**CJS Year 6 Maths overview**

Autumn 1

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| **Week 1** | **Week 2** | **Week 3** | **Week 4** | **Week 5** | **Week 6** | **Week 7** | **Week 8** |
| **Place value*** Partition 6 and 7 digit numbers into MHThTThThHTO (counters, bar model).
* Partition 6 and 7 digit numbers in different ways (counters, bar model).
* Solve balancing equations with partitioning numbers in different ways.
* Position of MHThTThThHTO on a number line with benchmarks labelled.
* Position of MHThTThThHTO on a number line with only two benchmarks
* Position of the same MHThTThThHTO on differently benchmarked number lines.

**Counting*** Counting in 100000s from any number.
* Adding / subtracting O, T, H, Th, TTh, HThs crossing boundaries by using counters on a place value grid and exchanging.

**Comparing and ordering*** Saying which is bigger / smaller out of two MHThTThThHTO numbers, represented in different ways (concrete, pictorial and abstract).
* Using < and > to show the relative size of two MHThTThThHTO numbers.
* Saying which is bigger / smaller out of three+ MHThTThThHTO numbers represented in different ways (concrete, pictorial and abstract).

**Rounding*** Say which multiples of O, T, H, Th, TTh, HTh and M a number lies between.
* Place numbers between multiples of O, T, H, Th, TTh, HTh and M on a number line.
* Round numbers to the nearest T, H, Th, TTh, HTh and M.
* Say which numbers could have been rounded to a given multiple of T, H, Th, TTh, HTh and M.
* Say all possibilities of a number that could have been rounded to a given multiple of 10.
* Say the biggest and smallest possible number that could have been rounded to a given multiple of H, Th, TTh, HTh and M.
 | **Four operations*** Given the whole and the difference between two parts, work out the value of each part.
* Sort non worded problems based on whether the whole / a part is unknown or whether it is the whole, the number of parts or the size of each part.
* Break two step non worded problems into the first and second calculation needed based on whether the whole / a part is unknown or whether it is the whole, the number of parts or the size of each part.
* Sort worded problems based on whether the whole / a part is unknown or whether the whole, the number of parts or the size of each part is unknown.
* Break two step problems into the first and second calculation needed based on whether the whole / a part is unknown or whether the whole, the number of parts or the size of each part is unknown.
 | **Long multiplication*** Multiply TO by TO using a grid method.
* Multiply TO by TO using column multiplication.
* Multiply HTO by TO using a grid method.
* Multiply HTO by TO using column multiplication.
* Multiply ThHTO by TO using column multiplication.
* Solve target problems aiming for a given product, adjusting the factors through trial and error.
 | **Long division*** Divide by 12 using long division with no remainders.
* Divide by 12 using long division with remainders.
* Divide by 12 using long division giving a decimal remainder.
* Divide by 12 using long division with remainders.
* Divide by 12 using long division giving a decimal remainder.
* Divide by any TO using long division giving decimal remainders.
 | **Position and direction in all four quadrants*** Read the coordinates of a point in all quadrants.
* Plot a point in all quadrants.
* Read the coordinates of corners of polygons in all quadrants.
* Plot the points of corners of polygons in all quadrants.
* Work out missing corners of polygons and write the coordinates.
* Translate a shape vertically by moving each corner between quadrants.
* Translate a shape vertically between quadrants by moving one corner and copying the shape’s dimensions.
* Translate a shape vertically between quadrants and write its new coordinates.
* Given the final position and the vertical translation between quadrants, draw the original position.
* Given the final position and the vertical translation between quadrants, write the coordinates of the original position.
* Translate a shape horizontally between quadrants by moving each corner.
* Translate a shape horizontally between quadrants by moving one corner and copying the shape’s dimensions.
* Translate a shape horizontally between quadrants and write its new coordinates.
* Given the final position and the horizontal translation between quadrants, draw the original position.
* Given the final position and the horizontal translation between quadrants, write the coordinates of the original position.
* Translate a shape both vertically and horizontally between quadrants by moving each corner.
* Translate a shape both vertically and horizontally between quadrants by moving one corner and copying the shape’s dimensions.
* Translate a shape both vertically and horizontally between quadrants and write its new coordinates.
* Given the final position and both the vertical and horizontal translation between quadrants, draw the original position.
* Given the final position and both the vertical and horizontal translation, write the coordinates of the original position.
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Autumn 2

