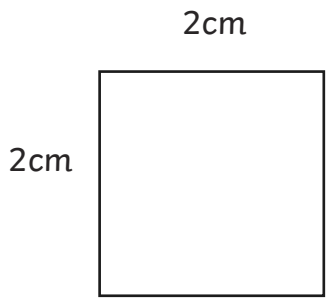
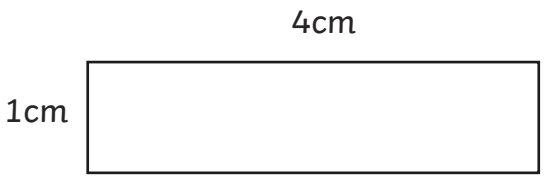
# Investigating Perimeter and Area 3

Recognise that shapes with the same areas can have different perimeters and vice versa.

Using only sides of whole centimetres there are 2 rectangles with an area of $4cm^2$.




What is the perimeter of each rectangle?

Shape 1: Perimeter: _____ cm

Shape 2: Perimeter: _____ cm

What about rectangles with an area of $16cm^2$?

You do not need to draw the rectangles to scale. Simply write the lengths of the sides.

| Shape | Area | Perimeter |
|---|---|---|
| | | |
| | | |
| | | |

What do you notice?

# Investigating Perimeter and Area 3

A farmer wants a rectangular pen with an area of $36m^2$ for some chickens. What would be the best shape for the pen, which uses the least amount of fence? Show the answer by drawing all the pens with sides of whole metres.

| Shape | Area | Perimeter |
|---|---|---|
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

What do you notice?

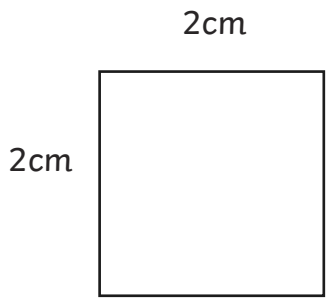
**Challenge**

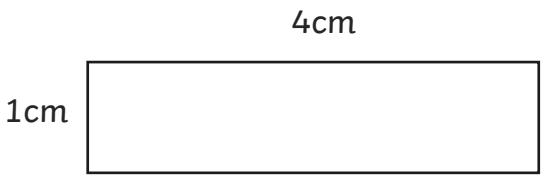
Try other areas. Think about which areas will give a number of rectangles with lengths of whole centimetres.

# Perimeter and Area 3 **Answers**

Recognise that shapes with the same areas can have different perimeters and vice versa.

Using only sides of whole centimetres there are 2 rectangles with an area of $4cm^2$.




What is the perimeter of each rectangle?

Shape 1: Perimeter: **8** cm

Shape 2: Perimeter: **10** cm

What about rectangles with an area of $16cm^2$?

You do not need to draw the rectangles to scale. Simply write the lengths of the sides.

**Rectangles of the following sizes:**

| **Shape 1** | **Shape 2** | **Shape 3** |
|---|---|---|
| **4cm x 4cm** | **2cm x 8cm** | **1cm x 16cm** |

| Shape | Area | Perimeter |
|---|---|---|
| **1** | **$16cm^2$** | **16cm** |
| **2** | **$16cm^2$** | **20cm** |
| **3** | **$16cm^2$** | **34cm** |

What do you notice?

**All of the shapes have the same area, but the perimeters are different.**

# Perimeter and Area 3 **Answers**

A farmer wants a rectangular pen with an area of $36m^2$ for some chickens. What would be the best shape for the pen, which uses the least amount of fence? Show the answer by drawing all the pens with sides of whole metres.

**Rectangles of the following sizes:**

| Shape 1 | Shape 2 | Shape 3 |
|---|---|---|
| **4cm x 4cm** | **2cm x 8cm** | **1cm x 16cm** |
| Shape 4 | Shape 5 | |
| **2m x 18m** | **1m x 36m** | |

| Shape | Area | Perimeter |
|---|---|---|
| **1** | **$36m^2$** | **24m** |
| **2** | **$36m^2$** | **26m** |
| **3** | **$36m^2$** | **30m** |
| **4** | **$36m^2$** | **40m** |
| **5** | **$36m^2$** | **74m** |
| | | |

What do you notice?

**All of the shapes have the same area, but the perimeters are different.**

## Challenge

Try other areas. Think about which areas will give a number of rectangles with lengths of whole centimetres.