

**GEOMETRY AND MEASURES**

**Transformations and coordinates**

Pupils should learn to:	As outcomes, Year 7 pupils should, for example:
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**Use and interpret maps and scale drawings**

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**GEOMETRY AND MEASURES**

**Transformations and coordinates**

**As outcomes, Year 8 pupils should, for example:**

**Use scales and make simple scale drawings.**

For example:

- Design a layout for a bedroom, drawing the room to scale and using cut-outs to represent furniture.
- Estimate from a photograph the height of a tall tree or building by comparison with a person standing alongside it.
- On a sunny day, estimate the height of a telegraph pole or tall tree by using shadows.
- Find the scale of each of these:
  - a. the plan of a room with 2 cm representing 1 m;
  - b. the plan of the school field with 1 inch representing 50 yards;
  - c. a map of the area surrounding the school, with 4 cm representing 1 km.

**Link to measuring lengths and conversion of one unit of measurement to another (pages 228–31), and to ratio and proportion (pages 78–81).**

**As outcomes, Year 9 pupils should, for example:**

**Use and interpret maps and scale drawings** in geography, design and technology and other subjects as well as in mathematics.

Understand different ways in which the scale of a map can be represented and convert between them, e.g. 1 : 50 000 or 2 cm to 1 km.

Understand that in a scale drawing:

- linear dimensions remain in proportion, e.g. actual length of object : actual width of object = scaled length : scaled width;
- angles remain the same, e.g. the slope of the floor in a cross-sectional drawing of a swimming pool will be the same as it is in reality.

Measure from a real map or scale drawing.

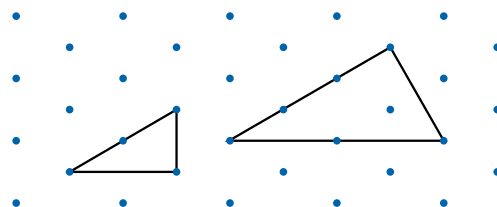
For example:

- Use the scale of a map to convert a measured map distance to an actual distance 'on the ground'.
- Measure dimensions in a scale drawing and convert them into actual dimensions.

*Understand that maps, plans and scale drawings are examples of enlargement by a fractional scale factor.*

*Understand the implications of enlargement for the area of a scale drawing. For example:*

- *On a map of scale 1 : 25 000, a given distance is represented by a line **twice** the length of the corresponding line on a 1 : 50 000 map. Show that this requires a sheet **four** times the area to cover the same ground.*
- *Show that these two triangles are similar. Find the ratio of the areas of the two triangles.*



**Link to measuring lengths and conversion of one unit of measurement to another (pages 228–31), ratio and proportion (pages 78–81), and area and volume (pages 234 to 4-241).**