EYFS

Cardinality and Counting	Comparison	Composition	Pattern	Shape and Space	Measures
Say number words in sequence	Compare collections and talk about which group has more or less things.	Identify smaller numbers within a number (conceptual subitising)	Continue an AB pattern	Move both themselves and objects around, so they see things from different perspectives.	Recognise attributes of measure and use vocabulary to describe them.
Count objects in irregular arrangements	Check that groups are equal by matching on a one-to-one basis.	Partition a number in a range of ways and identify that the pairs of numbers make the same total.	Copy an AB pattern		Compare continuous quantities
Count objects from a larger group.	Say which number is larger by counting or matching one-to-one.		Create their own AB pattern	Visualise how things will appear when turned around and imagining how things might fit together.	Show an awareness of comparison in estimating and predicting
Link the number symbol (numeral) with its cardinal number value.	Compare numbers that are far apart, near to and next to each other.	Automatically recall (without reference to rhymes, counting or other aids) number bonds up to 5 (including subtraction facts) and some number bonds to 10, including double facts.	Spot an error in an AB pattern		Compare indirectly.
Subitise (recognise quantities without counting) up to	Say when a number does not match a quantity.		Identify the unit of repeat in a pattern.	Make constructions, patterns and pictures, and select shapes which will fit when rotated or flipped in insert boards, shape sorters and jigsaws.	Recognise the relationship between the size and number of units.
Match numeral to quantity	Recognise that if they add one they will get the next number and if they subtract one they will get the previous number.		Continue an ABC pattern		Use units to compare things.
Recognise amounts that amounts that have been rearranged remain the same, if nothing has been added or taken away (conservation).		Understand that group that has been partitioned can be recombined to make the same total.	Continue an ABB pattern.	Notice the results of rotating and reflecting images, and in visualising them.	Use time to sequence events.
			Continue an ABBC pattern		Experience specific time spans in order to start to develop an overall sense of time.
		Understand that a number can be partitioned into more than two groups.	Continue a pattern which ends mid-unit of repeat.	Explore shapes, the attributes of particular shapes, and select shapes to fulfil a particular need.	
			Create their own ABB and ABBC patterns		
		Understand how many things are hidden from a known quantity.	Spot an error in an ABB patterns.	Discuss items built in terms of how towers are built and why certain shapes are chosen to make a tower, and the space that has been created within an enclosure.	
			Use symbols to represent a pattern.		
			Recreate a pattern in a different medium	Represent spatial relationships in small world play.	
			Create a pattern which works as a circle.	Use the language of position and direction.	
			Create a cyclical pattern which works with a fixed number of spaces.	Construct and create things that represent objects in their environment.	
				Notice shape properties of objects that they want to represent and think about the appropriateness of the shapes they choose.	
				Describe properties of shapes.	
				Develop an awareness of the properties of shape.	

Year 1

Number	Calculation	Fractions	Measure	Geometry
Declarative	**Declarative**	**Declarative**	**Declarative**	**Declarative**
Read and write numbers to 100 in numerals.	Represent and use number bonds and related subtraction facts within 20.	Recognise, find and name a half as one of two equal parts of an object, shape or quantity.	Tell the time to the hour and half past the hour	Recognise common 2-D shapes: rectangles (including squares, circles and triangles presented in different orientations.
ACP: Quick quiz on whiteboards, rapid fire questions.	ACP: Quick quiz on whiteboards, rapid fire questions.	ACP: Recognise, find and name a half as one of two equal parts of an object, shape or quantity.	ACP: Ongoing oral assessment at appropriate moments during the school day.	ACP: PPT quick quiz. Show a variety of shapes and assess understanding orally.
Read and write numbers from 1 to 20 in numerals and words.	Develop fluency in addition and subtraction facts within 10.	Recognise, find and name a quarter as one of four equal parts of an object, shape or quantity.	Recognise and know the value of different denominations of coins and notes.	Recognise common 3-D shapes: cuboids (including cubes, pyramids and spheres presented in different orientations.
ACP: Quick quiz on whiteboards, rapid fire questions.	ACP: Quick quiz on whiteboards (or orally), rapid fire questions.	ACP: Practical sessions to assess all aspects of the composite orally.	ACP: Practical sessions to assess all aspects of the composite orally.	Know that the above shapes are not always similar to each other.
Count to and across 100 forwards and backwards			Recognise and use language relating to dates, including the days of the week, weeks, months and years.	ACP: Assess during the 2 composites above.
ACP: Oral counting as class, warm up activity. TA lead - Teacher assess.			ACP: Ongoing oral assessment at appropriate moments during the school day.	Use the language of position, direction and motion, including: left and right, top, middle and bottom, on top of, in front of, above, between, around, near, close and far, up and down, forwards and backwards, inside and outside.
Count forwards and backwards in multiples of 2, 5 and 10, up to 10 multiples, beginning with any multiple, and count forwards and backwards through the odd numbers.				ACP: Practical session to assess all aspects of the composite orally.
ACP: Oral counting as class, warm up activity. TA lead - Teacher assess.				
Recognise odd and even numbers.				
ACP: Quick quiz on whiteboards, rapid fire questions. Assess recognition and reasoning orally.				
Identify one more or less than a given number.				
ACP: Quick quiz on whiteboards, rapid fire questions.				
Procedural	**Procedural**	**Procedural**	**Procedural**	**Procedural**
Identify and represent numbers using objects and pictorial representations including the number line.	Add and subtract one-digit and two-digit numbers to 20, including zero.		Measure and record: lengths/heights, mass/weight, capacity volume, time.	Make whole, half, quarter and three-quarter turns in both directions.
ACP: PPT quick quiz. Show a variety of numbers using different representations. Children to identify and represent using a different representation.	ACP: Low stakes test covering all aspects of the composite. Free choice of resources, assess level of abstraction.		ACP: Practical sessions to assess all aspects of the composite.	ACP: Practical session to assess all aspects of the composite.
Use the language of: equal to, more than, less than,most, least	Read, write and interpret mathematical statements involving addition, subtraction and equals signs.			Compose 2-D and 3_d shapes from smaller shapes to match an example, including manipulating shapes to place them in particular orientations.
ACP: Practical session to assess language use orally.	ACP: Low stakes test covering all aspects of the composite.			ACP: Practical session to assess all aspects of the composite.
	Compose numbers to 10 from 2-parts, and partition numbers to 10 into parts.			
	ACP: How many ways can you partition ...5,6,7...? Assess understanding orally.			
	Recognise repeated addition contexts, representing them with multiplication equations and calculating the product, within the 2, 5 and 10 multiplication tables.			
	ACP: Low stakes test covering all aspects of the composite.			
Conditional	**Conditional**	**Conditional**	**Conditional**	**Conditional**
Reason about the location of numbers to 20 within the linear number system, including comparing using < > and =.	Solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations.		Compare, describe and solve practical problems for: lengths/heights, mass/weight, capacity volume, time.	Connect turning clockwise with movement on a clock face.
ACP: Quick quiz, assess understanding orally. Use < > and = on whiteboards to record statements.	ACP: Low stakes test covering all aspects of the composite. Free choice of resources, assess level of abstraction.		ACP: Practical sessions to assess all aspects of the composite orally.	ACP: Practical session to assess all aspects of the composite orally.
	Solve missing number problems such as 7 = * - 9		Sequence events in chronological order.	
	ACP: Quick quiz, multiple choice: plan in answers with misconceptions.		ACP: Sequencing activity,assess understanding orally.	
	Solve one-step problems involving multiplication and division, using concrete objects, pictorial representations and arrays with support.			
	ACP: Low stakes test covering all aspects of the composite. Free choice of resources, assess level of abstraction.			
	Relate additive expressions and equations to real-life contexts.			
	ACP: Low stakes test covering all aspects of the composite.			

