Maths APP Levels 1 to 5 all on one sheet. PrimaryTools.co.uk

Algebra

- recognise sequences of numbers, including odd and even numbers
- recognise a wider range of sequences
- begin to understand the role of '=' (the 'equals' sign)
- begin to use simple formulae expressed in words
- use and interpret coordinates in the first quadrant
- construct, express in symbolic form, and use simple formulae involving one or two operations
- use and interpret coordinates in all four quadrants

Key:

- Level 1
- Level 2
- Level 3
- Level 4
- Level 5

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Numbers and the Number System

- count up to 10 objects
- read, write numbers to 10
- order numbers to 10
- begin to use the fraction, one-half
- count sets of objects reliably
- begin to understand the place value of each digit; use this to order numbers up to 100
- begin to use halves and quarters and relate the concept of half of a small quantity to the concept of half of a shape
- understand place value in numbers to 1000
- use place value to make approximations
- recognise negative numbers in contexts such as temperature
- use simple fractions that are several parts of a whole and recognise when two simple fractions are equivalent
- begin to use decimal notation in contexts such as money
- recognise and describe number patterns
- recognise and describe number relationships including multiple, factor and square
- use place value to multiply and divide whole numbers by 10 or 100
- recognise approximate proportions of a whole and use simple fractions and percentages to describe these
- order decimals to three decimal places
- begin to understand simple ratio
- use understanding of place value to multiply and divide whole numbers and decimals by 10, 100 and 1000 and explain the effect
- round decimals to the nearest decimal place and order negative numbers in context
- recognise and use number patterns and relationships
- use equivalence between fractions and order fractions and decimals
- reduce a fraction to its simplest form by cancelling common factors
- understand simple ratio

Calculating

- understand addition as finding the total of two or more sets of objects
- understand subtraction as 'taking away' objects from a set and finding how many are left
- add and subtract numbers of objects to 10
- begin to know some addition facts
- solve addition/subtraction problems involving up to 10 objects
- record their work
- use the knowledge that subtraction is the inverse of addition and understand halving as a way of 'undoing' doubling and vice versa
- use mental recall of addition and subtraction facts to 10
- use mental calculation strategies to solve number problems including those involving money and measures
- record their work in writing
- choose the appropriate operation when solving addition and subtraction problems
- derive associated division facts from known multiplication facts
- add and subtract two-digit numbers mentally
- add and subtract three digit numbers using written method
- multiply and divide two digit numbers by 2, 3, 4 or 5 as well as 10 with whole number answers and remainders
- use mental recall of addition and subtraction facts to 20 in solving problems involving larger numbers
- solve whole number problems including those involving multiplication or division that may give rise to remainders
- use a range of mental methods of computation with all operations
- recall multiplication facts up to 10 × 10 and quickly derive corresponding division facts
- use efficient written methods of addition and subtraction and of short multiplication and division
- multiply a simple decimal by a single digit
- solve problems with or without a calculator
- check the reasonableness of results with reference to the context or size of numbers
- use known facts, place value, knowledge of operations and brackets to calculate including using all four operations with decimals to two places
- use a calculator where appropriate to calculate fractions/ percentages of quantities/measurements
- understand and use an appropriate non-calculator method for solving problems that involve multiplying and dividing any three digit number by any two-digit number
- solve simple problems involving ordering, adding, subtracting negative numbers in context
- solve simple problems involving ratio and direct proportion
- apply inverse operations and approximate to check answers to problems are of the correct magnitude

