M1

GEOMETRY

# Lesson 2: Construct an Equilateral Triangle II

### Classwork

## **Opening Exercise**

You will need a compass, a straightedge, and another student's homework.

#### Directions:

Follow the directions of another student's homework write-up to construct an equilateral triangle.

- What kinds of problems did you have as you followed your classmate's directions?
- Think about ways to avoid these problems. What criteria, or expectations, for writing steps in constructions should be included in a rubric for evaluating your writing? List at least three criteria below:

# **Exploratory Challenge 1**

You will need a compass and a straightedge

Using the skills you have practiced, construct **three** equilateral triangles, where the first and second triangles share a common side, and the second and third triangles share a common side. Clearly and precisely list the steps needed to accomplish this construction.

Switch your list of steps with a partner, and complete the construction according to your partner's steps. Revise your drawing and/or list of steps as needed.



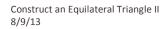


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Construct three equilateral triangles here:









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# **Exploratory Challenge 2**

On a separate piece of paper, use the skills you have developed in this lesson construct a regular hexagon. Clearly and precisely list the steps needed to accomplish this construction. Compare your results with a partner and revise your drawing and/or list of steps as needed.

Can you repeat the construction of a hexagon until the entire sheet is covered in hexagons (except the edges will be partial hexagons)?



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# **Problem Set**

Why are <i>circles</i> so important to these constructions? Write out a concise explanation of the importance of circles in creating equilateral triangles. Why did Euclid use <i>circles</i> to create his equilateral triangles in Proposition 1? How does construction of a circle ensure that all relevant segments will be of equal length?



Lesson 2:

Date: