

Mansfield and Pinxton Railway

Mansfield and Pinxton Railway by numbers



Lesson 3 provides a host of mathematical activities which teachers can pick and choose from depending on the ability of pupils and area of the curriculum they wish to focus on.

Underneath each Task sheet we have described the key mathematic principles which are utilised in the questions.

This lesson is aimed at upper stage Key Stage 2, although some tasks may be suitable for year 4 pupils who require stretching.

You may decide that some calculations can be done using a calculator depending on the abilities of your class.

WHAT YOU WILL NEED

M&P_L3HO1 Converting Imperial to Metric measurement

M&P_L3HO6 Task sheet 1: How many rails – and what was the cost?

M&P_L3HO7 Task sheet 2: How much did it cost to transport coal?

M&P_L3HO8 Task sheet 3: What is the gradient of ‘The Summit’?

M&P_L3HO9 Task sheet 4: Sizes and shapes on the railway

M&P_L3HO10 Task sheet 5: Work out the angles of a rail wagon

M&P_L3HO11 Task sheet 6: Weigh up your goods on the railway

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LINKS TO THE CURRICULUM

MATHEMATICS

Year 4

Multiplication and division

Add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate.

Multiply two-digit and three-digit numbers by a one-digit number using formal written layout.

- Pupils practise mental methods and extend this to three-digit numbers to derive facts, (for example $600 \div 3 = 200$ can be derived from $2 \times 3 = 6$).

They combine their knowledge of number facts and rules of arithmetic to solve mental and written calculations for example, $2 \times 6 \times 5 = 10 \times 6 = 60$. Pupils solve two-step problems in contexts, choosing the appropriate operation, working with increasingly harder numbers. This should include correspondence questions such as the numbers of choices of a meal on a menu, or three cakes shared equally between 10 children.

Measurement

Convert between different units of measure (for example, kilometre to metre; hour to minute).

- Measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres.
- Find the area of rectilinear shapes by counting squares.

Geometry

- Identify acute and obtuse angles and compare and order angles up to two right angles by size.
- Identify lines of symmetry in 2-D shapes presented in different orientations.

Year 5 (upper Key Stage 2)

Multiplication and division

Convert between different units of metric measure (for example, kilometre and metre; centimetre and metre; centimetre and millimetre; gram and kilogram; litre and millilitre).

Measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres.

Geometry

Draw given angles, and measure them in degrees ($^{\circ}$).

Year 6 (upper Key Stage 2)

Multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication.

Divide numbers up to 4 digits by a two-digit whole number using the formal written method of long division, and interpret remainders as whole number remainders, fractions, or by rounding, as appropriate for the context.

Divide numbers up to 4 digits by a two-digit number using the formal written method of short division where appropriate, interpreting remainders according to the context.

Solve problems involving addition, subtraction, multiplication and division.