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| **Week 1** | **Week 2** | **Week 3** | **Week 4** | **Week 5** | **Week 6** | **Week 7** |
| **Fractions*** Simplify fractions by reading a fraction wall.
* Simplify fractions by using common factors.
* Know that there are an infinite number of equivalents for any fraction and find some using common multiples.
* Show which fraction out of two is bigger by shading a picture or drawing own bar model.
* Show which fraction out of two is bigger by finding a common denominator.
* Order three or more fractions by shading pictures or drawing own bar model.
* Order three or more fractions by finding a common denominator.
 | **Adding and subtracting fractions*** Add and subtract proper and improper fractions.
* Add and subtract proper fractions and mixed numbers.
* Add and subtract improper fractions and mixed numbers.
* Add and subtract combinations of proper fractions, improper fractions and mixed numbers.
* Generate 4 addition and subtraction statements involving all 3 types of fraction using a bar model.
* Generate 4 addition and subtraction statements involving all 3 types of fraction using a bar model where the whole or a part is unknown.
* Sort missing number questions involving all 3 types of fraction based on whether the whole or a part is unknown, then solve.
* Solve balancing equations involving all 3 types of fraction where both sides are whole unknown.
* Solve balancing equations involving all 3 types of fraction where both sides are part unknown.
* Solve balancing equations involving all 3 types of fraction where one side is part unknown and one side is whole unknown.
 | **Multiplying and dividing fractions*** Multiply a unit fraction by a unit fraction using an area model.
* Multiply a unit fraction by a unit fraction using a number line.
* Multiply a unit fraction by a non unit fraction using an area model.
* Multiply a unit fraction by a non unit fraction using a number line.
* Multiply a non unit fraction by a non unit fraction using an area model.
* Multiply a non unit fraction by a non unit fraction using a number line.
* Divide a non unit fraction by a whole number where the numerator and the divisor are the same.
* Divide a unit fraction by a whole number by drawing and splitting a bar model into further equal parts.
 | **Negative numbers*** Count backwards in twos from an odd one digit number, crossing zero.
* Count backwards in other multiples from any one digit number, crossing zero.
* Order positive and negative numbers from smallest to biggest and biggest to smallest using the context of temperature.
* Subtract a larger number (part) from a smaller number (whole) to find a negative part.
* Add a positive to a negative to find a positive whole.
* Find the difference between a positive and negative.
* Solve problems involving temperature change.
 | **Parts of a circle*** Identify and label the perimeter of a circle as the circumference.
* Identify and label the radius of a circle.
* Identify and label the diameter of a circle.
* Work out the diameter of the radius is known.
* Work out the radius if the diameter is known.
 | **Area*** Find the area of rectangles by applying the w x h formula.
* Find the area of compound rectilinear shapes by applying the w x h formula for each part of the shape and adding.
* Find the area of a right angled triangle by visualising it as half a rectangle, multiplying w by h and then halving the result.
* Find the area of any triangle by multiplying w by h and then halving the result.
* Find the area of a parallelogram by cutting and rearranging into a rectangle.
* Find the area of parallelograms by multiplying w by h.
 | **Imperial measurement*** Know how long a foot is.
* Know that a foot is 12 inches.
* Know how long an inch is compared to a cm.
* Convert between inches and cm using a line graph.
* Know how far a mile is compared to a km.
* Convert between miles and km using a line graph.
* Know how heavy a pound is.
* Convert between pounds and grams using a line graph.
* Know how much a pint is compared to a litre.
* Convert between pints and litres using a line graph.
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Spring 1