Year 2

Number	Calculation	Fractions	Measure	Geometry	Statistics
Declarative	**Declarative**	**Declarative**	**Declarative**	**Decorative**	**Decorative**
Read and write numbers to at least 100 in numerals and in words. ACP: Quick quiz on whiteboards, rapid fire questions. Identify numbers using different representations, including the number line. ACP: PPT quick quiz. Show a variety of numbers using different representations, record estimates. Recognise the place value of each digit in a two-digit number ACP: Quick quiz on whiteboards, rapid fire questions of value of digits, what digits represent and position of digits. Count in steps of 10 from any number, forward and backward ACP: Oral counting as class, warm up activity. TA lead - Teacher assess.	Recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers ACP: Use TTRS to ensure recall speed is less than 3 seconds per answer. Orally assess odd and even numbers. Secure fluency in addition and subtraction facts within 10. ACP: Quick quiz on whiteboards, rapid fire questions. Secure fluency in addition and subtraction facts that bridge 10, through continued practice. ACP: Quick quiz on whiteboards, rapid fire questions. Recall (to 10) and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100. ACP: Quick quiz on whiteboards, rapid fire questions.	Recognise, find, name and write fractions 1/3 , 1/4 ,2/4 and 3/4 of a length, shape, set of objects or quantity ACP: Low stakes test covering all aspects of the composite. Recognise the equivalence of 2/4 and 1/2. ACP: Oral session, assess understanding and reasoning Count up and down in tenths; recognise that tenths arise from dividing an object into 10 equal parts and in dividing one-digit numbers or quantities by 10 ACP: Oral session. Counting as class, warm up activity. TA lead - Teacher assess. Division assess reasoning.	Recognise and use symbols for pounds (£) and pence (p). ACP: Quick quiz on whiteboards, rapid fire questions. Tell and write the time to five minutes, including quarter past/to the hour and draw the hands on a clock face to show these times. ACP: Low stakes test covering all aspects of the composite. Know the number of minutes in an hour and the number of hours in a day. ACP: Oral session, assess understanding of the composite.	Identify and describe the properties of 2-D shapes using precise language, including the number of sides and line symmetry in a vertical line. ACP: PPT quick quiz. Show a variety of shapes and assess understanding orally. Identify and describe the properties of 3-D shapes using precise language, including the number of edges, vertices and faces ACP: Quick quiz. Show a variety of shapes and assess understanding orally. Identify 2-D shapes on the surface of 3-D shapes ACP: Quick quiz. Show a variety of shapes and assess understanding orally. Use mathematical vocabulary to describe position, direction and movement, including movement in a straight line and distinguishing between rotation as a turn and in terms of right angles for quarter, half and three-quarter turns (clockwise and anti clockwise). ACP: Practical session to assess all aspects of the composite orally.	
Procedural	**Procedural**	**Procedural**	**Procedural**	**Procedural**	**Procedural**
Order and compare numbers from 0 up to 100; use < > and = signs. ACP: Low stakes test covering all aspects of the composite. Represent and estimate numbers using different representations, including the number line. ACP: How many ways can you represent 67? Compose and decompose 2-digit numbers using standard and non-standard partitioning. ACP: How many ways can you partition 56?? When and why might you use a particular decomposition?	Add and subtract numbers using concrete objects, pictorial representations, and mentally, including: a two-digit number and ones; a two-digit number and tens; two two-digit numbers; adding three one-digit numbers. ACP: Low stakes test covering all aspects of the composite. Free choice of resources, assess level of abstraction. Add and subtract across 10. ACP: Quick quiz, multiple choice: plan in answers with misconceptions. Add and subtract within 100 by applying related 1-digit facts. ACP: Quick quiz on whiteboards, rapid fire questions. Recognise the subtraction structure of 'difference' and answer questions of the form, "How many more...?" ACP: Quick quiz, multiple choice: plan in answers with misconceptions. Calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (×), division (÷) and equals (=) signs ACP: Low stakes test covering all aspects of the composite.	Write simple fractions for example, 1/2 of 6 = 3 ACP: Quick quiz, multiple choice: plan in answers with misconceptions.	Draw the hands on a clock face and write the time to five minutes, including quarter past/to the hour. ACP: Low stakes test covering all aspects of the composite. Compare and sequence intervals of time. ACP: Low stakes test covering all aspects of the composite. Choose and use appropriate standard units to estimate and measure length/height in any direction (m/cm); mass (kg/g); temperature (°C); capacity (litres/ml) to the nearest appropriate unit, using rulers, scales, thermometers and measuring vessels. ACP: Practical sessions to assess all aspects of the composite orally. Assess alongside the following composite. Compare and order lengths, mass, volume/capacity and record the results using >, < and = ACP: Link to practical sessions above. Assess recording of results and understanding of >, < and = symbols. Combine amounts of money to make a particular value. ACP: Quick quiz, multiple choice: plan in answers with misconceptions. Find different combinations of coins that equal the same amounts of money. ACP: Low stakes test (2 or 3 questions). Orally assess reasoning.	Compare and sort common 2-D and 3-D shapes and everyday objects. ACP: Practical session to assess all aspects of the composite orally.	Interpret and construct simple pictograms, tally charts, block diagrams and simple tables. ACP: Low stakes test covering all aspects of the composite.
Conditional	**Conditional**	**Conditional**	**Conditional**	**Conditional**	**Conditional**
Reason about the location of any 2-digit number in the linear number system, including identifying the previous and next multiple of 10. ACP: Oral session with cardboard/ paperclip number line. Use place value and number facts to solve problems. ACP: Quick quiz, multiple choice: plan in answers with misconceptions.	Solve problems with addition and subtraction using concrete objects and pictorial representations, including those involving numbers, quantities and measures. ACP: Low stakes test covering all aspects of the composite. Free choice of resources, assess level of abstraction. Apply their increasing knowledge of mental and written methods ACP: Low stakes test covering all aspects of the composite. Orally assess methods used and reason for choice. Show that addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot ACP: Quick quiz, multiple choice: plan in answers with misconceptions. Orally assess use of vocabulary. Solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts. ACP: Low stakes test covering all aspects of the composite. Relate grouping problems where the number of groups is unknown to multiplication equations with a missing factor, and to division equations (quotitive division). ACP: Quick quiz on whiteboards. Give unknown group problem. Children represent the same problem as missing factor multiplication problem. Show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot ACP: Quick quiz, multiple choice: plan in answers with misconceptions. Recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems. ACP: Low stakes test. Include questions which cover the above.		Solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change ACP: Practical session to assess all aspects of the composite orally.	Order and arrange combinations of mathematical objects in patterns and sequences. ACP: Practical session to assess all aspects of the composite orally. Compare 2-d and 3-D shapes by reasoning about similarities and differences in properties. ACP: PPT quick quiz. Show a variety of shapes and assess understanding orally.	Ask and answer simple questions by counting the number of objects in each category and sorting the categories by quantity. ACP: Practical session to assess all aspects of the composite orally. Ask and answer questions about totalling and comparing categorical data. ACP: Practical session to assess all aspects of the composite orally.

Year 3

Number	Calculation	Fractions	Measure	Geometry	Statistics
Declarative	**Declarative**	**Declarative**	**Declarative**	**Declarative**	**Declarative**
Read and write numbers up to 1000 in numerals and in words ACP: Quick quiz on whiteboards, rapid fire questions. Recognise the place value of each digit in a three-digit number. ACP: Quick quiz on whiteboards, rapid fire questions of value of digits, what digits represent and position of digits. Identify numbers using different representations. ACP: How many ways can you represent 4367? Count from 0 in multiples of 4, 8, 50 and 100; find 10 or 100 more or less than a given number. ACP: Oral counting as class, warm up activity. TA lead - Teacher assess. Know that 10 tens are equivalent to 1 hundred, and that 100 is 10 times the size of10; apply this to work out how many 10s there are in other 3-digit multiples of 10. ACP: Quick quiz, multiple choice: plan in answers with misconceptions.	Recall multiplication facts, and corresponding division facts, in the 10, 5, 2, 4 and 8 multiplication tables, and recognise products in these multiplication tables as multiples of the corresponding number ACP: Use TTRS to ensure recall speed is less than 3 seconds per answer. Calculate complememnts to 100. ACP: Quick quiz on whiteboards. Understand and use the commutative property of addition, and understand the related property for subtraction. ACP: Write an explanation of how the commutative property of addition works. Explain why it doesn't work for subtraction. Divide 100 into 2, 4, 5 and 10 equal parts, and read scales/number lines marked in multiples of 100 with 2, 4, 5 and 10 equal parts. ACP: Quick quiz, multiple choice: plan in answers with misconceptions.	Recognise fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominators. ACP: Quick quiz, multiple choice, equivalent fractions with small denominators. Recognise and show, using diagrams, equivalent fractions with small denominators. ACP: Quick fire questions, record and share on whiteboards.. Interpret and write proper fractions to represent 1 or several parts of a whole that is divided into equal parts. ACP: Quick fire questions, record and share on whiteboards.. Find unit fractions of quantities using known division facts. (multiplication tables fluency). ACP: Quick fire questions, record and share on whiteboards..	Tell and write the time from an analogue clock, including using Roman numerals from I to XII, and 12-hour and 24-hour clocks. ACP: Quick quiz, multiple choice: plan in answers with misconceptions. Estimate and read time with increasing accuracy to the nearest minute. ACP: Quick fire questions, record and share on whiteboards.. Use vocabulary such as o'clock, a.m., p.m., morning, afternoon, noon and midnight. ACP: Quick fire questions - oral answers Know the number of seconds in a minute and the number of days in each month, year and leap year. ACP: Fluent in 5 questions	Recognise 3-D shapes in different orientations and describe them. ACP: Quick quiz, PPT display shapes, responses on whiteboards. Recognise angles as a property of shape or a description of turn. ACP: Write a definition of angle. Identify right-angles, recognise that two right-angles make a half-turn, three make three quarters of a turn and four a whole turn. ACP: Quick fire questions, record and share on whiteboards.. identify horizontal and vertical lines and pairs of perpendicular and parallel lines. ACP: Quick quiz, show in different orientations and sizes. Identify right angles in 2-D shapes in different orientations. ACP: Quick quiz, PPT display shapes, responses on whiteboards.	
Procedural	**Procedural**	**Procedural**	**Procedural**	**Procedural**	**Procedural**
Order and compare numbers up to 1000. ACP: Fluent in 5 questions. Represent and estimate numbers using different representations. ACP: PPT quick quiz. Show a variety of numbers using different representations, record estimates. Compose and decompose 3-digit numbers using standard and non-standard partitioning. ACP: How many ways can you partition 567? When and why might you use a particular decomposition?	Add and subtract numbers mentally, including: a three-digit number and ones; a three-digit number and tens; a three-digit number and hundreds. ACP: Quick quiz to include: exchanging, missing box and find the mistake. Add and subtract numbers with up to three digits, using formal written methods of columnar addition and subtraction. ACP: Quick quiz to include: exchanging, missing box and find the mistake Write and calculate mathematical statements for multiplication and division using the multiplication tables that they know, including for two-digit numbers times one-digit numbers, using mental and progressing to formal written methods. ACP: Quick quiz, to cover all aspects of the composite	Find and write fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominators. ACP: Quick quiz, record and share on whiteboards.. Recognise and use fractions as numbers: unit fractions and non-unit fractions with small denominators ACP: Quick quiz, record and share on whiteboards.. Add and subtract fractions with the same denominator within one whole. ACP: Quick quiz, record and share on whiteboards.. Compare and order unit fractions, and fractions with the same denominators. ACP: Quick quiz, multiple choice: plan in answers with misconceptions.	Record and compare time in terms of minutes, seconds and hours. ACP: Minutes and seconds -practical session recording and comparing physical activity times. Hours - quick quiz sharing answers on whiteboards. Compare the duration of events. ACP: Quick quiz, record and share on whiteboards.. Measure, compare, add and subtract: lengths (m, cm, mm), mass (kg, g), volume/capacity (l, ml). ACP: Measuring - practical session. Adding and subtracting quick quiz, multiple choice answers including common misconceptions. Measure the perimeter of simple 2-D shapes. ACP: Practical session Add and subtract amounts of money to give change, using both £ and p in practical contexts. ACP: Low stakes test. Include questions which cover the above.	Draw 2-D shapes and make 3-D shapes using modelling materials. ACP: Practical session to assess both aspects of the composite. Identify whether angles are greater than or less than a right-angle. ACP: Quick quiz, PPT display shapes, responses on whiteboards.	Interpret and present data using bar charts, pictograms and tables. ACP: Low stakes test. Include questions which cover the above.
Conditional	**Conditional**	**Conditional**	**Conditional**	**Conditional**	**Conditional**
Reason about the location of any 3-digit number in the linear number system, including identifying the previous and next multiple of 100 and 10. ACP: Oral session with cardboard/ paperclip number line. Solve number problems and practical problems involving the decorative and procedural knowledge above.	Solve problems with addition and subtraction using concrete objects and pictorial representations, including those involving numbers, quantities and measures. ACP: Low stakes test covering all aspects of the composite. Apply their increasing knowledge of mental and written methods ACP: Low stakes test. Include questions which require formal and those which can be solved using mental methods Show that addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot ACP: Write an explanation of how the commutative property of addition works. Explain why it doesn't work for subtraction. Solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts. ACP: Give a multiplication and division problem. Show solutions using as many of the above ways as possible. Relate grouping problems where the number of groups is unknown to multiplication equations with a missing factor, and to division equations (quotitive division). ACP: Quick quiz on whiteboards. Give unknown group problem. Children represent the same problem as missing number multiplication problem. Show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot ACP: Write an explanation of how the commutative property of multiplication works. Explain why it doesn't work for division. Recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems. ACP: Low stakes test. Include questions which cover the above.	Solve problems that involve Year 3 declarative and procedural fractions knowledge. ACP: Low stakes test. Include questions which cover the above. Reason about the location of any fraction within 1 in the linear number system. ACP: Oral session with cardboard/ paperclip number line.			Solve one-step and two-step questions [for example, 'How many more?' and 'How many fewer?'] using information presented in scaled bar charts and pictograms and tables. ACP: Low stakes test. Include questions which cover the above.