Using and Applying Mathematics

- use mathematics as an integral part of classroom activities
- represent their work with objects or pictures
- discuss their work
- draw simple conclusions from their work
- recognise and use a simple pattern or relationship
- select the mathematics they use in some classroom activities
- discuss their work using mathematical language
- predict what comes next in a simple number, shape or spatial pattern or sequence and give reasons for their opinions
- explain why an answer is correct
- select the mathematics they use in a wider range of classroom activities
- try different approaches and find ways of overcoming difficulties that arise when they are solving problems
- begin to organise their work and check results
- use and interpret mathematical symbols and diagrams
- understand a general statement by finding particular examples that match it
- review their work and reasoning
- develop own strategies for solving problems
- use their own strategies within mathematics and in applying mathematics to practical contexts
- begin to organise their work and check results
- present information and results in a clear and organised way
- search for a solution by trying out ideas of their own
- identify and obtain necessary information to carry through a task and solve mathematical problems
- check results, considering whether these are reasonable
- solve word problems and investigations from a range of contexts
- show understanding of situations by describing them mathematically using symbols, words and diagrams
- draw simple conclusions of their own and give an explanation of their reasoning

Shape, Space and Measure

- use everyday language to describe properties of 2-D and 3-D shapes
- use everyday language to describe positions of 2-D and 3-D shapes
- measure and order objects using direct comparison
- order events
- use mathematical names for common 3-D and 2-D shapes
- describe their properties, including numbers of sides and corners
- describe the position of objects
- distinguish between straight and turning movements, recognise right angles in turns and understand angle as a measurement of turn
- begin to use a wider range of measures including to use everyday non-standard and standard units to measure length and mass
- begin to understand that numbers can be used not only to count discrete objects but also to describe continuous measures
- classify 3-D and 2-D shapes in various ways using mathematical properties such as reflective symmetry for 2-D shapes
- begin to recognise nets of familiar 3-D shapes, e.g. cube, cuboid, triangular prism, square-based pyramid
- recognise shapes in different orientations and reflect shapes, presented on a grid, in a vertical or horizontal mirror line
- describe position and movement
- use a wider range of measures including non-standard units and standard metric units of length, capacity and mass in a range of contexts
- use standard units of time
- use the properties of 2-D and 3-D shapes
- make 3-D models by linking given faces or edges and draw common 2-D shapes in different orientations on grids
- reflect simple shapes in a mirror line, translate shapes horizontally or vertically and begin to rotate a simple shape or object about its centre or a vertex
- choose and use appropriate units and instruments
- interpret, with appropriate accuracy, numbers on a range of measuring instruments
- find perimeters of simple shapes and find areas by counting squares
- use a wider range of properties of 2-D and 3-D shapes and identify all the symmetries of 2-D shapes
- use language associated with angle and know and use the angle sum of a triangle and that of angles at a point
- reason about position and movement and transform shapes
- measure and draw angles to the nearest degree, when constructing models and drawing or using shapes
- read and interpret scales on a range of measuring instruments, explaining what each labelled division represents
- solve problems involving the conversion of units and make sensible estimates of a range of measures in relation to everyday situations
- understand and use the formula for the area of a rectangle and distinguish area from perimeter

Handling Data

- sort and classify objects
- represent their work
- demonstrate the criterion they have used
- sort objects and classify them using more than one criterion
- understand vocabulary relating to handling data
- collect and sort data to test a simple hypothesis
- record results in simple lists, tables, pictograms and block graphs
- communicate their findings, using the simple lists, tables, pictograms and block graphs they have recorded
- gather information
- construct bar charts and pictograms, where the symbol represents a group of units
- use Venn and Carroll diagrams to record their sorting and classifying of information
- extract and interpret information presented in simple tables, lists, bar charts and pictograms
- collect and record discrete data
- group data, where appropriate, in equal class intervals
- continue to use Venn and Carroll diagrams to record their sorting and classifying of information
- construct and interpret frequency diagrams and simple line graphs
- understand and use the mode and range to describe sets of data
- ask questions, plan how to answer them and collect the data required
- in probability, select methods based on equally likely outcomes and experimental evidence, as appropriate
- understand and use the probability scale from 0 to 1
- understand and use the mean of discrete data and compare two simple distributions, using the range and one of mode, median or mean
- understand that different outcomes may result from repeating an experiment
- interpret graphs and diagrams, including pie charts, and draw conclusions
- create and interpret line graphs where the intermediate values have meaning