Discussion Problems
Step 8: Calculate Perimeter

National Curriculum Objectives:

Mathematics Year 3: (3M7) Measure the perimeter of simple 2-D shapes

About this resource:

This resource has been designed for pupils who understand the concepts within this step. It provides pupils with more opportunities to enhance their reasoning and problem solving skills through more challenging problems. Pupils can work in pairs or small groups to discuss with each other about how best to tackle the problem, as there is often more than one answer or more than one way to work through the problem.

There may be various answers for each problem. Where this is the case, we have provided one example answer to guide discussion.

We recommend self or peer marking using the answer page provided to promote discussion and self-correction.

More Year 3 Length and Perimeter resources.

Did you like this resource? Don't forget to review it on our website.

Calculate Perimeter

1. Anya, Leo and Sunil are describing and comparing the irregular shapes they have drawn.

Anya

My shape has no more than 7 sides. All of its sides have an even length.

Leo

My shape has more sides than Anya's shape but a smaller perimeter. The difference between the longest and shortest length is 30mm.

Sunil

My shape also has more sides than Anya's shape. Its total perimeter is a multiple of ten. My shape has three pairs of equal sides.

Use the clues above to calculate the possible lengths and perimeters of their shapes.
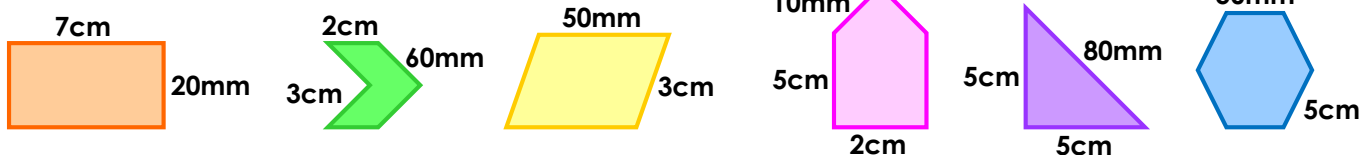
DP

2. Choose and complete four headings to sort the regular and irregular shapes below into the Carroll diagram.

Not drawn to scale.

Has less than ____ sides in total

Has a perimeter that is a multiple of 4

Has a perimeter that is a multiple of ____

Has a perimeter which is _____ than 21cm

Has a perimeter with an odd digit sum
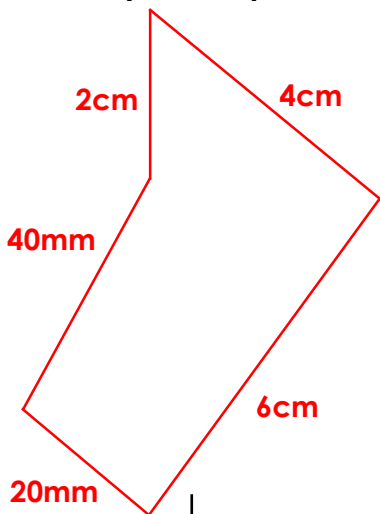
Has an even number of sides altogether

7cm / 20mm

2cm / 3cm / 60mm

50mm / 3cm

10mm / 5cm / 2cm

5cm / 80mm / 5cm

50mm / 5cm

DP

Calculate Perimeter

1. Anya, Leo and Sunil are describing and comparing the irregular shapes they have drawn.

Not drawn to scale.

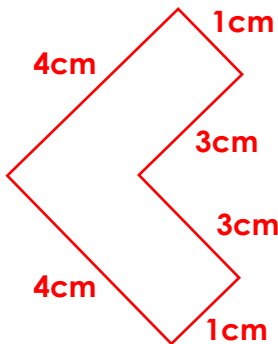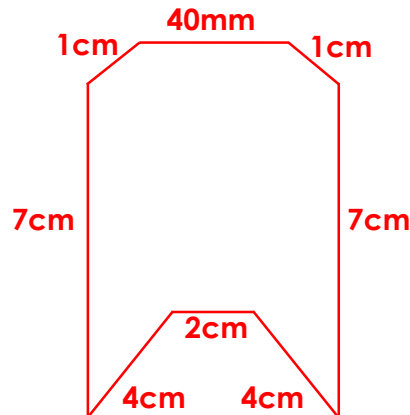**Anya's shape:**

2cm, 4cm, 40mm, 6cm, 20mm

Leo's shape:

1cm, 4cm, 3cm, 3cm, 4cm, 1cm

Sunil's shape:

40mm, 1cm, 1cm, 7cm, 7cm, 2cm, 4cm, 4cm

2cm + 4cm + 6cm + 2cm + 4cm = 18cm

4cm + 4cm + 1cm + 3cm + 3cm + 1cm = 16cm

7cm + 1cm + 4cm + 1cm + 7cm + 4cm + 2cm + 4cm = 30cm

Use the clues above to calculate the possible lengths and perimeters of their shapes.

Various answers. In the example above, Anya's shape has a perimeter of 18cm, Leo's shape's perimeter is 16cm and the perimeter of Sunil's shape is 30cm.

DP

2. Choose and complete four headings to sort the regular and irregular shapes below into the Carroll diagram.

Not drawn to scale.

Has less than **6** sides in total

Has a perimeter which is **greater** than 21cm

Has a perimeter that is a multiple of 4

Has a perimeter that is a multiple of **3**

Has a perimeter with an odd digit sum

Has an even number of sides altogether

	Has less than 6 sides in total	Has a perimeter which is greater than 21cm
Has a perimeter that is a multiple of 4	10mm, 5cm, 2cm (pink house); 50mm, 3cm (yellow parallelogram)	3cm, 70mm, 4cm (green arrow)
Has a perimeter that is a multiple of 3	7cm, 20mm (orange rectangle); 80mm, 5cm, 5cm (purple triangle)	50mm, 5cm (blue hexagon)

7cm, 20mm (orange rectangle)

2cm, 3cm, 60mm (green arrow)

50mm, 3cm (yellow parallelogram)

10mm, 5cm, 2cm (pink house)

80mm, 5cm, 5cm (purple triangle)

50mm, 5cm (blue hexagon)

Various answers, for example: See completed Carroll diagram shown above.

DP

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Discussion Problems – Calculate Perimeter **ANSWERS**