Year 4

Number	Calculation	Fractions	Measure	Geometry	Statistics

Declarative

Number	Calculation	Fractions	Measure	Geometry	Statistics
Identify and represent numbers using different representations. ACP: How many ways can you represent 4367? Recognise the place value of each digit in a four-digit number (thousands, hundreds, tens, and ones). ACP: Quick quiz on whiteboards, rapid fire questions of value of digits, what digits represent and position of digits. Count in multiples of 6, 7, 9, 25 and 1000. ACP: Oral counting as class, warm up activity Count backwards through zero to include negative numbers ACP: Oral counting as class, warm up activity and Fluent in 5 question. Find 1000 more or less than a given number. ACP: Fluent in 5 questions Know that 10 hundreds are equivalent to 1 thousand, and that 1000 is 10 times the size of 100; apply this identify and work out how many hundreds there are in other 4-digit multiples of 100. ACP: Quick quiz, multiple choice: plan in answers with misconceptions. Read Roman numerals to 100 (I to C) and know that over time, the numeral system changed to include the concept of zero and place value. ACP: Fluent in 5 questions for reading numerals. What's the same? What's different between Roman place value and ours?	Recall multiplication and division facts for multiplication tables up to 12 × 12, and recognise products in multiplication tables as multiples of the corresponding number. ACP: Use TTRS to ensure recall speed is less than 3 seconds per answer. Recognise factor pairs. Fluent in 5 questions Divide 1000 into 2, 4, 5 and 10 equal parts, and read scales/number lines marked in multiples of 1000 with 2, 4, 5 and 10 equal parts. ACP: Quick quiz, multiple choice: plan in answers with misconceptions. Multiply and divide whole numbers by 10 and 100 (keeping to whole number quotients); understand this as equivalent to making a number 10 or 100 times the size. ACP: Quick quiz on whiteboards, rapid fire questions. (Always? Sometimes? Never?) for equivalent to making 10 or 100 times the size.	Recognise families of common equivalent fractions ACP: Quick quiz, multiple choice: plan in answers with misconceptions. Recognise and write decimal equivalents to 1/4 , 1/2 , 3/4. ACP: Quick fire questions, record and share on whiteboards.. Recognise and write decimal equivalents of any number of tenths or hundredths. ACP: Quick fire questions, record and share on whiteboards..	Read and write time in analogue and digital 12- and 24-hour clocks. ACP: Quick quiz, multiple choice: plan in answers with misconceptions.	Identify acute and obtuse angles. ACP: Quick fire questions, record and share on whiteboards. Describe positions on a 2-D grid as coordinates in the first quadrant. ACP: Quick fire questions, record and share on whiteboards. Identify regular polygons, including equilateral triangles and squares, as those in which the side-lengths are equal and the angles are equal. ACP: Write definition of regular polygon. Select regular polygons from a range of shapes.	

Procedural

Number	Calculation	Fractions	Measure	Geometry	Statistics
Order and compare numbers beyond 1000. ACP: Fluent in 5 questions. Estimate numbers using different representations. ACP: PPT quick quiz. Show a variety of numbers using different representations, record estimates. Compose and decompose 4-digit numbers using standard and non-standard partitioning. ACP: How many ways can you partition 5267? When and why might you use a particular decomposition? Round any number to the nearest 10, 100 or 1000 ACP: Quick quiz, multiple choice: plan in answers with misconceptions.	Add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate. ACP: Quick quiz to include: exchanging, missing box and find the mistake Multiply two-digit and three-digit numbers by a one-digit number using formal written layout. ACP: Quick quiz to include: exchanging, missing box and find the mistake Use factor pairs and commutativity in mental calculations. ACP: Fluent in 5: write definition of factor pair. Quick quiz on whiteboards assess methods through questioning. Use place value, known and derived facts to multiply and divide mentally, including: multiplying by 0 and 1; dividing by 1; multiplying together three numbers ACP: Quick quiz, to cover all aspects of the composite Solve division problems, with 2-digit dividends and 1-digit divisors that involve remainders. ACP: Quick quiz, to include algorithm and word problems (include measure as a context).	Show, using diagrams, families of common equivalent fractions ACP: Quick quiz, multiple choice: plan in answers with misconceptions. Solve problems involving increasingly harder fractions to calculate quantities, and fractions to divide quantities, including non-unit fractions where the answer is a whole number. ACP: Quick quiz, to cover all aspects of the composite Add and subtract improper and mixed fractions with the same denominator, including bridging whole numbers.. ACP: Quick quiz on whiteboards, share answers Convert mixed numbers to improper fractions and vice versa. ACP: Quick quiz on whiteboards, share answers Find the effect of dividing a one- or two-digit number by 10 and 100, identifying the value of the digits in the answer as ones, tenths and hundredths. ACP: Quick quiz on whiteboards, share answers. Assess use of vocabulary through questioning Compare numbers with the same number of decimal places up to two decimal places. ACP: Quick quiz on whiteboards, share answers. Assess use of vocabulary (< and >) through questioning Round decimals with one decimal place to the nearest whole number. ACP: Oral session with cardboard/ paperclip number line.	Convert time between analogue and digital 12- and 24-hour clocks. ACP: Quick quiz on whiteboards, share answers Convert from hours to minutes; minutes to seconds; years to months; weeks to days. ACP: Quick quiz on whiteboards, share answers Convert between different units of measure (for example, kilometre to metre; hour to minutes). ACP: Quick quiz on whiteboards, share answers Measure and calculate the perimeter of rectilinear figures (including squares) in centimetres and metres. ACP: Low stakes test. Include questions which cover all of the composite. Find the perimeter of regular and irregular polygons. ACP: Quick quiz on whiteboards, share answers Find the area of rectilinear shapes by counting squares. ACP: Quick quiz Estimate, compare and calculate different measures, including money in pounds and pence. ACP: Low stakes test. Include questions which cover all of the composite.	Compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes. ACP: Display range of shapes. Oral reasoning session Compare and order angles up to two right angles by size. ACP: Quick quiz on whiteboards, share answers Identify lines of symmetry in 2-D shapes presented in different orientations. ACP: Quick quiz, multiple choice: plan in answers with misconceptions. Reflect shapes in a line of symmetry and complete a symmetric figure or pattern with respect to a specified line of symmetry. ACP: Low stakes test. Include questions which cover all of the composite. Describe movements between positions as translations of a given unit to the left/right and up/down. ACP: Quick quiz on whiteboards, share answers Plot specified points and draw sides to complete a given polygon. ACP: Low stakes test covering all of the composite. Draw polygons specified by coordinates in the first quadrant, and translate within the first quadrant. ACP: Low stakes test covering all of the composite.	Interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs. ACP: Give a set of data, children interpret, prepare and present to class.

Conditional

Number	Calculation	Fractions	Measure	Geometry	Statistics
Reason about the location of any 4-digit number in the linear number system, including identifying the previous and next multiple of 1000 and 100 and rounding to the nearest of each. ACP: Oral session with cardboard/ paperclip number line. Solve number and practical problems that involve all of the above and with increasingly large positive numbers. ACP: Low stakes test, use to inform planning of any whole-class or individual interventions.	Solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why. ACP: Low stakes test. Include questions which require formal and those which can be solved using mental methods Interpret remainders appropriately according to the context. ACP: Hinge questions Solve problems involving multiplying and adding, including using the distributive law to multiply two digit numbers by one digit, integer scaling problems and harder correspondence problems such as n objects are connected to m objects. ACP: Low stakes test. Include questions which cover the above. Apply place-value knowledge to known additive and multiplicative number facts (scaling by 100). ACP: Quick quiz on whiteboards, rapid fire questions Manipulate multiplication and division equations, and understand and apply the commutative property of multiplication. ACP: Quick quiz, multiple choice: plan in answers with misconceptions. Understand and apply the distributive property of multiplication. ACP: Write an explanation of how the distributive property of multiplication works. Estimate and use inverse operations to check answers to a calculation. ACP: Estimation - Quick quiz, multiple choice: plan in answers with misconceptions. Use whiteboards to check which operation is the inverse.	Solve simple measure and money problems involving fractions and decimals to two decimal places. ACP: Low stakes test. Include questions which cover all of the composite. Reason about the location of mixed numbers in the linear number system. ACP: Oral session with cardboard/ paperclip number line.	Solve problems involving converting units of time. ACP: Quick quiz		Solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs. ACP: Low stakes test. Include questions which cover all of the composite.

