



KS2 Maths Year 6 - Information for Teachers

National Curriculum objectives:

Number and Place Value

- Read, write, order and compare numbers up to 10 000 000 and determine the value of each digit.
- Round any whole number to a required degree of accuracy.

Addition, subtraction, multiplication and division

- Perform mental calculations, including with mixed operations and large numbers.
- Identify common factors, common multiples and prime numbers.
- Perform mental calculations, including with mixed operations and large numbers.
- Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why.
- Use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy.

Fractions

- Multiply simple pairs of proper fractions, writing the answer in its simplest form [for example, $\frac{1}{4} \times \frac{1}{2} = \frac{1}{8}$].
- Divide proper fractions by whole numbers [for example, $\frac{1}{3} \div 2 = \frac{1}{6}$].
- Use common factors to simplify fractions; use common multiples to express fractions in the same denomination.

Ratio and proportion

- Solve problems involving the relative sizes of two quantities where missing values can be found by using integer multiplication and division facts.

Measurement

- Solve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate.
- Use, read, write and convert between standard units, converting measurements of length, mass, volume and time from a smaller unit of measure to a larger unit, and vice versa, using decimal notation to up to three decimal places.
- Recognise when it is possible to use formulae for area.

Geometry

- Recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles.

Mother Shipton's

- Recognise, describe and build simple 3-D shapes, including making nets
- Compare and classify geometric shapes based on their properties and sizes and find unknown angles in any triangles, quadrilaterals, and regular polygons.

Activities:

Mother Shipton trail - to be used as children go through the park:

Children go through the park using their surroundings to work out mathematical calculations and problems which include:

- * Round number to the nearest 10,000.
- * Work out the area of rectilinear shapes.
- * Order numbers smallest to largest.
- * Complete multiplication and division problems on the benches near the café.
- * Estimation of the height of the Viaduct.
- * Obtuse and acute angle hunt with challenge of calculating the missing angles.
- * Ratio linking to the trees in the park and mental addition and subtraction problems.
- * 3D shape hunt and children draw the nets of the shapes.
- * Factors and multiplying by 1000 linking to the steps.
- * Decimal equivalent, multiplying and dividing, adding and subtracting fractions questions.
- * Multiplication and division calculations linking to the number of teddies hanging up under the Petrifying Well with challenge of showing remainder as mixed number.
- * Coin identification and money problems (decimals and percentages) linking to the Wishing Well.
- * Estimation and measurement of bench along Beech Avenue with matching of length conversions.
- * Mathematical vocabulary word search.

Resources needed:

- *Pencils*
- *Paper for working out*
- *Rubbers*
- *Possibly 2D and 3D shape examples*
- *Protractors*
- *Any mathematical supporting resources normally used for each area*

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Answers:

1. Café Calculations:

✧ 20,000

✧✧ Pupils should measure the length and width of one of the windows in the café door then multiply together to get the area of one pane. They should then multiply this number by the number of windows in the door to get the answer.

✧✧✧ 87m²

2. Picnic Puzzles:

✧ Multiply 6 by the number of benches (varies so no concrete answer available)

✧✧ 103 benches would be needed ✧✧✧ a= 7241253, b= 8591476, c= 4453540, d= 3525614

3. Eerie Estimation: The Viaduct stands at 23m.

4. Angle Hunt: a) X=60 Y=50 b) X= 113 Y=67 c) ?= 140 d) Y=82 Z= 82 X= 98

5. Tree Tester:

✧ 3501

✧✧ 4792

✧✧✧ 45

6. Shape Hunt: Grid - dependent on shapes seen What am I - trapezium, scalene triangle, cylinder

7. Cackling Calculations: steps answers

✧ 21=1,3,7

✧✧ 21,000

✧✧✧ Number placed accurately on number line

8. Fearsome Fractions:

✧ 0.75

✧✧ $4/5 \times 2/3 = 8/15$ and $3/5$ divided by $2/3 = 9/10$

✧✧✧ $4/5 - 3/10 = 5/10$ or $1/2$, and $4/7 + 1/5 = 27/35$

9. Petrifying Puzzles:

✧ 3.5 years

✧✧ 95

✧✧✧ 65 can be hung, decimal= 13.8

10. Wishing Well Wealth:

✧ coins – dependent on what is seen

✧✧ £30.24

✧✧ £30.20

✧✧✧ £4

✧✧✧ £2.12

11. Mystical Measuring: you would use metres to measure the distance

a) dependent on estimation

b) 40cm=0.4m, 4000mm=400cm, 4mm=0.4cm, 4m=400cm, 40km=40,000m, 4000m=4km