| BAND | Number | Ratio and proportion | Algebra | Geometry | Handling data |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 1 | - Place value <br> - Add and subtract up to 3 digit numbers <br> - Multiply and divide by a single digit <br> - Ordering 3-digit integers inc negatives | - Fractions on a grid <br> - Write a ratio | - Writing and plotting coordinates in first quadrant | - Find area by counting squares <br> - Measure lines and distances | - Probability scale in words (impossible, evens, certain) |
| 2 | - order of operations <br> - percentage of an amount <br> - round to nearest integer, 100, 1000 <br> - using given calculations to answer other questions <br> - ordering decimals <br> - add, subtract and multiply decimals <br> - estimating <br> - mental multiplication <br> - percentages add to 100 <br> - prime numbers <br> - multiples and factors <br> - using a calculator <br> - multiplying and dividing up to 3 digits by 2 digits <br> - add, subtract, multiply and divide directed numbers <br> - Multiply and divide by powers of 10 <br> - Equivalent fractions <br> - Simplifying fractions | - Write proportion of a shaded square as fraction, decimal and \% <br> - Simplify a ratio <br> - Write proportion as a fraction | - Inverse operations <br> - Plotting coordinates in 4 quadrants <br> - Using function machines <br> - Balancing equations Linear sequences | - Types of angles <br> - Reading and drawing a scale <br> - Measure angles <br> - Types of triangle <br> - Reflect a shape in a given line <br> - Recognising 2D shapes <br> - Drawing on lines of symmetry <br> - Using simple metric units <br> - Drawing tessellations <br> - Types of quadrilateral <br> - 12 hr \& 24 hr clock <br> - Analogue and digital clock | - Completing and using a list of data <br> - Using and drawing a pictogram <br> - Completing and using a frequency table <br> - Using and drawing a bar chart <br> - Probability scale in words (inc likely, unlikely) <br> - Venn diagrams from simple information |


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| 3 | - HCF and LCM <br> - powers and roots, including using a calculator <br> - decimal calculations <br> - product of prime factors, including applications <br> - add and subtract fractions with the same denominator <br> - rounding decimal places <br> - divisibility tests <br> - order of operations inc powers <br> - estimating <br> - decimal calculations with a calculator <br> - multiply and divide by powers of 10 inc neg powers <br> - using given calculations to answer other questions inc decimals <br> - ordering decimals | - write one number as a fraction or percentage of another <br> - equivalence of fraction, decimal and percentage, including conversions between each form <br> - find a fraction of an amount <br> - share in a given ratio | - writing an expression or formula <br> - Collecting like terms <br> - Solving one step equations <br> - Completing table of values <br> - Geometric sequences <br> - Position to term rule with guidance | - Angles in a triangle <br> - Choose correct metric unit <br> - Perimeter of a shape, including regular shapes <br> - Reading timetables and time calculations <br> - Angles on a straight line and at a point <br> - Rotate a shape from a given centre <br> - Describe and draw a translation <br> - Recognising order of rotational symmetry <br> - Completing a shape from diagonal lines of symmetry <br> - Area <br> - Names and properties of 3D shapes, including nets <br> - Properties of quadrilaterals | - Drawing and reading a line graph <br> - Tallying in groups and modal class <br> - Data collection, including types of data and questionnaires <br> - Finding mean, median, mode and range from a list <br> - Finding the range from a stem and leaf diagram <br> - Write a probability as a fraction <br> - Probability adds to one <br> - Experimental probability <br> - Listing outcomes |
| 4 | - changing mixed to improper <br> - changing improper to mixed <br> - add and subtract fractions with different denominators <br> - fraction of an amount (mixed number) <br> - money calculations <br> - index laws <br> - dividing fractions | - write in the form 1:n or n:1 <br> - use a ratio <br> - simplify a ratio in different units <br> - use direct proportion <br> - comparing using proportions | - Substitution using a formula <br> - solving two step equations <br> - drawing a straight-line graph <br> - expand and simplify single bracket | - area of a triangle <br> - area of a parallelogram <br> - using map scales <br> - drawing on isometric paper <br> - applications of perimeter | - reading a pie chart <br> - recognising a fraction of a pie chart <br> - reading a multiple bar chart <br> - explain why mean can't be found <br> - mode and range from a frequency table |