Year 5

Number	Calculation	Fractions	Measure	Geometry	Statistics
Declarative	**Declarative**	**Declarative**	**Declarative**	**Declarative**	**Declarative**
Read and write numbers to at least 1 000 000 and determine the value of each digit	Secure fluency in multiplication table facts, and corresponding division facts, through continued practice.	Recognise mixed numbers and improper fractions and write mathematical statements > 1 as a mixed number.	Convert between different units of metric measure (for example, kilometre and metre; centimetre and metre; centimetre and millimetre; gram and kilogram; litre and millilitre) including using common decimals and fractions.	Identify 3-D shapes, including cubes and other cuboids, from 2-D representations.	
ACP: Quick quiz on whiteboards, rapid fire questions of value of digits, what digits represent and position of digits.	ACP: Use TTRS to ensure recall speed is less than 3 seconds per answer.	ACP: Quick fire questions, record and share on whiteboards. Include all of the above composite	ACP: Quick quiz, multiple choice: plan in answers with misconceptions.	ACP: Quick quiz, PPT display shapes, responses on whiteboards.	
Recognise the place value of each digit in numbers with up to 2 decimal places.	Recognise and use square numbers and cube numbers, and the notation for squared (2) and cubed (3).	Identify, name and write equivalent fractions of a given fraction, including tenths and hundredths, and understand they have the same position in the linear number system.	Understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints.	Know angles are measured in degrees.	
ACP: Quick quiz on whiteboards, rapid fire questions of value of digits, what digits represent and position of digits.	Fluent in 5 questions		ACP: Quick quiz, multiple choice: plan in answers with misconceptions.	Identify: angles at a point and one whole turn (total 360o); angles at a point on a straight line and 1/2 a turn (total 180o); other multiples of 90o.	
Count forwards or backwards in steps of powers of 10 for any given number up to 1 000 000.	Know and use the vocabulary of prime numbers, prime factors and composite (non- prime) numbers.	ACP: Quick fire questions, record and share on whiteboards.		ACP: Write definitions of the terms	
ACP: Oral counting as class, warm up activity	ACP: Write definitions of the terms	Compare and order fractions whose denominators are all multiples of the same number.			
Count forwards and backwards with positive and negative whole numbers, including through zero.	Recall prime numbers up to 19.	ACP: Quick fire questions, record and share on whiteboards.		ACP: Low stakes test to include all aspects of the composite (2 or 3 questions).	
ACP: Oral counting as class, warm up activity	ACP: Quick fire questions, record and share on whiteboards.	Read and write decimal numbers as fractions.			
Know that 10 tenths are equivalent to 1 one, and that 1 is 10 times the size of 0.1;	Divide 1 into 2, 4, 5 and 10 equal parts, and read scales/number lines marked in units of 1 in 2, 4, 5 and 10 equal parts.	Fluent in 5 questions			
ACP: Quick quiz, multiple choice: plan in answers with misconceptions.	ACP: Quick quiz, multiple choice: plan in answers with misconceptions.	Recall decimal fraction equivalents for 1/2, 1/4, 1/5, and 1/10, and for multiples of these unit fractions.			
Know that 100 hundredths are equivalent to 1 one, and that 1 is 100 times the size of 0.01;	Multiply and divide numbers by 10 and 100; understand this as equivalent to making a number 10 or 100 times the size, or 1 tenth or 1 hundredth times the size.	ACP: Quick fire questions, record and share on whiteboards.			
ACP: Quick quiz, multiple choice: plan in answers with misconceptions.	ACP: Quick fire questions, record and share on whiteboards. Include all of the above vocabulary.	Recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents.			
Know that 10 hundredths are equivalent to 1 tenth, and that 0.1 is 10 times the size of 0.01;		ACP: Quick quiz, multiple choice: plan in answers with misconceptions.			
ACP: Quick quiz, multiple choice: plan in answers with misconceptions.		Read and write numbers with up to three decimal places.			
Read Roman numerals to 1000 (M) and recognise years written in Roman numerals.		ACP: Fluent in 5 questions			
ACP: Quick quiz, responses on whiteboards		Recognise the per cent symbol (%) and understand that per cent relates to 'number of parts per hundred', and write percentages as a fraction with denominator 100, and as a decimal.			
		ACP: Quick quiz, multiple choice: plan in answers with misconceptions.			
Procedural	**Procedural**	**Procedural**	**Procedural**	**Procedural**	**Procedural**
Order and compare numbers to at least 1 000 000.	Add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction).	Find non-unit fractions of quantities.	Measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres.	Estimate and compare acute, obtuse and reflex angles.	Complete, read and interpret information in tables, including timetables.
ACP: Quick quiz, responses on whiteboards	ACP: Quick quiz to include: exchanging, missing box and find the mistake	ACP: Quick quiz, responses on whiteboards. Oral reasoning	ACP: Measure - practical session. Calculate - quick quiz	ACP: Quick quiz, PPT display shapes, responses on whiteboards.	ACP: Low stakes test to include all aspects of the composite.
Compose and decompose numbers with up to 2 decimal places using standard and non-standard partitioning.	Add and subtract numbers mentally with increasingly large numbers.	Add and subtract fractions with the same denominator and denominators that are multiples of the same number.	Calculate and compare the area of rectangles (including squares), and including using standard units, square centimetres (cm2) and square metres (m2) and estimate the area of irregular shapes.	ACP: Low stakes test to include all aspects of the composite.	
ACP: Quick quiz, responses on whiteboards	ACP: Quick quiz, responses on whiteboards. Oral reasoning	ACP: Quick quiz, responses on whiteboards. Oral reasoning		Identify, describe and represent the position of a shape following a reflection or translation, using the appropriate language, and know that the shape has not changed.	
Round any number up to 1 000 000 to the nearest 10, 100, 1000, 10 000 and 100 000.	Multiply numbers up to 4 digits by a one- or two-digit number using a formal written method, including long multiplication for two-digit numbers.	Convert from mixed numbers and improper fractions.	ACP: Quick quiz, multiple choice: plan in answers with misconceptions.	ACP: Low stakes test to include all aspects of the composite.	
ACP: Oral session with cardboard/ paperclip number line.		ACP: Quick quiz, responses on whiteboards. Oral reasoning	Estimate volume [for example, using 1 cm3 blocks to build cuboids (including cubes)] and capacity [for example, using water].	Compare areas and calculate the area of rectangles (including squares) using standard units.	
	ACP: Quick quiz to include all aspects of the composite.	Multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams.	ACP: Practical session	ACP: Quick quiz, multiple choice: plan in answers with misconceptions.	
	Multiply and divide whole numbers and those involving decimals by 10, 100 and 1000.	ACP: Low stakes test. Free choice of materials, assess level of abstraction.			
	ACP: Quick quiz, responses on whiteboards	Order and compare numbers with up to three decimal places.			
	Multiply and divide numbers mentally drawing upon known facts.	ACP: Quick quiz, responses on whiteboards. Oral reasoning			
	ACP: Quick quiz, responses on whiteboards	Round decimals with two decimal places to the nearest whole number and to one decimal place.			
	Divide numbers up to 4 digits by a one-digit number using the formal written method of short division and interpret remainders appropriately for the context.	ACP: Quick quiz, responses on whiteboards. Possibly use cardboard/ paperclip number line.			
	ACP: Quick quiz to include all aspects of the composite.				
	Find factors and multiples of positive whole numbers, including common factors and common multiples, finding all factor pairs of a number, and express a given number as a product of 2 or 3 factors.				
	ACP: Low stakes test to include all aspects of the composite.				
Conditional	**Conditional**	**Conditional**	**Conditional**	**Conditional**	**Conditional**
Reason about the location of any number with up to 2 decimal places in the linear number system, including identifying the previous and next multiple of 1 and 0.1 and rounding to the nearest of each.	Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why.	Solve problems involving number up to three decimal places.	Solve problems involving converting between units of time.	Use the properties of rectangles to deduce related facts and find missing lengths and angles.	Solve comparison, sum and difference problems using information presented in a line graph.
ACP: Oral session with cardboard/ paperclip number line.	ACP: Low stakes test to include all aspects of the composite (2 or 3 questions). Orally assess choice of methods.	ACP: Low stakes test to include all aspects of the composite.	ACP: Quick quiz, multiple choice: plan in answers with misconceptions.	ACP: Quick quiz, multiple choice: plan in answers with misconceptions.	ACP: Low stakes test to include all aspects of the composite.
Solve number problems and practical problems that involve all Year 5 Declarative and Procedural knowledge.	Solve problems involving multiplication and division including using their knowledge of factors and multiples, squares and cubes.	Solve problems which require knowing percentage and decimal equivalents of 1/2, 1/4, 1/5 , 2/5, 4/5 and those fractions with a denominator of a multiple of 10 or 25.	Use all four operations to solve problems involving measure [for example, length, mass, volume, money] using decimal notation, including scaling.	Distinguish between regular and irregular polygons based on reasoning about equal sides and angles.	
ACP: Low stakes test. Include questions which cover the above.	ACP: Low stakes test to include all aspects of the composite (2 or 3 questions). Orally assess knowledge of factors, multiples, squares and cubes.	ACP: Low stakes test to include all aspects of the composite.	ACP: Low stakes test to include all aspects of the composite.	ACP: Quick quiz, PPT display shapes, responses on whiteboards. Orally assess reasoning.	
Interpret negative numbers in context.					
ACP: Quick quiz, multiple choice: plan in answers with misconceptions.	Solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates.				
	ACP: Quick quiz, multiple choice: plan in answers with misconceptions.				
	Apply place-value knowledge to known additive and multiplicative number facts (scaling facts by 1 tenth or 1 hundredth).				
	ACP: Quick quiz, responses on whiteboards				
	Solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign.				
	ACP: Low stakes test to include all aspects of the composite.				
	Use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy.				
	ACP: Quick quiz, multiple choice: plan in answers with misconceptions.				