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| **Week 1** | **Week 2** | **Week 3** | **Week 4** | **Week 5** | **Week 6** |
| **Percentages*** Represent multiples of 10% on a hundred square and relate to tenths.
* Represent multiples of 1% on a hundred square and relate to hundredths.
* Equivalences between fractions, decimals and percentages on hundred squares and number lines.
* Calculate 10% of a number by dividing by 10.
* Calculate the whole if 10% is known.
* Calculate multiples of 10%.
* Calculate the whole if multiples of 10% are known.
* Calculate 5% of a number.
* Calculate the whole if 5% is known.
* Calculate multiples of 5%.
* Calculate the whole if multiples of 5% are known.
* Calculate 1% of a number.
* Calculate the whole if 1% is known.
* Calculate multiples of 1%.
* Calculate the whole if multiples of 1% are known.
* Look for efficient strategies (e.g., 69% = 70% - 1%).
* Use percentage to make comparisons.
 | **Statistics – Pie charts*** Work out an unknown percentage where other proportions are known.
* Label the value of proportions where the whole is known and the percentage of each section is known.
* Work out the whole if the value of one proportion is known.
* Work out the value of other proportions if one proportion is known.
* Construct pie charts where the sections are multiples of 25% on a scaffolded circle.
* Construct pie charts where the sections are multiples of 10% on a scaffolded circle.
* Construct pie charts where the sections are multiples of 5% on a scaffolded circle.
* Construct pie charts where the sections are multiples of 25% on using a protractor.
* Construct pie charts where the sections are multiples of 10% using a protractor.
* Construct pie charts where the sections are multiples of 5% using a protractor.
 | **Converting measurements*** Convert between cm and mm and vice versa by multiplying and dividing by 10.
* Convert between m and cm and vice versa by multiplying and dividing by 100.
* Convert between km and m and vice versa by multiplying and dividing by 1000.
* Convert between L and ml and vice versa by multiplying and dividing by 1000.
* Convert between kg and g and vice versa by multiplying and dividing by 1000.
 | **Reflection*** Reflect a rectilinear shape in the x and y axis across quadrants one corner at a time.
* Reflect a rectilinear shape in the x and y axis across quadrants by working out one corner and copying the dimensions of the original shape.
* Reflect a shape with diagonal lines in the x and y axis across quadrants by working out one corner and copying the dimensions of the original shape.
* Write the coordinates of reflected shapes in varied mirror lines.
* Reflect a rectilinear shape in a diagonal mirror line across quadrants by working out one corner and copying the dimensions of the original shape.
* Reflect a shape with diagonal lines in a diagonal mirror line across quadrants by working out one corner and copying the dimensions of the original shape.
* Write the coordinates of reflected shapes in varied mirror lines.
* Complete partial shapes both sides of a mirror line to find the original and its reflection
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Spring 2

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| **Week 1** | **Week 2** | **Week 3** | **Week 4** | **Week 5** | **Week 6** |
| **Ratio*** Read bar models comparing part with part.
* Draw bar models comparing part with part.
* Find equivalent ratios by extending bar models and using knowledge of multiples.
* Simplify ratios by looking for a common denominator.
* Say what fraction of the whole each proportion is.
* Split a whole into a unit ratio and a non unit ratio by dividing by the total number of parts.
* Split a whole into non unit ratios by dividing by the total number of parts.
* Given the value of a unit ratio, work out the value of other proportions and the whole.
* Given the value of a non unit ratio, work out the value of other proportions and the whole.
* Given the difference between two proportions (where the difference is one of the total equal parts), work out the value of the proportions and the whole.
* Given the difference between two proportions (where the difference is more than one of the total equal parts), work out the value of the proportions and the whole.
* Sort problems based on whether the whole or the parts are unknown, then solve.
* Break two step problems into the first and second calculation needed based on whether the whole or a part is unknown.
* Increase shapes by whole number scale factors.
* Decrease shapes by whole number scale factors.
* Increase shapes by mixed number scale factors.
* Decrease shapes by mixed number scale factors.
 | **Algebra*** Generate sequences from a given one step linear rule.
* Find a one step linear rule in a sequence of numbers.
* Express the rule algebraically.
* Use the rule to find given terms in the sequence.
* Generate sequences from a given two step linear rule.
* Find a two step linear rule in a sequence of numbers.
* Express the rule algebraically.
* Use the rule to find given terms in the sequence.
* Generate 4 statements from an additive reasoning bar model, where the unknown is represented by a letter.
* Rearrange the unknown to one side of the equals sign, then solve for the unknown.
* Use Numicon to find pairs of numbers that satisfy an equation expressed as, for example, x + y = 12.
* Work systematically to find pairs of numbers that satisfy an equation expressed as, for example, x + y = 12 using number facts.
* Use Numicon to find pairs of numbers that satisfy an equation expressed as, for example, 2x + y = 12.
* Work systematically to find pairs of numbers that satisfy an equation expressed as, for example, 2x + y = 12 using number facts.
* Use Numicon to find pairs of numbers that satisfy an equation expressed as, for example, 2x + 3y = 12.
* Work systematically to find pairs of numbers that satisfy an equation expressed as, for example, 2x + 3y = 12 using number facts.
 | **Angles*** In a right angle split into two parts and one of the parts is known, work out the unknown angle.
* In a right angle split into three parts and two of the parts are known, work out the unknown angle.
* In a straight line split into two parts and one of the parts is known, work out the unknown angle.
* In a straight line split into three parts and two of the parts are known, work out the unknown angle.
* In a full turn split into two parts and one of the parts is known, work out the unknown angle.
* In a full turn split into three or more parts and all but one of the parts are known, work out the unknown angle.
 | **Statistics – line graphs*** Use a plotted point on a line graph to read from the y to the x axis.
* Use a plotted point on a line graph to read from the x to the y axis.
* Plot points on a line graph.
* Use a value on the y axis to read a value on the x axis.
* Use a value on the x axis to read a value on the y axis.
* Describe the story of a line graph.
* Calculate lengths of time from points on a line graph.
* Convert between units of measurement using line graphs.
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Summer 1

