

Perimeter All Around



Strand B: Measurement

Benchmark MA.B.3.2.1: The student solves real-world problems involving estimates of measurements, including length, time, weight, temperature, money, perimeter, area, and volume.

Grade Level Expectations: The student:

- estimates the area and perimeter of regular and irregular polygons.

Overview:

This activity emphasizes finding the perimeter of polygons. A **plane** is a two-dimensional surface that is perfectly flat and infinitely large. Plane figures come in a variety of shapes and sizes, but they can be grouped according to the number, size, and position of their sides and angles. Plane figures can be measured and moved, bent, patterned, and scaled up or down. A **polygon** is a plane figure because it lies in a single plane. A **polygon** is a closed figure whose sides are all line segments.

Materials:

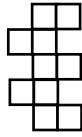
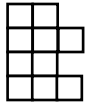
- Color Squares
- Overhead Color Squares
- Grid Paper
- Grid Transparency
- *Perimeter Chart* Worksheet

Procedures:

1. Distribute the color squares and *Perimeter Chart* worksheet to the students.
2. Place the *Grid* transparency on the overhead projector.
3. Ask students to take out ten tiles and form an arrangement with a perimeter of 14. (

)
4. Have a volunteer shade their arrangement in on the grid transparency. Then ask the class to use the same tiles, but change the arrangement to reflect a perimeter of 16 and 22.

Possible arrangements include:



5. Direct the students to use 12 tiles, make different perimeters, and share the results with their class on the overhead grid.
6. Direct students to the perimeter chart given to them. Have the students sketch in the given area and determine the perimeter for each grid.
7. Then ask students to choose the arrangement that would best suit a given situation. (For example, ask them to look at the arrangements made with three tiles and pick the least expensive one to enclose or the one that would provide the biggest play area for pets.)

Literature Connection: *Spaghetti and Meatballs for All* by Marilyn Burns (ISBN: 0-590-94459-2); *Chickens on the Move* by Pam Pollack and Meg Belviso (ISBN: 1-57565-113-0)

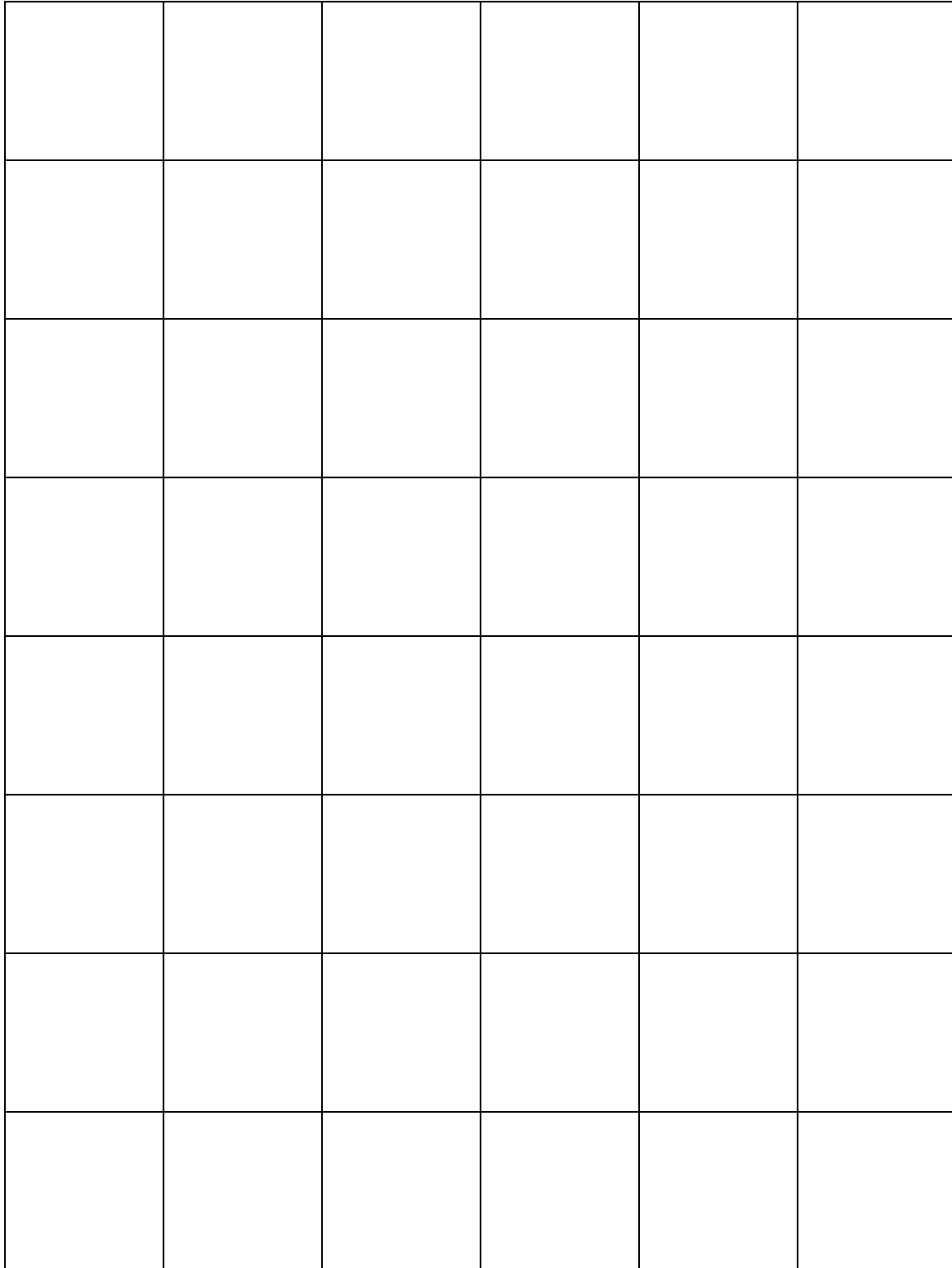
Assessment:

- Have the students complete the *Perimeter Chart* worksheet. Answers will vary.

Extension:

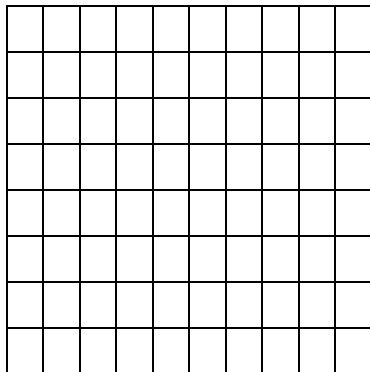
- Have students work in pairs. One student creates an arrangement. The other student determines the area and perimeter of that figure and then creates a different arrangement using the same area but a different perimeter.

Grid

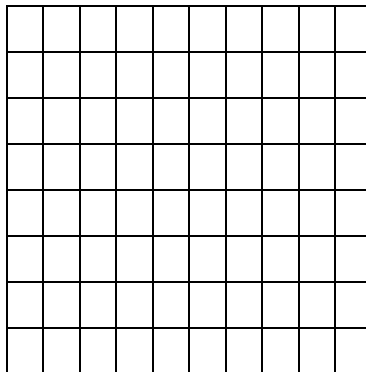


Perimeter Chart

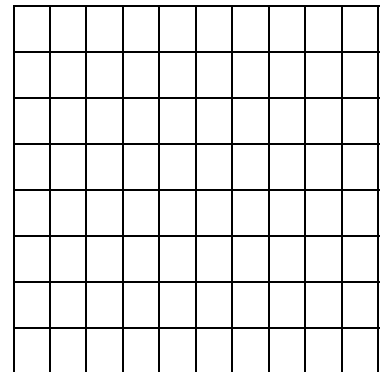
Directions: Area and perimeter are recorded for each box. Shade the given arrangement in the boxes below. (Manipulate color tiles prior to shading in the paper).



Area: 10
Perimeter: 14

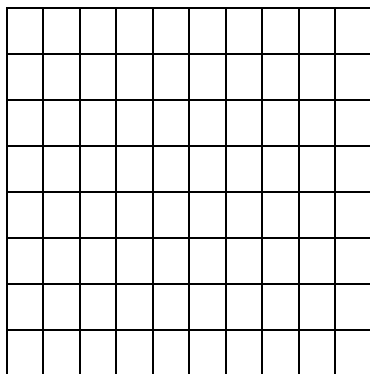


Area: 10
Perimeter: 16

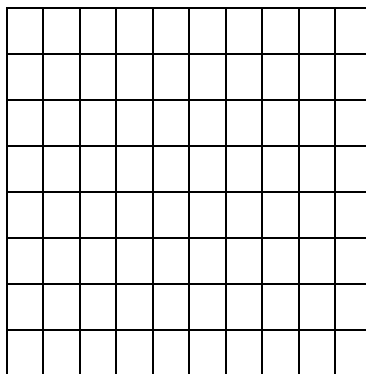


Area: 10
Perimeter: 22

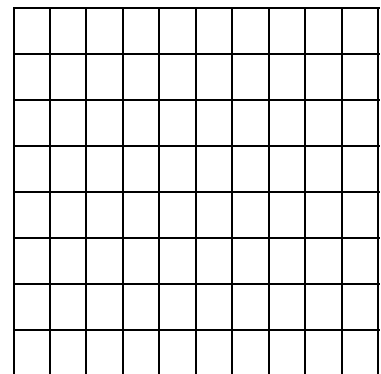
The arrangement with an area of _____ and a perimeter of _____ would best be suited for _____.



Area: 12
Perimeter: 14



Area: 12
Perimeter: 16



Area: 12
Perimeter: 26

The arrangement with an area of _____ and a perimeter of _____ would best be suited for _____.