Year 6

Number	Calculation	Fractions	Ratio and Proportion	Algebra	Measure	Geometry	Statistics
Declarative	**Declarative**	**Declarative**	**Declarative**	**Declarative**	**Declarative**	**Declarative**	**Declarative**
Read and write numbers up to 10 000 000 and determine the value of each digit. ACP: Quick quiz on whiteboards, rapid fire questions of value of digits, what digits represent and position of digits. Recognise the place value of each digit in numbers with up to 10 million, including decimal fractions. ACP: Quick quiz on whiteboards, rapid fire questions of value of digits, what digits represent and position of digits. Understand the relationship between the powers of 10 from 1 hundredth to 10 million, and use this to make a given number 10, 100, 1000, 1 tenth, 1 hundredth or 1 thousandth times the size (multiply by 10, 100 and 1000). ACP: Quick quiz, responses on whiteboards. Assess understanding of the relationships orally. Round any whole number to a required degree of accuracy. ACP: Quick quiz, multiple choice: plan in answers with misconceptions.	Sustain fluency in multiplication table facts, and corresponding division facts, through continued practice. ACP: Use TTRS to ensure recall speed is less than 3 seconds per answer. Identify common factors, common multiples and prime numbers. ACP: Fluent in 5 questions	Identify the value of each digit in numbers given to three decimal places. ACP: Quick quiz on whiteboards, rapid fire questions of value of digits, what digits represent and position of digits. Recall and use equivalences between simple fractions, decimals and percentages, including in different contexts. ACP: Quick fire questions, record and share on whiteboards. Include all of the above composite			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. ACP: Low stakes test to include all aspects of the composite. Recognise that shapes with the same areas can have different perimeters and vice versa. ACP: Low stakes test to include all aspects of the composite (2 or 3 questions). Orally assess reasoning. Recognise when it is possible to use formulae for area and volume of shapes. ACP: Quick quiz, multiple choice: choice of methods.	Recognise and describe simple 3-D shapes. ACP: Quick quiz, PPT display shapes, responses on whiteboards. Name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius ACP: Quick quiz, label circle and complete formula d = 2r Recognise angles where they meet at a point, are on a straight line, or are vertically opposite. ACP: Low stakes test to include all aspects of the composite. Describe positions on the full coordinate grid (all four quadrants). ACP: Quick quiz, PPT display coordinate grid, responses on whiteboards.	
Procedural	**Procedural**	**Procedural**	**Procedural**	**Procedural**	**Procedural**	**Procedural**	**Procedural**
Order and compare numbers up to 10 000 000. ACP: Quick quiz, responses on whiteboards Compose and decompose numbers with up to 10 million using standard and non-standard partitioning. ACP: How many ways can you partition 5,964,267? When and why might you use a particular decomposition? Use negative numbers in context, and calculate intervals across zero. ACP: Quick quiz, multiple choice: plan in answers with misconceptions.	Multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication. ACP: Low stakes test to include all aspects of the composite. 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. ACP: Quick quiz to include all aspects of the composite. 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. ACP: Quick quiz to include all aspects of the composite. Perform mental calculations, including with mixed operations and large numbers. ACP: Quick quiz, responses on whiteboards. Orally asses choice of method. Use their knowledge of the order of operations to carry out calculations involving the four operations. ACP: Quick quiz, responses on whiteboards	Use common factors to simplify fractions; use common multiples to express fractions in the same denomination. ACP: Quick quiz, responses on whiteboards Compare and order fractions, including fractions > 1. ACP: Quick quiz, responses on whiteboards Add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions. ACP: Quick quiz, multiple choice: plan in answers with misconceptions. Multiply simple pairs of proper fractions, writing the answer in its simplest form. ACP: Quick quiz, multiple choice: plan in answers with misconceptions. Divide proper fractions by whole numbers. ACP: Quick quiz, responses on whiteboards Associate a fraction with division and calculate decimal fraction equivalents [for example, 0.375] for a simple fraction [for example, 3/8]. ACP: Quick quiz, responses on whiteboards. Orally assess understanding of association. Multiply and divide numbers by 10, 100 and 1000 giving answers up to three decimal places. ACP: Quick fire questions, record and share on whiteboards. Include all of the above composite Use written division methods in cases where the answer has up to two decimal places. ACP: Quick quiz, multiple choice: plan in answers with misconceptions.	Calculate percentages of quantities. ACP: Quick quiz, multiple choice: plan in answers with misconceptions. Calculate scale factors of similar shapes. ACP: Quick quiz, multiple choice: plan in answers with misconceptions.	Use simple formulae. ACP: Quick quiz, multiple choice: plan in answers with misconceptions. Generate and describe linear number sequences. ACP: Quick quiz, responses on whiteboards. Orally assess reasoning to identify any misconceptions. Express missing number problems algebraically. ACP: Quick quiz, multiple choice: plan in answers with misconceptions. Find pairs of numbers that satisfy an equation with two unknowns. ACP: Low stakes test to include all aspects of the composite (2 or 3 questions). Orally assess reasoning. Enumerate possibilities of combinations of two variables. ACP: Low stakes test to include all aspects of the composite (2 or 3 questions). Orally assess reasoning.	Convert between miles and kilometres. ACP: Quick quiz, responses on whiteboards Calculate the area of parallelograms and triangles. ACP: Low stakes test to include all aspects of the composite (2 or 3 questions). Orally assess reasoning. Calculate, estimate and compare volume of cubes and cuboids using standard units, including cubic centimetres (cm3) and cubic metres (m3), and extending to other units [for example, mm3 and km3]. ACP: Low stakes test to include all aspects of the composite (2 or 3 questions). Orally assess reasoning.	Draw 2-D shapes using given dimensions and angles. ACP: Low stakes test to include all aspects of the composite (2 or 3 questions). Assess accuracy. Build simple 3-D shapes, including making nets ACP: Practical session Compare and classify geometric shapes based on their properties and sizes and find unknown angles in any triangles, quadrilaterals, and regular polygons. ACP: Low stakes test to include all aspects of the composite (2 or 3 questions). Orally assess reasoning. Illustrate parts of circles, including radius, diameter and circumference. ACP: Low stakes test to include all aspects of the composite (2 or 3 questions). Assess accuracy. Draw and translate simple shapes on the coordinate plane, and reflect them in the axes. ACP: Low stakes test to include all aspects of the composite (2 or 3 questions). Assess accuracy.	Interpret and construct pie charts and line graphs. ACP: Low stakes test to include all aspects of the composite (2 or 3 questions). Assess accuracy. Calculate and interpret the mean as an average. ACP: Quick quiz, multiple choice: plan in answers with misconceptions.
Conditional	**Conditional**	**Conditional**	**Conditional**	**Conditional**	**Conditional**	**Conditional**	**Conditional**
Reason about the location of any number with up to 2 decimal places in the linear number system, including identifying the previous and next multiple of 1 and 0.1 and rounding to the nearest of each. ACP: Oral session with cardboard/ paper/cip number line. Solve number problems and practical problems that involve all Year 6 Declarative and Procedural knowledge. ACP: Low stakes test to include all aspects of the composite.	Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why. ACP: Low stakes test to include all aspects of the composite (2 or 3 questions). Orally assess choice of method. Solve problems involving addition, subtraction, multiplication and division. ACP: Low stakes test to include all aspects of the composite (2 or 3 questions). Orally assess choice of methods. Use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy. ACP: Quick quiz, multiple choice: plan in answers with misconceptions.	Solve problems which require answers to be rounded to specified degrees of accuracy. ACP: Quick quiz, multiple choice: plan in answers with misconceptions.	Solve problems involving the relative sizes of two quantities where missing values can be found by using integer multiplication and division facts. ACP: Quick quiz, multiple choice: plan in answers with misconceptions. Solve problems involving the calculation of percentages [for example, of measures, and such as 15% of 360] and the use of percentages for comparison. ACP: Quick quiz, multiple choice: plan in answers with misconceptions. Solve problems involving similar shapes where the scale factor is known or can be found. ACP: Quick quiz, multiple choice: plan in answers with misconceptions. Solve problems involving unequal sharing and grouping using knowledge of fractions and multiples. ACP: Quick quiz, multiple choice: plan in answers with misconceptions.		Solve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate. ACP: Low stakes test to include all aspects of the composite.		Solve problems from pie charts and line graphs which have been constructed. ACP: Quick quiz, multiple choice: plan in answers with misconceptions.