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|  | - multiplying fractions <br> - subtract fractions from an integer <br> - divide an integer by a fraction <br> - rounding significant figures <br> - estimating inc dividing by a decimal <br> - using a calculator effectively for powers, then ordering <br> - rounding to 3 sig figs <br> - estimating by rounding to 1 sig fig | - finding a percentage increase <br> - finding a percentage decrease | - recognising straight line graphs <br> - using an nth term <br> - interpreting graphs <br> - writing an equation <br> - using a conversion graph <br> - drawing a straight-line graph ( $a x+b y=c$ ) <br> - finding an nth term <br> - completing a table of values for a quadratic graph <br> - index laws <br> - factorising into a single bracket <br> - recognising graphs <br> - write and simplify expressions | - vertically opposite angles and angles in parallel lines <br> - surface area <br> - volume of a cuboid <br> - compound area <br> - angle calculations inc parallel <br> - converting metric units <br> - surface area of a cuboid <br> - using a scale <br> - net of a cube <br> - area of a trapezium <br> - interior angles of 2D shapes <br> - exterior angles of 2D shapes <br> - describe a transformation | - find the size of an angle for a pie chart <br> - median class from a grouped frequency table <br> - finding the median from a stem and leaf diagram <br> - using a time series graph <br> - explain why mode not useful <br> - Expected outcomes <br> - Sample spaces <br> - Frequency trees |
| 5 | - add and subtract mixed numbers <br> - add and subtract mixed numbers with different denominators <br> - add fractions inc mixed numbers <br> - multiply and divide mixed numbers <br> - recurring decimal to fraction - basic | - use proportion to find total amount or other info <br> - finding a percentage change <br> - write a ratio from fraction information <br> - compare using ratios <br> - value for money | - simplifying algebraic fractions <br> - forming an equation and solving it <br> - solving equations with x on both sides <br> - solving two step equations inc brackets <br> - finding the equation of a line ( $y=m x+c$ ) <br> - solving a quadratic using trial and improvement <br> - finding the midpoint from two coordinates | - constructing a triangle SAS <br> - finding the scale factor of enlargement <br> - angle calculations inc parallel + reasons <br> - travel graphs <br> - constructing a triangle ASA <br> - enlarge from a given centre <br> - volume of a prism | - interpreting averages <br> - mean, median and range from a frequency table <br> - comparing using mean and range <br> - drawing and tallying for grouped data <br> - interpreting the range <br> - drawing a pie chart <br> - drawing a time series graph <br> - drawing a scatter graph |


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|  |  |  | - solving two step equations inc brackets and negatives <br> - solving equations with fractions with letter as denominator <br> - drawing a quadratic graph <br> - changing the subject basic <br> - trial and improvement <br> - solving two step equations inc fraction <br> - y intercept <br> - using $\mathrm{y}=\mathrm{mx}+\mathrm{c}$ for gradients etc <br> - index laws fract powers <br> - completing a table of values for a cubic and plotting it <br> - solving an inequality with x on both sides <br> - substitution for a cubic equation as coordinates <br> - identifying where a quadratic meets the $x$ axis <br> - solving an inequality inc fraction | - describing an enlargement <br> - circumference of a circle <br> - area of a circle <br> - constructing a triangle RHS <br> - change units of volume | - identifying correlation <br> - drawing a stem and leaf diagram <br> - making estimates from the scatter graph <br> - Relative frequency <br> - Using Venn diagrams with set notation (intersection and union) |
| 6 | - Reverse percentages <br> - Compound interest <br> - Bounds |  | - Writing and solving an equation with x on both sides | - Construct angle bisector <br> - Construction using bearings <br> - Bearing calculations | - Mean from a grouped frequency table <br> - Mutually exclusive events <br> - Independent events |


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| :---: | :---: | :---: | :---: | :---: | :---: |
|  | - Application of area and percentage <br> - Repeated percentage increase |  | - Solving equations with x on both sides inc brackets <br> - Solving equations with x on both sides inc fractions <br> - Solving an equation with $x$ on both sides inc neg $x$ <br> - Add and subtract algebraic fractions <br> - Recursive formula <br> - Index laws neg powers <br> - Changing the subject inc fractions <br> - Finding the gradient of a drawn line <br> - Expand double brackets <br> - D.O.T.S <br> - Using Pythagoras <br> - Changing the subject inc roots <br> - Identifying the minimum value of a quadratic <br> - Solving an inequality with $x$ on both sides inc neg $x$ | - Bearings <br> - Speed <br> - Using Pythagoras to identify a right angled triangle <br> - Construct a perpendicular bisector <br> - Area and perimeter of a semi-circle <br> - Explaining why a shape can't exist from a given exterior angle <br> - Dimensions in formula <br> - Speed from a travel graph <br> - Using Pythagoras | - Exhaustive events <br> - Complete a basic tree diagram |
| 7 | - Calculations using bounds <br> - Standard form | - Solve problems using ratio | - Changing the subject with x on both sides <br> - Solving simultaneous equations <br> - Finding the gradient using two points | - Congruent triangle reason <br> - Speed using standard form <br> - Enlargement with a neg scale factor | - Draw a cumulative frequency graph <br> - Using a tree diagram to find probabilities of combined events (nonconditional) <br> - Use set notation in conjunction with Venn |


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|  |  |  |  |  | diagrams (universal, empty, |
| 8 | - Multiply with surds <br> - Simplify a surd |  | - Finding the equation of a perpendicular line <br> - Using SOH CAH TOA <br> - Find a quadratic nth term | - Circle theorems inc reasons <br> - Similar shapes <br> - Finding the area scale factor <br> - Similar triangles | - Find median and IQR from a cumulative frequency graph <br> - Interpret a box plot and make comparisons <br> - Conditional probability |
| 9 | Awarded for exceptional performance across the year including high achievement in UKMT |  |  |  |  |

