G3-M7-Lesson 26

Each student in Mrs. William's class draws a rectangle with whole number side lengths and a perimeter of 32 centimeters. Then, they find the area of each rectangle and create the table below.

Area in Square Centimeters	Number of Students
15	1
28	2
39	2
48	3
55	4
60	6
63	2
64	2

I know there can be many different areas for rectangles with the same perimeter.

a. What does this chart tell you about the relationship between area and perimeter?

The chart shows 8 different areas for rectangles with the same perimeter. So, I know that area and perimeter are 2 separate things. There's no connection between them.

b. Did any students in Mrs. William's class draw a square? Explain how you know.

Yes, 2 students drew a square. I know because I found all the possible side lengths of rectangles with a perimeter of 32 cm, and one rectangle has all equal side lengths of 8 cm. A square with side lengths of 8 cm has an area of 64 sq cm. On the chart, it shows that 2 students drew a rectangle with an area of 64 square centimeters.

Perimeter is double the sum of the width and length of a rectangle. To find the side lengths of a rectangle with a perimeter of 32, I'll start by dividing the perimeter by 2 to get 16. Then, I can find pairs of numbers that add up to 16. Those are the possible side lengths.

c. What are the side lengths of the rectangle that most students in Mrs. William's class made?

I see that most students drew a rectangle with an area of 60 square centimeters. The side lengths of this rectangle are 6 cm and 10 cm.