

Book 8S contents

FM: indicates sections that address functional mathematics

Oral and mental starters

(Teacher's guide only) Ideas for teacher-led activities for use at the start of a lesson

1 Into the bath 4 **FM: all**

Understanding a graph that shows how a value (water level) changes as time passes

2 Ratio 6 **FM: all**

Ratio notation; equivalent ratios, sharing in a given ratio; comparing ratios

3 Starting equations 17

Revision of balancing approach; solving an equation with the unknown on both sides, including use to solve 'think of a number' puzzles

4 Cuboids 23 **FM: ABDE**

Volume of a cuboid and of a shape made from cuboids in cm^3 ; surface area; litres and millilitres; cubic metres

5 Graphs, charts and tables 30 **FM: all**

Divided bar charts, graphs and tables of time series; frequency charts and tables; two-way tables

6 Fractions, decimals and percentages 37

FM: C

Revision of use of fractions, decimals and percentages; the relationships between them

7 Using rules 43 **FM: all**

Applying linear rules in practical situations, first in words then using algebra; use of a^2 notation

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8 Decimals and area 53 **FM: all**

Area of rectangles and right-angled triangles with sides given to one decimal place; composite shapes

9 Finding rules 59

Finding and using a linear formula for the number of objects in the n th pattern in a series of patterns; forming equations from problems and solving them

10 Using a spreadsheet 66 **FM: all**

Writing simple formulas in cells; use to solve problems

11 Estimation 70 **FM: all**

Estimating lengths using metric measures; approximate conversions between metric and imperial quantities

12 Quadrilaterals 75

Special types of quadrilaterals and their properties; using the sum of the interior angles of a quadrilateral; drawing quadrilaterals

13 Negative numbers 85

Using all four operations with negative numbers

14 Percentage change 93 **FM: all**

Using a multiplier to calculate the result of a percentage increase or decrease

Review 2 98

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15 Probability from experiments 100

FM: all

Relative frequency as an estimate of probability, including use to estimate future frequency

16 Squares, cubes and roots 106

Squares and cubes including of decimals; positive and negative square roots; cube roots

17 Area 110

Area of a parallelogram, triangle and trapezium

18 Equivalent expressions 117

Collecting like terms; expanding a single pair of brackets; proving simple general statements

19 No chance! 126 **FM: D**

Equally likely outcomes of combined events listed or shown on a grid; use to find probabilities

20 Recipes 134 **FM: all**

Scaling quantities using the unitary method

21 Substituting into formulas 139 **FM: ABC**

Formulas including brackets and squaring; finding a formula or linear expression for a situation

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22 Scaling 152 **FM: DE**

Recognising and drawing enlargements; scale factors (including fractions to denote scaling down); using maps and scale drawings; ratio notation for maps and scale drawings

23 Approximation and estimation 165

FM: A

Rounding whole numbers and decimals to one significant figure; estimating the result of a calculation; multiplying decimals

24 Bearings 170 **FM: AB**

Measuring and recording; fixing a point given its bearings from two points; plotting a journey given the distance and bearing of each stage

25 Using equations 174

Forming an equation from a puzzle; solving equations, including those that involve brackets and subtracted constants

26 Distributions 183 **FM: all**

Revision of frequency, mode, median, mean and range; stem-and-leaf tables; grouping of discrete and continuous data; introduction to scatter graphs

27 A sense of proportion 193 **FM: all**

Identifying and solving problems where direct proportion applies; use of graphs including conversion graphs; the unitary method

28 Fractions 200

Equivalent fractions; adding, subtracting and comparing fractions; multiplying a fraction by a whole number; equivalence of '×' and 'of'; dividing a whole number by a fraction

29 Constructions 207

Drawing a triangle from given lengths and angles; straight edge and compasses constructions for: perpendicular from a point to a line, perpendicular bisector of a line segment, bisector of an angle, perpendicular from a point on a line

30 Division 211

Without a calculator, division with a decimal result, division by a decimal; estimating the result of a division

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Graphs of linear functions; coordinates of the mid-point of a line segment

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