Grade: 4 **Topic: Area and Perimeter with Missing Side Lengths**

Key Vocabulary:

Area: the total space taken up by a flat (2-D) surface.

Perimeter: the total distance around a 2-D shape.

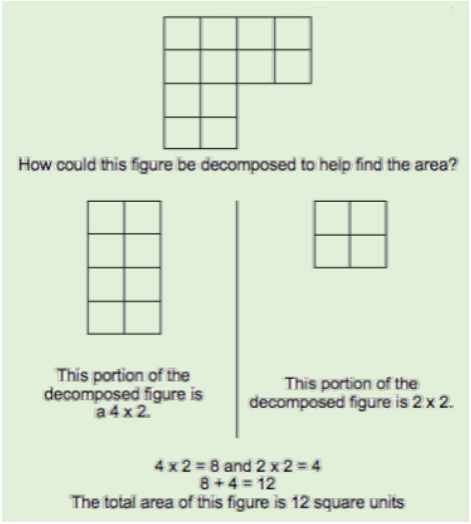
Dimension: the length, width, or height of a figure.

Square unit: a square with sides that measures one unit, used to measure area.

Key Ideas:

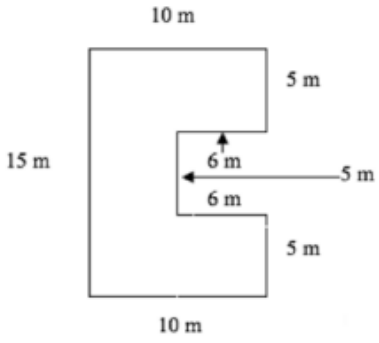
In this standard, students will apply their previous understanding of perimeter and area to problem situations. Students will be able to determine the **area** of a rectilinear figure. *A rectilinear figure is a polygon that has all right angles.* Recognizing that area is additive, students will be able to break apart the figure into smaller rectangles, determine the area of the rectangles, and use the areas of the rectangles to determine the area of the rectilinear figure.

Students will solve problems that involve exploration of the relationship between perimeter and area in a rectangle. When given an area, students will be able to determine all of the possible **dimensions** of the rectangle. When given a **perimeter**, students will be able to determine all possible areas. Students learn to apply these understandings and formulas to real-world and mathematical problems. *Note that "apply the formula" does not mean write down a memorized formula and put in known values. In fourth grade, working with perimeter and area of rectangles is still based in models and strategies.*



Sample Problems:

A storage shed is pictured below. What is the area of the shed?



At Miguel's apartment complex they are building a rectangular outdoor eating space with a perimeter of 32 meters. Side lengths will be whole numbers and each dimension is less than 13 meters. What are the possible areas? Which dimensions have the most space for people to eat?

You want to build a fence for a new dog that has an area of 12 square meters. What are the possible dimensions? Which dimensions require the least amount of fencing?