Number					
Year 1	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**
Declarative	**Declarative**	**Declarative**	**Declarative**	**Declarative**	**Declarative**
Read and write numbers to 100 in numerals.	Read and write numbers to at least 100 in numerals and in words.	Read and write numbers up to 1000 in numerals and in words	Identify and represent numbers using different representations.	Read and write numbers to at least 1 000 000 and determine the value of each digit	Read and write numbers up to 10 000 000 and determine the value of each digit.
Read and write numbers from 1 to 20 in numerals and words.					
Count to and across 100 forwards and backwards	Identify numbers using different representations, including the number line.	Recognise the place value of each digit in a three-digit number.	Recognise the place value of each digit in a four-digit number (thousands, hundreds, tens, and ones).	Recognise the place value of each digit in numbers with up to 2 decimal places.	Recognise the place value of each digit in numbers with up to 10 million, including decimal fractions.
Count forwards and backwards in multiples of 2, 5 and 10, up to 10 multiples, beginning with any multiple, and count forwards and backwards through the odd numbers.	Recognise the place value of each digit in a two-digit number	Identify numbers using different representations.	Count in multiples of 6, 7, 9, 25 and 1000.	Count forwards or backwards in steps of powers of 10 for any given number up to 1 000 000.	
	Count in steps of 10 from any number, forward and backward	Count from 0 in multiples of 4, 8, 50 and 100; find 10 or 100 more or less than a given number.	Count backwards through zero to include negative numbers		
Recognise odd and even numbers.			Find 1000 more or less than a given number.	Count forwards and backwards with positive and negative whole numbers, including through zero.	
Identify one more or less than a given number.					
		Know that 10 tens are equivalent to 1 hundred, and that 100 is 10 times the size of10; apply this to work out how many 10s there are in other 3-digit multiples of 10.	Know that 10 hundreds are equivalent to 1 thousand, and that 1000 is 10 times the size of 100; apply this identify and work out how many hundreds there are in other 4-digit multiples of 100.	Know that 10 tenths are equivalent to 1 one, and that 1 is 10 times the size of 0.1;	Understand the relationship between the powers of 10 from 1 hundredth to 10 million, and use this to make a given number 10, 100, 1000, 1 tenth, 1 hundredth or 1 thousandth times the size (multiply by 10, 100 and 1000).
				Know that 100 hundredths are equivalent to 1 one, and that 1 is 100 times the size of 0.01;	
				Know that 10 hundredths are equivalent to 1 tenth, and that 0.1 is 10 times the size of 0.01;	Round any whole number to a required degree of accuracy.
			Read Roman numerals to 100 (I to C) and know that over time, the numeral system changed to include the concept of zero and place value.	Read Roman numerals to 1000 (M) and recognise years written in Roman numerals.	
Procedural	**Procedural**	**Procedural**	**Procedural**	**Procedural**	**Procedural**
Identify and represent numbers using objects and pictorial representations including the number line.	Order and compare numbers from 0 up to 100; use < > and = signs.	Order and compare numbers up to 1000.	Order and compare numbers beyond 1000.	Order and compare numbers to at least 1 000 000.	Order and compare numbers up to 10 000 000.
Use the language of: equal to, more than, less than,most, least	Represent and estimate numbers using different representations, including the number line.	Represent and estimate numbers using different representations.	Estimate numbers using different representations.	Compose and decompose numbers with up to 2 decimal places using standard and non-standard partitioning.	Compose and decompose numbers with up to 10 million using standard and non-standard partitioning.
	Compose and decompose 2-digit numbers using standard and non-standard partitioning.	Compose and decompose 3-digit numbers using standard and non-standard partitioning.	Compose and decompose 4-digit numbers using standard and non-standard partitioning.		Use negative numbers in context, and calculate intervals across zero.
			Round any number to the nearest 10, 100 or 1000	Round any number up to 1 000 000 to the nearest 10, 100, 1000, 10 000 and 100 000.	
Conditional	**Conditional**	**Conditional**	**Conditional**	**Conditional**	**Conditional**
Reason about the location of numbers to 20 within the linear number system, including comparing using < > and =.	Reason about the location of any 2-digit number in the linear number system, including identifying the previous and next multiple of 10.	Reason about the location of any 3-digit number in the linear number system, including identifying the previous and next multiple of 100 and 10.	Reason about the location of any 4-digit number in the linear number system, including identifying the previous and next multiple of 1000 and 100 and rounding to the nearest of each.	Reason about the location of any number with up to 2 decimal places in the linear number system, including identifying the previous and next multiple of 1 and 0.1 and rounding to the nearest of each.	Reason about the location of any number with up to 2 decimal places in the linear number system, including identifying the previous and next multiple of 1 and 0.1 and rounding to the nearest of each.
	Use place value and number facts to solve problems.	Solve number problems and practical problems involving the decorative and procedural knowledge above.	Solve number and practical problems that involve all of the above and with increasingly large positive numbers.	Solve number problems and practical problems that involve all Year 5 Declarative and Procedural knowledge.	Solve number problems and practical problems that involve all Year 6 Declarative and Procedural knowledge.
				Interpret negative numbers in context.	

Calculation

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Declarative	**Declarative**	**Declarative**	**Declarative**	**Declarative**	**Declarative**
Represent and use number bonds and related subtraction facts within 20.	Recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers	Recall multiplication facts, and corresponding division facts, in the 10, 5, 2, 4 and 8 multiplication tables, and recognise products in these multiplication tables as multiples of the corresponding number	Recall multiplication and division facts for multiplication tables up to 12 × 12, and recognise products in multiplication tables as multiples of the corresponding number.	Secure fluency in multiplication table facts, and corresponding division facts, through continued practice.	Sustain fluency in multiplication table facts, and corresponding division facts, through continued practice.
Develop fluency in addition and subtraction facts within 10.	Secure fluency in addition and subtraction facts within 10.	Calculate complemements to 100.	Recognise factor pairs.	Recognise and use square numbers and cube numbers, and the notation for squared (2) and cubed (3).	
	Secure fluency in addition and subtraction facts that bridge 10, through continued practice.	Understand and use the commutative property of addition, and understand the related property for subtraction.		Know and use the vocabulary of prime numbers, prime factors and composite (non- prime) numbers.	Identify common factors, common multiples and prime numbers.
	Recall (to 10) and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100.	Divide 100 into 2, 4, 5 and 10 equal parts, and read scales/number lines marked in multiples of 100 with 2, 4, 5 and 10 equal parts.	Divide 1000 into 2, 4, 5 and 10 equal parts, and read scales/number lines marked in multiples of 1000 with 2, 4, 5 and 10 equal parts.	Recall prime numbers up to 19.	
				Divide 1 into 2, 4, 5 and 10 equal parts, and read scales/number lines marked in units of 1 with 2, 4, 5 and 10 equal parts.	
			Multiply and divide whole numbers by 10 and 100 (keeping to whole number quotients); understand this as equivalent to making a number 10 or 100 times the size.	Multiply and divide numbers by 10 and 100; understand this as equivalent to making a number 10 or 100 times the size, or 1 tenth or 1 hundredth times the size.	
Procedural	**Procedural**	**Procedural**	**Procedural**	**Procedural**	**Procedural**
Add and subtract one-digit and two-digit numbers to 20, including zero.	Add and subtract numbers using concrete objects, pictorial representations, and mentally, including: a two-digit number and ones; a two-digit number and tens; two two-digit numbers; adding three one-digit numbers.	Add and subtract numbers mentally, including: a three-digit number and ones; a three-digit number and tens; a three-digit number and hundreds.	Add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate.	Add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction).	Multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication.
		Add and subtract numbers with up to three digits, using formal written methods of columnar addition and subtraction.		Add and subtract numbers mentally with increasingly large numbers.	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.
Read, write and interpret mathematical statements involving addition, subtraction and equals signs.	Add and subtract across 10.			Multiply numbers up to 4 digits by a one- or two-digit number using a formal written method, including long multiplication for two-digit numbers.	
	Add and subtract within 100 by applying related 1-digit facts.				
Compose numbers to 10 from 2-parts, and partition numbers to 10 into parts.	Recognise the subtraction structure of 'difference' and answer questions of the form, "How many more…?"		Multiply two-digit and three-digit numbers by a one-digit number using formal written layout.	Multiply and divide whole numbers and those involving decimals by 10, 100 and 1000.	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.
			Use factor pairs and commutativity in mental calculations.	Multiply and divide numbers mentally drawing upon known facts.	
Recognise repeated addition contexts, representing them with multiplication equations and calculating the product, within the 2, 5 and 10 multiplication tables.	Calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (×), division (÷) and equals (=) signs	Write and calculate mathematical statements for multiplication and division using the multiplication tables that they know, including for two-digit numbers times one-digit numbers, using mental and progressing to formal written methods.	Use place value, known and derived facts to multiply and divide mentally, including: multiplying by 0 and 1; dividing by 1; multiplying together three numbers	Divide numbers up to 4 digits by a one-digit number using the formal written method of short division and interpret remainders appropriately for the context.	Perform mental calculations, including with mixed operations and large numbers.
			Solve division problems, with 2-digit dividends and 1-digit divisors that involve remainders.	Find factors and multiples of positive whole numbers, including common factors and common multiples, finding all factor pairs of a number, and express a given number as a product of 2 or 3 factors.	Use their knowledge of the order of operations to carry out calculations involving the four operations.
Conditional	**Conditional**	**Conditional**	**Conditional**	**Conditional**	**Conditional**
Solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations.	Solve problems with addition and subtraction using concrete objects and pictorial representations, including those involving numbers, quantities and measures.	Solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction.	Solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why.	Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why.	Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why.
Solve missing number problems such as 7 = * - 9	Apply their increasing knowledge of mental and written methods		Interpret remainders appropriately according to the context.	Solve problems involving multiplication and division including using their knowledge of factors and multiples, squares and cubes.	
Solve one-step problems involving multiplication and division, using concrete objects, pictorial representations and arrays with support.	Show that addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot	Solve problems, including missing number problems, involving multiplication and division, including positive integer scaling problems and correspondence problems in which n objects are connected to m objects.	Solve problems involving multiplying and adding, including using the distributive law to multiply two digit numbers by one digit, integer scaling problems and harder correspondence problems such as n objects are connected to m objects.	Solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates.	
Relate additive expresssions and equations to real-life contexts.	Solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts.		Apply place-value knowledge to known additive and multiplicative number facts (scaling by 100).	Apply place-value knowledge to known additive and multiplicative number facts (scaling facts by 1 tenth or 1 hundredth).	Solve problems involving addition, subtraction, multiplication and division.
	Relate grouping problems where the number of groups is unknown to multiplication equations with a missing factor, and to division equations (quotitive division).	Apply known multiplication and division facts to solve contextual problems with different structures, including quotitive and partitive division.	Manipulate multiplication and division equations, and understand and apply the commutative property of multiplication.	Solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign.	
	Show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot	Understand the inverse between addition and subtraction, and know how both relate to the part-part-whole structure.	Understand and apply the distributive property of multiplication.		
	Recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems.	Estimate the answer to a calculation and use inverse operations to check answers.	Estimate and use inverse operations to check answers to a calculation.	Use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy.	Use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy.

