Perimeter and area – Teacher notes

Activity description

This set of resources consists of a slideshow to introduce perimeter and area, a student information sheet containing the main points, a worksheet and a set of cards for matching. These all include rectangles and shapes made from rectangles.

Suitability

Level 1/2 (Foundation/Intermediate/Higher)

Time

1–3 hours depending on which of the activities you decide to use

Resources

Student sheets, matching cards
Optional: slideshow

Equipment

Optional: calculators

Key mathematical language

Perimeter, area, units, dimensions, millimetres, centimetres, metres, square millimetres, square centimetres, square metres

Notes on the activity

After introducing this topic and covering the main points (using the slideshow or otherwise), ask the students to complete the worksheet.

Card matching can be used as well as the worksheet, or as an alternative.

The 'Card matching' file contains 24 sets of cards. One card in each set shows the dimensions of a rectangle or shape made from rectangles. The other cards in the set give its perimeter and area. You can choose to use all the cards or just some of them. The first 12 sets involve easier numbers and can be used without calculators, whereas students are likely to need calculators when using the other 12 sets.

Students can work individually, in pairs or groups. For each student or group of students you will need to copy, laminate and cut out those cards you wish to use.

If you use the Word version of this activity you can adapt the cards or delete those cards that you do not wish to use before printing and copying.

During the activity

Students work individually to solve the questions on the worksheet. Card matching can also be done individually, but working in pairs or small groups would encourage students to discuss the methods.

Points for discussion

The need to work out the lengths of all sides of the shape before the perimeter can be found.

The reason why the units for area are written as mm^2, cm^2 and m^2, emphasising that the ^{2} does not come into the calculation.

Different ways to split up shapes, encouraging students to look for the way that gives the simplest calculations.

Contexts from real life where it may be useful to work out the perimeter or area of something.

Extensions

Consider the connections between m^2, cm^2 and mm^2, emphasising that students should not use the same multipliers as for length.

Discuss how to proceed with examples that have dimensions given in different units, such as:
- a skirting-board 20 cm wide and 4 m long
- finding the area of a pair of curtains that are each 72 cm wide and 120 cm long if the answer is required in square metres.

Calculate perimeters and areas of other shapes, for example triangles, trapezia, kites.

Answers

1a Perimeter = 20 m   Area = 24 m^2
 b Perimeter = 19 m   Area = 22.5 m^2
 c Perimeter = 22.4 m   Area = 30.72 m^2

2 Bath towel: Perimeter = 420 cm, Area = 9800 cm^2
   Hand towel: Perimeter = 300 cm, Area = 5000 cm^2
   Facecloth: Perimeter = 112 cm, Area = 780 cm^2

3 Perimeter = 410 mm   Area = 9450 mm^2

4a Perimeter = 118 m   Area = 850 m^2
 b Perimeter = 1100 m   Area = 75 400 m^2
 c Perimeter = 317.4 m   Area = 6012.5 m^2

5a Perimeter = 26 m   Area = 30 m^2
 b Perimeter = 46 m   Area = 102 m^2
 c Perimeter = 32 m   Area = 53 m^2
 d Perimeter = 25 m   Area = 28.72 m^2

6a Perimeter = 176 cm   Area = 1452 cm^2
 b Perimeter = 184 mm   Area = 1520 mm^2
 c Perimeter = 850 mm   Area = 26 250 mm^2