Curriculum Links
TI-15 Explorer™: Area and Perimeter

C

Year 7 Measurement

Statement of Learning Opportunities

- Develop and apply formulas for the perimeter and area of triangles and parallelograms given the relevant linear dimensions

Key Ideas

- Finding the relationship between length, breadth and area of common rectangles
- Calculating and comparing the perimeters of common rectangles
- Calculating and comparing the perimeters and areas of different shapes
- Maximising area and minimising perimeter

Key Vocabulary

Area, Perimeter, Integer, Maximise, Minimise

Lesson Overview

i)   Students construct as many rectangles as they can with fixed areas or fixed perimeters
ii) Students observe that for a given perimeter there are a number of rectangles with different areas and for a given area there are a number of rectangles with different perimeters
iii) Students develop strategies to maximise area and minimise perimeter
iv) Students work with shapes other than rectangles
v)   Students develop the idea of a systematic list and are able to use the scroll feature on their calculators to monitor results
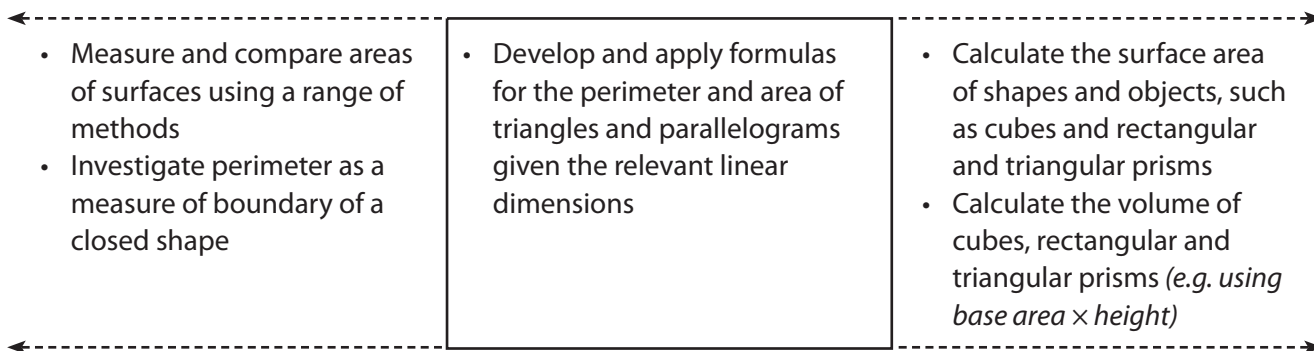
Equipment

- TI-15 Explorer™ calculators for students, rulers, compasses, copies of Assessment Sheet, Tasks 1 & 2, 1.5 cm grid paper (BLM 1), 1 cm grid paper (BLM 2) ruler
- PowerPoint display (optional)

Pre-requisites

In order to complete session 3 of this unit students will need knowledge of the perimeter and area of a circle.

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Sequencing

- Measure and compare areas of surfaces using a range of methods
- Investigate perimeter as a measure of boundary of a closed shape

- Develop and apply formulas for the perimeter and area of triangles and parallelograms given the relevant linear dimensions

- Calculate the surface area of shapes and objects, such as cubes and rectangular and triangular prisms
- Calculate the volume of cubes, rectangular and triangular prisms *(e.g. using base area × height)*

Indicators of Success

- Students know the terminology
- Students recognise perimeter as a distance and area as a measure of two dimensional space but may use non mathematical terminology in their explanation
- Students understand that a shape with a given perimeter may have a number of different areas and a shape with a given area may have a number of different perimeters
- Students recognise that shape (rectangle, circle etc) will affect the relationship between perimeter and area