Fractions

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Declarative	**Declarative**	**Declarative**	**Declarative**	**Declarative**	**Declarative**
Recognise, find and name a half as one of two equal parts of an object, shape or quantity. Recognise, find and name a quarter as one of four equal parts of an object, shape or quantity.	Recognise, find, name and write fractions 1/3, 1/4, 2/4 and 3/4 of a length, shape, set of objects or quantity. Recognise the equivalence of 2/4 and 1/2. Count up and down in tenths; recognise that tenths arise from dividing an object into 10 equal parts and in dividing one-digit numbers or quantities by 10	Recognise fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominators. Recognise and show, using diagrams, equivalent fractions with small denominators. Interpret and write proper fractions to represent 1 or several parts of a whole that is divided into equal parts. Find unit fractions of quantities using known division facts. (multiplication tables fluency).	Recognise families of common equivalent fractions. Recognise and write decimal equivalents to 1/4, 1/2, 3/4. Recognise and write decimal equivalents of any number of tenths or hundredths.	Recognise mixed numbers and improper fractions and write mathematical statements >1 as a mixed number. Identify, name and write equivalent fractions of a given fraction, including tenths and hundredths, and understand they have the same position in the linear number system. Compare and order fractions whose denominators are all multiples of the same number. Read and write decimal numbers as fractions. Recall decimal fraction equivalents for 1/2, 1/4, 1/5, and 1/10, and for multiples of these unit fractions. Recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents. Read and write numbers with up to three decimal places. Recognise the per cent symbol (%) and understand that per cent relates to 'number of parts per hundred', and write percentages as a fraction with denominator 100, and as a decimal.	Identify the value of each digit in numbers given to three decimal places. Recall and use equivalences between simple fractions, decimals and percentages, including in different contexts.
Procedural	**Procedural**	**Procedural**	**Procedural**	**Procedural**	**Procedural**
	Write simple fractions for example, 1/2 of 6 = 3	Find and write fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominators. Recognise and use fractions as numbers: unit fractions and non-unit fractions with small denominators. Add and subtract fractions with the same denominator within one whole. Compare and order unit fractions, and fractions with the same denominators.	Show, using diagrams, families of common equivalent fractions. Solve problems involving increasingly harder fractions to calculate quantities, and fractions to divide quantities, including non-unit fractions where the answer is a whole number. Add and subtract improper and mixed fractions with the same denominator, including bridging whole numbers.. Convert mixed numbers to improper fractions and vice versa. Find the effect of dividing a one- or two-digit number by 10 and 100, identifying the value of the digits in the answer as ones, tenths and hundredths. Compare numbers with the same number of decimal places up to two decimal places. Round decimals with one decimal place to the nearest whole number. Round decimals with one decimal place to the nearest whole number.	Find non-unit fractions of quantities. Add and subtract fractions with the same denominator and denominators that are multiples of the same number. Convert from mixed numbers and improper fractions. Multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams. Order and compare numbers with up to three decimal places. Round decimals with two decimal places to the nearest whole number and to one decimal place.	Use common factors to simplify fractions; use common multiples to express fractions in the same denomination. Compare and order fractions, including fractions > 1. Add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions. Multiply simple pairs of proper fractions, writing the answer in its simplest form. Divide proper fractions by whole numbers. Associate a fraction with division and calculate decimal fraction equivalents [for example, 0.375] for a simple fraction [for example, 8 3]. Multiply and divide numbers by 10, 100 and 1000 giving answers up to three decimal places. Use written division methods in cases where the answer has up to two decimal places.
Conditional	**Conditional**	**Conditional**	**Conditional**	**Conditional**	**Conditional**
		Solve problems that involve Year 3 declarative and procedural fractions knowledge. Reason about the location of any fraction within 1 in the linear number system.	Solve simple measure and money problems involving fractions and decimals to two decimal places. Reason about the location of mixed numbers in the linear number system.	Solve problems involving number up to three decimal places. Solve problems which require knowing percentage and decimal equivalents of 1/2, 1/4, 1/5, 2/5, 4/5 and those fractions with a denominator of a multiple of 10 or 25.	Solve problems which require answers to be rounded to specified degrees of accuracy.

Measure

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Declarative	**Declarative**	**Declarative**	**Declarative**	**Declarative**	**Declarative**
Tell the time to the hour and half past the hour	Tell and write the time to five minutes, including quarter past/to the hour.	Tell and write the time from an analogue clock, including using Roman numerals from I to XII, and 12-hour and 24-hour clocks.	Read and write time in analogue and digital 12- and 24-hour clocks.		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 and know the value of different denominations of coins and notes.	Know the number of minutes in an hour and the number of hours in a day.	Estimate and read time with increasing accuracy to the nearest minute.		Convert between different units of metric measure (for example, kilometre and metre; centimetre and metre; centimetre and millimetre; gram and kilogram; litre and millilitre) including using common decimals and fractions.	
Recognise and use language relating to dates, including the days of the week, weeks, months and years.	Recognise and use symbols for pounds (£) and pence (p).	Use vocabulary such as o'clock, a.m., p.m., morning, afternoon, noon and midnight.			Recognise that shapes with the same areas can have different perimeters and vice versa.
		Know the number of seconds in a minute and the number of days in each month, year and leap year.		Understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints.	
					Recognise when it is possible to use formulae for area and volume of shapes.
Procedural	**Procedural**	**Procedural**	**Procedural**	**Procedural**	**Procedural**
	Draw the hands on a clock face and write the time to five minutes, including quarter past/to the hour.	Convert time between analogue and digital 12- and 24-hour clocks.		
	Compare and sequence intervals of time.	Record and compare time in terms of minutes, seconds and hours.	Convert from hours to minutes; minutes to seconds; years to months; weeks to days.		
		Compare the duration of events.			Convert between miles and kilometres.
Measure and record: lengths/heights, mass/weight, capacity volume, time.	Choose and use appropriate standard units to estimate and measure length/height in any direction (m/cm); mass (kg/g); temperature (°C); capacity (litres/ml) to the nearest appropriate unit, using rulers, scales, thermometers and measuring vessels.	Measure, compare, add and subtract: lengths (m, cm, mm), mass (kg, g), volume/capacity (l, ml).	Convert between different units of measure (for example, kilometre to metre; hour to minutes).	Measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres.	
		Measure the perimeter of simple 2-D shapes.	Measure and calculate the perimeter of rectilinear figures (including squares) in centimetres and metres.		Calculate the area of parallelograms and triangles.
	Compare and order lengths, mass, volume/capacity and record the results using >, < and =		Find the perimeter of regular and irregular polygons.	Calculate and compare the area of rectangles (including squares), and including using standard units, square centimetres (cm2) and square metres (m2) and estimate the area of irregular shapes.	
	Combine amounts of money to make a particular value.		Find the area of rectilinear shapes by counting squares.		Calculate, estimate and compare volume of cubes and cuboids using standard units, including cubic centimetres (cm3) and cubic metres (m3), and extending to other units [for example, mm3 and km3].
	Find different combinations of coins that equal the same amounts of money.	Add and subtract amounts of money to give change, using both £ and p in practical contexts.	Estimate, compare and calculate different measures, including money in pounds and pence.	Estimate volume [for example, using 1 cm3 blocks to build cuboids (including cubes)] and capacity [for example, using water].	
Conditional	**Conditional**	**Conditional**	**Conditional**	**Conditional**	**Conditional**
Compare, describe and solve practical problems for: lengths/heights, mass/weight, capacity volume, time.	Solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change		Solve problems involving converting units of time.	Solve problems involving converting between units of time.	Solve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate.
Sequence events in chronological order.				Use all four operations to solve problems involving measure [for example, length, mass, volume, money] using decimal notation, including scaling.	

Geometry

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Declarative	**Decorative**	**Declarative**	**Declarative**	**Declarative**	**Declarative**
Recognise common 2-D shapes: rectangles (including squares, circles and triangles presented in different orientations.	Identify and describe the properties of 2-D shapes using precise language, including the number of sides and line symmetry in a vertical line.	Recognise 3-D shapes in different orientations and describe them.	Identify regular polygons, including equilateral triangles and squares, as those in which the side-lengths are equal and the angles are equal.	Identify 3-D shapes, including cubes and other cuboids, from 2-D representations.	Recognise and describe simple 3-D shapes.
Recognise common 3-D shapes: cuboids (including cubes, pyramids and spheres presented in different orientations.		Recognise angles as a property of shape or a description of turn.	Identify acute and obtuse angles.	Know angles are measured in degrees.	Recognise angles where they meet at a point, are on a straight line, or are vertically opposite.
Know that the above shapes are not always similar to each other.	Identify and describe the properties of 3-D shapes using precise language, including the number of edges, vertices and faces	Identify right-angles, recognise that two right-angles make a half-turn, three make three quarters of a turn and four a whole turn.		Identify: angles at a point and one whole turn (total 360o); angles at a point on a straight line and 1/2 a turn (total 180o); other multiples of 90o.	
	Identify 2-D shapes on the surface of 3-D shapes	Identify right angles in 2-D shapes in different orientations.			Name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius
Use the language of position, direction and motion, including: left and right, top, middle and bottom, on top of, in front of, above, between, around, near, close and far, up and down, forwards and backwards, inside and outside.	Use mathematical vocabulary to describe position, direction and movement, including movement in a straight line and distinguishing between rotation as a turn and in terms of right angles for quarter, half and three-quarter turns (clockwise and anti clockwise).	Identify horizontal and vertical lines and pairs of perpendicular and parallel lines.	Describe positions on a 2-D grid as coordinates in the first quadrant.		Describe positions on the full coordinate grid (all four quadrants).
Procedural	**Procedural**	**Procedural**	**Procedural**	**Procedural**	**Procedural**
Compose 2-D and 3_d shapes from smaller shapes to match an example, including manipulating shapes to place them in particular orientations.	Compare and sort common 2-D and 3-D shapes and everyday objects.	Draw 2-D shapes and make 3-D shapes using modelling materials.	Compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes.	Estimate and compare acute, obtuse and reflex angles.	Draw 2-D shapes using given dimensions and angles.
		Identify whether angles are greater than or less than a right-angle.	Compare and order angles up to two right angles by size.	Draw given angles, and measure them in degrees (o).	Build simple 3-D shapes, including making nets
Make whole, half, quarter and three-quarter turns in both directions.			Identify lines of symmetry in 2-D shapes presented in different orientations.	Compare areas and calculate the area of rectangles (including squares) using standard units.	Compare and classify geometric shapes based on their properties and sizes and find unknown angles in any triangles, quadrilaterals, and regular polygons.
			Reflect shapes in a line of symmetry and complete a symmetric figure or pattern with respect to a specified line of symmetry.		Illustrate parts of circles, including radius, diameter and circumference.
			Describe movements between positions as translations of a given unit to the left/right and up/down.	Identify, describe and represent the position of a shape following a reflection or translation, using the appropriate language, and know that the shape has not changed.	Draw and translate simple shapes on the coordinate plane, and reflect them in the axes.
			Plot specified points and draw sides to complete a given polygon.		
			Draw polygons specified by coordinates in the first quadrant, and translate within the first quadrant.		
Conditional	**Conditional**	**Conditional**	**Conditional**	**Conditional**	**Conditional**
Connect turning clockwise with movement on a clock face.	Compare 2-d and 3-D shapes by reasoning about similarities and differences in properties.			Use the properties of rectangles to deduce related facts and find missing lengths and angles.	
	Order and arrange combinations of mathematical objects in patterns and sequences.			Distinguish between regular and irregular polygons based on reasoning about equal sides and angles.	

