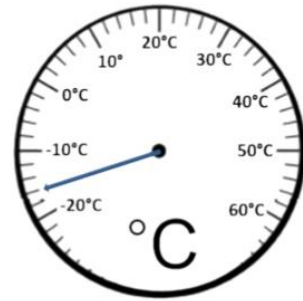


# Year 6 Unit 8: Decimals and Measures (3 weeks)

## Before you start...

- How secure are pupils in multiplying and dividing by powers of 10?
- What experiences with units of measure have pupils had?
- What strategies for calculating perimeter and areas have pupils encountered?

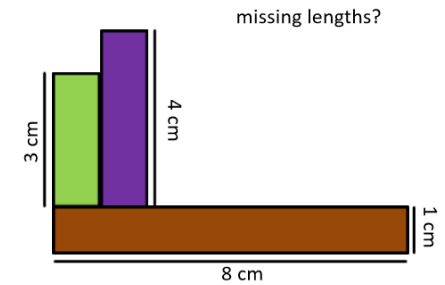


## Language considerations

When calculating area and volume, several words are used to describe the dimensions including height, length, width and breadth. Ensure these are used interchangeably to ensure pupils understand and make connections.

**Video:** Generalising about rectangles

**Video:** Calculating the area of rectilinear shapes



## Reading scales

- L1 Linear number sequences with decimals
- L2 Use, read and write standard units of measure including on scales

Pupils consolidate and deepen their understanding of reading scales by first considering linear number sequences to support reading scales within the unit. Lesson 2 provides opportunities to assess pupils' understanding of the range of units of measure used throughout the unit including reading a variety of scales. Teacher judgement should be used with these lessons to suit the needs of pupils.

## Using units of length

- L3 Convert metric and imperial units of length
- L4 Calculate the perimeter of composite rectilinear shapes

During lesson 3, pupils apply and deepen their understanding of units of length including using approximations and a conversion graph to convert between miles and kilometres. This provides opportunities to consolidate multiplying and dividing by powers of 10, as well as accurate reading of graphs. In lesson 4, conversion is applied through finding the perimeter of composite rectilinear shapes. Cuisenaire are used to generate shapes and support pupils in finding missing lengths.

- ? How will you model different strategies for finding perimeter?
- ? What difficulty points might pupils encounter when calculating perimeter?

## Calculating area

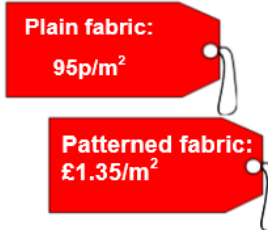
- L5 Calculate the area of rectangles
- L6 Calculate the area of triangles and parallelograms
- L7 Explore connections between area and perimeter
- L8 Solve problems involving area

Pupils deepen their understanding of calculating the area of a rectangle in lesson 5 by drawing on their understanding of algebraic notation to write algebraic expressions for calculating and generalising. This is applied to calculating the area of composite rectilinear shapes. In lesson 6, pupils learn strategies for calculating the area of triangles and parallelograms, making connections to the area of a rectangle and expressing these relationships algebraically. Pupils should have practical experiences in manipulating these shapes to support understanding. Pupils practically explore connections between area and perimeter in lesson 7, including using pentominoes to explore shapes with the same area but a different perimeter. These skills are applied in lesson 8 through solving a range of problems related to area, including mixed shapes and units of measure.

- ? How might you adapt the timings of these lessons to allow adequate time for pupils to explore area of different shapes?

This unit covers a wide range of concepts and there are no planned consolidation lessons. Consider where you may wish to pre-teach or extend learning to consolidate. These concepts should also form a regular part of Maths Meetings.

	A	B	C	D
Moonville	09:55	10:15	10:35	10:55
Starland		10:21	10:42	11:01
Spaceton	10:31	10:49	11:11	11:29
Sunnytown		10:58		11:38
Skysbridge	11:06	11:28	11:50	12:18



## On volume

This [article](#) from Cambridge mathematics provides interesting insight into volume.

## Using units of time

- L14 Convert between units of time
- L15 Solve problems involving units of time

Pupils should have had regular opportunities to tell the time and explore time problems in Maths Meetings and so adapt these lessons to suit the needs of your pupils. Units of time are converted in the context of length of days on planets in lesson 14. In lesson 15, pupils apply this understanding to calculating time intervals and durations including reading timetables.

- ? What difficulty points may pupils encounter when calculating with time and how will you model strategies to overcome these?

## Solving problems with units of measure

- L12 Convert between metric and imperial units of measure
- L13 Solve problems with units of measure and money

Pupils have experienced metric to imperial conversion in an earlier lesson and now explore further units of measure including inches and pounds. Take time to contextualise this for pupils and provide examples of when these units of measure are used. Pupils learn approximate conversions and apply these to solve problems. In lesson 13, a range of problems are provided for pupils to apply learning from the unit, including in the context of money.

## Solving problems with volume and mass

- L9&10 Calculate, estimate and compare the volume of cubes and cuboids
- L11 Convert and solve problems with units of mass

Pupils build on their previous understanding of volume by exploring the formula for calculating volume. Centimetre cubes should be used to allow pupils to practically explore this and generalise about the volume of cubes and cuboids. Pupils then solve a range of problems involving volume including comparing volume of different cuboids and investigating volume of cuboids given a specified base area. Opportunities to convert between units of measure are included. In lesson 11, pupils consolidate their understanding of units of mass including reading scales and further opportunities to apply multiplication and division by powers of 10.