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| **Week 1** | **Week 2** | **Week 3** | **Week 4** | **Week 5** |
| **Decimals*** Relate thousandths as fractions to thousandths as decimals and convert between them.
* Count in thousandths between and across multiples of hundredth, tenth and whole numbers, forwards and backwards.
* Read and mark multiples of thousandth on different number lines.
* Show pictorially and on a number line that, for example, 0.4, 0.04 and 0.004 are not the same.
* Say which is bigger or smaller out of two O.thth numbers.
* Order three or more O.thth numbers from biggest to smallest and smallest to biggest.
* Order three or more decimal numbers from biggest to smallest and smallest to biggest.
* Round O.thth numbers to the nearest hundredth, tenth and whole number.
* Add and subtract multiples of thousandth to any O.thth number using place value counters and number lines.
* Add and subtract O.thth using expanded column methods.
* Add and subtract O.thth using contracted column methods.
* Multiply O.thth by whole numbers using the expanded column method.
* Multiply O.thth by whole numbers using the contracted column method.
 | **Review of various concepts decided by teacher through formative assessment.** |

Summer 2

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| **Week 1** | **Week 2** | **Week 3** | **Week 4** | **Week 5** | **Week 6** | **Week 7** |
| **Volume*** Count the volume of shapes made from multi link cubes where each cube is 1cm3.
* Calculate the volume of shapes made from multi link cubes by multiplying w by h by d.
* Make all possible cuboids that satisfy a given volume.
* Calculate the volume of cuboids in pictorial form by using the formula w x h x d.
* Work out a missing dimension if two and the volume are given.
* Calculate the volume of compound cuboids in pictorial form breaking them into cuboids, using the formula w x h x d and adding the volumes.
 | **Mean average*** Calculate the mean average of 3 numbers where the mean is a whole number.
* Calculate the mean average of 5, 7 etc numbers where the mean is a whole number.
* Calculate the mean average of 2, 4, 6 etc numbers where the mean is a whole number.
* Calculate the mean average of 3 numbers where the mean is not a whole number.
* Calculate the mean average of 5, 7 etc numbers where the mean is a not whole number.
* Calculate the mean average of 2, 4, 6 etc numbers where the mean is not a whole number.
* Given the mean and how many numbers in the data set, work out what the numbers must add up to.
* Given the mean and all but one of the numbers in the data set, work out the missing number.
* Given the mean and all but two of the numbers in the data set, work out what the missing numbers could be.
* Given the mean and how many numbers in the data set, work out what the numbers could be.
 | **Order of operations*** Solve multiple operation problems involving only addition and subtraction, moving left to right.
* Solve multiple operation problems involving addition and subtraction and multiplication and division, carrying out multiplication and division first.
* Solve multiple operation problems involving addition and subtraction and multiplication and division where some addition or subtraction is in brackets, carrying out those first.
* Insert brackets into calculations to make them correct.
* Solve multiple operation problems involving addition and subtraction and multiplication and division where there are also numbers to be squared or cubed, doing those first.
* Solve multiple operation problems involving addition and subtraction and multiplication and division, involving brackets and numbers to be squared or cubed.
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