

## MOSAICS MEASURE UP

### Learning about Area and Perimeter



**Recommended for Grades 6-8**

*At Philadelphia's Magic Gardens the mosaic walls have many different types of tiles with various geometric properties. In this lesson, students will explore those properties by calculating the area and perimeter of individual tiles and the complete mural that the tiles create.*

#### Learning Objectives

- Students will identify various polygons within Isaiah Zagar mosaics
- Students will determine area and perimeter of a given object

#### Materials

- Large scale pictures of Isaiah Zagar mosaics or visit PMG to use the real mosaics
- Rulers
- Calculator

#### Discussion Questions

- What makes working on a large scale difficult? How does the grid method make it easier?
- Which shapes were the most useful for mosaicing? Which shapes were the least useful and why?

- Which colors contrast and stand out the most in the piece? Which blend the most or look the same?
- How many shapes were you able to get out of one sheet of paper?
- If you were going to make a permanent large-scale mural, what would it look like?

### Key Vocabulary

**Area** the amount of square units within a space

**Perimeter** the distance around a figure

**Polygon** a closed 2-dimensional figure

### Activity

1. Begin the lesson with a review of pertinent vocabulary.
2. Divide students into pairs or groups.
3. Instruct the groups that they will be exploring concepts of geometry utilizing Isaiah Zagar's mosaics.
4. Each pair/group will receive 3 large scale pictures of Isaiah Zagar's mosaics (or use the real mosaic on a visit to Philadelphia's Magic Gardens) and will do the following:
5. Identify the various types of polygon tiles in the mosaic
6. Determine the area and perimeter of one tile
7. Determine the area and perimeter of the entire mosaic
8. Once the students have completed the procedure for all three mosaics, the pairs/ groups will share with the class their findings. This will serve as evaluation of the student's understanding.

### Adaptations

The instructions can be modified to fit the level of understanding of the students. For younger students, identification of shapes can be the main focus of the lesson.

### PA Core Academic Standards

CC.2.3.4.A.2., CC.2.4.3.A.6, CC.2.4.4.A.1., CC.2.3.6., CC.2.3.7.A.1