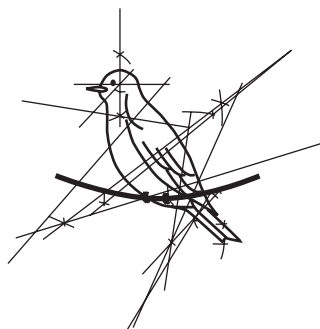
- Use the method in Activity 2 to construct the three-radius egg. (Hint: The circle forms the bottom of the egg. Work from the bottom of the egg to the top.)



- Construct the four-radius egg. (Hint: Start with a small circle and a pair of perpendicular diameters extended beyond the circle. The larger circle that forms the bottom of the egg has a radius equal to the diameter of the small circle.)



- The drawing shown includes a number of reverse curves. Construct a design of your own using the methods from Activities 1 and 2. Try to also include inscribed angles in your design.



- Share your designs with a partner. Have your partner point out any examples of tangents, chords, arcs, and inscribed angles.