Statistics

Year 2	Year 3	Year 4	Year 5	Year 6
Decorative	**Declarative**	**Declarative**	**Declarative**	**Declarative**
Procedural	**Procedural**	**Procedural**	**Procedural**	**Procedural**
Interpret and construct simple pictograms, tally charts, block diagrams and simple tables.	Interpret and present data using bar charts, pictograms and tables.	Interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs.	Complete, read and interpret information in tables, including timetables.	Interpret and construct pie charts and line graphs.
				Calculate and interpret the mean as an average.
Conditional	**Conditional**	**Conditional**	**Conditional**	**Conditional**
Ask and answer simple questions by counting the number of objects in each category and sorting the categories by quantity.	Solve one-step and two-step questions [for example, 'How many more?' and 'How many fewer?'] using information presented in scaled bar charts and pictograms and tables.	Solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs.	Solve comparison, sum and difference problems using information presented in a line graph.	Solve problems from pie charts and line graphs which have been constructed.
Ask and answer questions about totalling and comparing categorical data.				

Progression in Reasoning and Problem Solving

	EYFS — Example Learning outcomes	Year 1 — Example Learning outcomes	Year 2 — Example Learning outcomes	Year 3 — Example Learning outcomes	Year 4 — Example Learning outcomes	Year 5 — Example Learning outcomes	Year 6 — Example Learning outcomes
Working systematically / **Finding all possibilities** / **Enumerating possibilities for combinations**	Talk about things being in order. Identify same and different. Use ordinal vocabulary, 1st 2nd etc Sort objects using and explaining criteria. Explain what they are thinking and doing. Represent work with objects or pictures and discuss it. Talk about ways to check that there are no omissions or repetitions.	Identify same and different. Record different answers in a systematic way, identifying why this is important and explaining how they have done this. Explain how answers differ. Recognise that there is sometimes more than one possible answer to a problem. Give examples that match a given statement and those that don't.	Use a systematic way to solve a problem. Create a systematic list of possibilities. Talk about why it is a complete list and how they have been systematic. Look for patterns and possible general statements or relationships.	Prove that they have found all possible answers by being systematic. Use patterns to make predictions about the number of combinations. Use patterns to talk about general statements or relationships.	Solve a problem by checking possible solutions against a given criteria. List possible answers in a systematic way efficiently. Justify the approach as being systematic. Prove that all items are listed. Make a general statement and provide a convincing argument that it is true. Use a pattern to predict the next number of combinations.	Find all possibilities by working systematically. Prove all possibilities are listed. Recognise when reasoning is systematic and when it is not. Identify a pattern to make a prediction of the number of possibilities. Make a general statement and provide a convincing argument and apply this to other situations with similar or more combinations.	Identify a pattern to make a prediction of the number of possibilities. Make a general statement with a convincing argument and apply this to other situations with similar or more combinations. Express the general statement from an investigation using mathematical language, symbols and sometimes with algebra.
Generalising and conjecturing / **Explaining and justifying** / **Finding rules and describing patterns**	Talk about, recognise and recreate simple patterns. Identify same and different. Describe solutions to practical problems, drawing on experience, talking about their own ideas, methods and choices. Sort objects using criteria and explaining. Make a prediction about the next part of the pattern.	Describe and recreate simple patterns involving numbers, shapes or items. Decide whether examples satisfy given conditions. Describe ways of solving puzzles and problems, explaining choices and decisions. Represent findings orally, using pictures or practically. Make a prediction about the next part of the pattern and explain why. Recognise a simple relationship. Make predictions and conjectures.	Identify patterns and relationships involving numbers or shapes, and use these to solve problems. Talk about how a pattern will continue and make predictions. Talk about the pattern generally, discussing a general relationship or statement in words. Describe and explain methods, choices and solutions to puzzles and problems.	Generate patterns by considering examples systematically in an investigation. Make predictions based on patterns in results in an investigation. Make general statements and discuss relationships using everyday language. Describe and explain methods, choices and solutions to puzzles and problems. Continue more complex patterns.	Report solutions to puzzles and problems, giving explanations and reasoning orally and in writing, using diagrams and symbols. Use patterns to make predictions and general statements. Talk about the justification for the general statement. Describe and continue more complex patterns. Draw conclusions from investigations and explain their reasoning.	Generate patterns through systematic examples in an investigation. Identify and describe patterns using mathematical language. Accurately predict a later term in a pattern or sequence. Use a pattern to suggest and test general statements. Provide a convincing argument for the general statement. Draw conclusions from investigations and explain their reasoning using words, symbols or diagrams as appropriate.	Construct and use a general statement in words then symbols (e.g. the cost of c pens at 15 pence each is 15c pence). Draw conclusions from investigations and explain their reasoning. Express the general statement from an investigation using mathematical language, symbols and sometimes with algebra.
Thinking strategically / **Interpreting information** / **Solving logic problems**	Recognise similarities and differences. Sort objects using several criteria and sort to their own criteria, justifying their choices. Say why an item does not belong into a set. Guess the criteria being used to sort objects. Explain what they are thinking and doing.	Use one piece of information and see what effect it has. Check that the answer meets all of the criteria. Solve a problem using given facts. Sort objects, number or shapes and explain why an example does or does not fit into a group.	Solve a problem by identifying given facts and prioritising them. Identify necessary information for solving problems. Confirm that they have found the correct solution by checking in another way. Use recording to help them make sense of the information given and to find missing information.	Solve a puzzle by identifying the facts and prioritising them. Identify necessary information for solving problems. Check that their solution meets all the criteria.	Solve a problem by identifying and prioritising given facts and information, checking possible solutions against given criteria. Identify necessary information for solving problems. Solve a problem by identifying and prioritising given facts and information.	Use one piece of information in more complex problems and use what effect it has. Prioritise and use given facts to solve and check complex logic problems. Check that the answer meets the criteria. Choose and use a recording system to organise the given information independently. Use appropriate language that is associated with this type of logic problem, e.g. 'If this ... then this will change ...'	Identify necessary information for solving problems. Ask 'What if ... ?' questions. Create their own criteria for solving a logic problem in the context of a solved problem. Refine and extend problems to generate fuller solutions.
Reasoning, convincing and proof / **Considering general statements:** / "Convince yourself, convince your friend, and convince your enemy"	Explain why an answer is correct for example: When answering simple problems involving addition and subtraction in their play. Why they have used particular shapes in junk modelling. Why certain shapes fit into a jigsaw. Explain how they work out doubles and halves using resources. Link to persuasive language.	Explain why an answer is correct for example: Showing how they know the multiples of two, five or ten using resources such as numicon or a number line or square. Why an number sentence is correct or incorrect using known facts or resources. Why adding or subtracting zero has no effect. How they know what half or quarter of a quantity object or shape is.	Explain why an answer is correct for example: Use known facts or inverse operations or place value or resources such as dienes or numicon or a number line to show why a number sentence is correct or incorrect. Use resources to show how they know how to find a fraction of a quantity or shape or object and that 2/4 = ½. How they have compared and ordered items by measuring. Why different combinations of coins might have the same value. Why times expressed in different ways may be the same. How they solved problems using pictograms, tallies or block diagrams.	Explain why an answer is correct for example: Use known facts or inverse operations or place value or resources such as dienes or a number line to show why a number sentence is correct or incorrect. Use resources such as dienes and place value counters to show how they used column methods for addition and subtraction, demonstrating that ten units is one ten and ten tens is one hundred. Use resources or pictures to show how they know what a fraction of a number is and to show equivalent fractions. How they know what the perimeter of a shape is. Why times expressed in different ways may be the same. How they use conversions between metric units of measurements to solve problems (eg m., cm, mm, kg, g, l ml). Why a full turn is the same as four quarter turns etc. How they solved problems using bar charts, pictograms and tables.	Explain why an answer is correct for example: Use known facts or inverse operations or place value or resources such as dienes or a number line to show why a number sentence is correct or incorrect. Use resources such as dienes and place value counters to show how they used column methods for addition and subtraction. Explain what they know about multiplying by 0 and 1, and dividing by 1. Explain how they solved word problems: choosing operations and disregarding unnecessary information and checking their answers. Use an array to explain how to find factors of a number, and how to multiply two or three digit number by a one digit number using the distributive law. Use resources or diagrams to show how equivalent fractions and how to find a non unit fraction of a quantity or shape. how they use conversions between metric units of measurements to solve problems (eg km, m, hour, minute). How they found the area of a shape. Why analogue and digital, and 12 and 24 hour times might be the same.	Explain why an answer is correct for example: Use known facts or inverse operations or place value or resources such as dienes or a number line to show why a number sentence is correct or incorrect. Use resources such as dienes and place value counters to show how they used column methods for addition and subtraction. Explain how they solved word problems: choosing operations and disregarding unnecessary information and checking their answers. Prove whether a number is prime or not using an array or resources or known facts. Use resources or diagrams to show equivalent fractions and how to add and subtract fractions with denominators which are the same or multiples of the same number. Use an array to show the distributive law and use this to explain their written methods for long multiplication. Explain how they perform long and short division, using resources such as place value counters. Explain common factors and multiples using an array, number line or resources. How they use conversions between metric units and between metric and imperial units of measurements to solve problems. How they use facts about angles at a point or making a straight line to solve problems. How they solve problems using line graphs and tables.	Explain why an answer is correct, using concise argument, involving symbols, mathematical language, graphs or diagrams. For example: Use known facts or inverse operations or place value to show why a number sentence is correct or incorrect. Use known facts or inverse operations or place value to show how they used column methods for addition and subtraction. Use resources such as dienes and place value counters to show how they used column methods for addition and subtraction. Use an array to show the distributive law and use this to explain long multiplication. Explain how they perform long and short division, using resources such as place value counters. Explain how they solve ratio and proportion problems, perhaps using the bar method. How to generate number sequences, and the rule for sequences they have generated. How they express missing number problems algebraically. How they use conversions between metric units (miles and km) and between metric and imperial units of measurements to solve problems. How they use facts about angles in a shape, at a point or vertically opposite to solve problems. How they solve problems using pie charts and line graphs, and calculate and interpret mean.