

PERIMETER AND AREA

MINI-LESSON

For the Perimeter and Area key concept



Summary

Students use rectangles to explore the connection between area and perimeter.



Suitable for 2-6 students



Length 30 min (approximately)



Lesson Preparation

- **Matchsticks** – approximately 40 per student
- **Investigation sheet** ([download](#)) – one for each student

LEARNING INTENTIONS

This activity helps students to:

- How to calculate perimeter and area of a rectangle
- That the perimeter and area of a rectangle are independent (i.e. the area of a rectangle can decrease as the perimeter increases/stays the same)

CURRICULUM LINKS

- Comparing areas and volumes (ACMMG290)
- Rectangle perimeter, area by counting and area by multiplication (ACMMG109)
- Worded problems and area (ACMMG137)

AFTER THE LESSON

In later lessons, follow up with related activities about area and perimeter of shapes, such as for:

- composite shapes made of rectangles.
- triangles and parallelograms.
- trapeziums, rhombuses and kites.
- estimating perimeter and area of actual rectangles [*e.g. school basketball court, block of land on google maps*].

INTRODUCTION**5 MINUTES**

Using matchsticks, create a 6×2 rectangle:



Explain that **area** is the amount of space inside the shape. Ask students to calculate area for the 6×2 rectangle (by calculating 6×2 or counting the number of squares inside the rectangle).

Explain that **perimeter** is the number of matches around the outside. Ask students to calculate perimeter for the 6×2 rectangle.

Whole group:
Listen, calculate area and perimeter.
Write example on handout.

DIRECT STUDENTS**8 MINUTES**

Direct students: Ask students to:

1. create other rectangles with the same area using matchsticks. [Note, there are two: 3×4 and 12×1].
2. find the perimeter of each [14 and 26].
3. write up their findings on the *Investigation sheet*.

Deepen understanding: Ask students:

- What are different ways to find the perimeter?
[e.g. $L + W + L + W$ or $2L + 2W$ or add L and W and double it or $2(L + W)$]
- If the area of different rectangles is the same, will the perimeters be the same?

Individually / In pairs: Find rectangles with the same area as above (12 units^2). Write up findings on handout.

DIRECT STUDENTS**10 MINUTES**

Direct students: The 6×2 rectangle has a perimeter of 16. Ask students to:

1. create other rectangles with the same perimeter using matchsticks. Remind students that a square is also a rectangle, as it has four right angles. [Note, there are three rectangles: 7×1 , 5×3 and 4×4].
2. find the area of each rectangle found [7, 15 and 16].
3. write up their findings on the *Investigation sheet*.

Deepen understanding: Ask students: If the perimeter of different rectangles is the same, will the areas be the same?

Individually / In pairs: Find rectangles with the same perimeter (16 units). Write up findings on handout.

DIRECT STUDENTS**8 MINUTES**

Ask students to:

- create other rectangles with a smaller area and larger perimeter than the 6×2 rectangle [e.g. 9×1].
- find area and perimeter of each rectangle found [9 units^2 & 20 units].
- write up their findings on the *Investigation sheet*.

Deepen understanding: Ask students about the rectangles found, e.g.:

- What do you notice about the rectangle with the larger area? How is it different from the other rectangle?

Individually / In pairs: Find rectangles with smaller area and larger perimeter than 6×2 rectangle. Write up findings on handout.

CONCLUSION**2 MINUTES**

It is easy to mix up area and perimeter. Sometimes both get larger together, but not always! Ask students what they can conclude: What's something important that has helped you to understand area and perimeter? Students share ideas and write on their sheet.

Individually:
Write & share important idea about area & perimeter.