

Y8 Unit 4 Overview - Shape: Measures & Transformations

Test window: 16th March 2020 - 27th March 2020

Target grade for tests:

You will learn about:

- Area and Perimeter
- Units of measurement
- Transforming shapes



You will be able to:

- Measure and calculate the perimeter shapes in centimetres and metres
- Calculate and compare the area of rectangles and estimate the area of irregular shapes
- Estimate volume and capacity
- Convert between different units of metric measure (for example, kilometre and metre)
- Understand and use approximate equivalences between metric units and common imperial units such as inches
- Use all four operations to solve problems involving measure
- Reflect and translate shapes

Lesson Overview

CALCULATING SPACE

- Calculate the perimeter of composite rectilinear shapes
- Calculate the area of a rectangles, including squares
- Convert between square centimetres (cm²) and square metres (m²)
- Estimate the area of irregular shapes bounded by straight lines
- Estimate the area of irregular shapes that include curved lines
- Estimate volume by using 1 cm³ blocks to build cuboids, including cubes
- Estimate capacity

MEASURING SPACE

- Convert between kilometres and metres
- Convert between centimetres and metres
- Convert between centimetres and millimetres
- Convert between kilograms and grams
- Convert between litres and millilitres
- Use decimal notation when converting between metric units of length, mass and volume / capacity
- Know approximate equivalencies between metric and imperial units including
- Solving problems involving measures, including money

TRANSFORMATIONS: TRANSLATIONS AND REFLECTIONS

- Carry out a translation described using mathematical language
- Describe a translation using mirror lines parallel to the axes
- Carry out a reflection using a mirror line parallel to the axes
- Carry out a reflection using a mirror line parallel to the axes and touching the object
- Carry out a reflection using a mirror line parallel to the axes and crossing the object
- Describe a reflection using mirror lines parallel to the axes
- Understand that a translations and reflections produce a congruent image

Key Words

Refer to

<http://studymaths.co.uk/glossary.php>
for definitions of the key words

Length, distance
Perimeter
Square unit
Area
Volume
Capacity
Dimensions
Square, rectangle
Composite rectilinear
Polygon
Cube, cuboid
Millimetre, Centimetre, Metre, Kilometre
Square centimetre, square metre
Cubic centimetre, centimetre cube
Mass, weight
Kilogram, gram
Litre, millilitre
Hour, minute, second
Inch, foot, yard
Pound, ounce
Pint, gallon

Notation

Abbreviations of units in the metric system:
km, m, cm, mm, cm², m², cm³, kg, g, l, ml
Abbreviations of units in the Imperial
system: lb, oz

2-D, Grid, Axis, axes, x-axis, y-axis
Origin, point
(First) quadrant
(Cartesian) coordinates
Translation
Reflection
Transformation
Object, Image
Congruent, congruence

Notation
 Cartesian coordinates should be separated by a comma and enclosed in brackets (x, y)

Cross curricular
SMSC:
 1.1 Exploring, understanding and respecting cultural diversity e.g. exploration of different methods of multiplication (Chinese, Russian).
 3.1 Developing personal qualities and using social skills (regular paired/ group work communication).
 3.2 Participating, cooperating and resolving conflicts (paired/group activities).
 4.2 Experiencing fascination, awe and wonder of mathematics.
 4.4 Using imagination and creativity in learning.

Literacy:
 Verbal communication of understanding using key words in the correct context. Development of written communication of methods and strategies to problem solve.

NAC:
Science – Find areas by counting squares. Convert one metric unit to another. Measure and read scales using appropriate units and accuracy, Calculate fractions of quantities. Use co-ordinates in the first quadrant.
MFL - Know rough metric/imperial equivalence of common units.
Business - Measure and read scales using appropriate units and accuracy.
Technology – Convert one metric unit to another. Measure and read scales using appropriate units and accuracy, Know rough metric/imperial equivalence of common units.

Suggested reading or support/ challenge available

Support is available from a Maths teacher in 'MORALE' in M1 daily from 1:30pm -1:45pm

www.mymaths.co.uk
 login: **penryn**
 password: **octagon**

www.hegartymaths.com
 Go to student login at the top... find your school, enter your details and then set up your password...

<https://vle.mathswatch.com/vle/>
 login: school username followed by **@penryn-college**
 password: **Penryn2016**

www.justmaths.co.uk/online
 login: **PenrynStudent**
 password: **Penryn**

Use your revision guide
 Use the code in the front of your guide to access your free online revision

Research	Note-making	Group work & discussion	Memorisation	Precision & accuracy	Independence	Reflection