MATHS

Crucial Learning

Money

- 100p= £1.

Time

- There are 60 seconds in a minute.
- There are 60 minutes in an hour.
- There are 24 hours in a day.
- There are 7 days in a week.
- There are 30 days in April, June, September and November.
- There are 31 days in January, March, May, July, August, October and December.
- There are 28 days in February except a leap year when there are 29 days.
- There are 365 days in a year except for a leap year when there are 366.
- AM is 00:00 to 11:59
- PM is 12:00 to 23:59

Properties of shape

- There is 1 right angle in a quarter turn, 2 right angles in a half turn, 3 right angles in a three-quarters turn and 4 right angles in a full turn.
- Parallel lines are always the same distance apart and never meet.
- Perpendicular lines are lines that meet at a right angle.
- A triangle has 3 sides.
- A quadrilateral has 4 sides
- A pentagon has 5 sides
- A hexagon has 6 side.
- A face is a flat surface on a 3D shape.
- An edge is where 2 faces meet.
- A vertex is a corner where 2 edges meet.

Measures

- 10 mm = 1 cm.
- 100 cm = 1 m.
- Perimeter is the total lengths of the outside of a 2D shape.
- 1,000 grams = 1 kilogram
- Capacity is the total amount of liquid that can be contained in a container.

Multiplication and division

- Multiplying a number means I have ____ equal groups of the number I am multiplying.
- To multiply a 2 digit number by 1 digit, I can multiply the ones and tens and add the answers together.
- Divide means to share into equal groups.
- If a division has a remainder of 2, I write it as r2
- 3, 4 and 8 multiplication tables
- I Know that the 8 times table is double my 4 times table.

Fractions and decimals

- A fraction is part of a whole.
- The parts in a fraction are equal.
- A unit fraction is when the numerator is 1.
- A non-unit fraction is when the numerator is more than 1.
- ½ = 2/4
- There are 10 tenths in a whole.
- Equivalent fractions have different numerators and denominators but are equal to the same value.
- When adding or subtracting fractions with the same denominator, only the numerator changes.

Addition and subtraction

- It does not matter what order I layout an addition.
- When adding I must line up the place value columns correctly.
- If I have 10 or more in a column, I can exchange with the column to the left.
- Subtraction is the inverse of addition.
- I must put the greater number on top when subtracting.
- When subtracting I must line the place value columns up correctly.
- If the digit I am subtracting is greater, I must exchange 1 with the column to the left.
- Addition is the inverse of subtraction.

Number - Place Value

- A number in the hundreds has at least 3 digits.
- There are 10 ones in 10.
- There are 10 tens in 100.
- There are 10 hundreds in 1,000.
- When comparing numbers, I start with the highest place value column.

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Statistics

- The horizontal axis is the x axis.
- The vertical axis is the y axis.
- I write the values on the line when drawing a bar chart.

Time

- There are 12 months in a year.

Money

- When writing an amount of money in pounds, I must include a decimal point and 2 digits after the decimal point.

Measures

- 1,000 m = 1 km.
- Area is the measurement of space inside a 2d shape.
- I write area as the measurement squared, i.e. 12 cm^2

Properties of shape

- There are 90 degrees in a right angle.
- An acute angle is less than 90 degrees.
- An obtuse angle is more than 90 degrees and less than 180 degrees.
- A straight angle is 180 degrees.
- A polygon is a 2D shape with straight lines that is fully closed.
- An equilateral triangle has 3 equal sides and 3 angles of 60 degrees.
- An isosceles triangle has 2 equal lengths and angles and 3 angles that total 180 degrees.
- A scalene triangle has 3 different length sides and 3 different angles that equal 180 degrees.
- Something is symmetrical when one side is a mirror image of the other side.
- A 2D shape is symmetrical when a line can be drawn through it so that either side of the line look exactly the same.

Position and movement

- When reading or plotting coordinates, I go across the x axis then up the y axis

Decimals

- There are 10 tenths in 1.
- There are 100 hundredths in 1.
- There are 10 hundredths in a tenth.
- The tenths column is after the decimal point.
- The hundredths column is 2 places after the decimal point.
- When rounding to the nearest one, I look at the tenths column.
- When comparing numbers with decimals, I start with the highest place value column.
- 0.5 = ½
- 0.25 = ¼
- 0.75 = ¾

Fractions

- When finding equivalent fractions, I must multiply or divide both the numerator and denominator by the same number.
- An improper fraction is when the numerator is greater than the denominator.
- An improper fraction has a whole or wholes with equal parts left over.
- To find fractions of amounts, I divide the amount by the denominator and multiply the answer by the numerator.

Multiplication and division

- To multiply a 3 digit number by 1 digit, I can multiply the ones, tens and hundreds and add the answers together.
- When multiplying a number by 10 my digits move 1 place to the left.
- When multiplying by 100 my digits move 2 places to the left.
- When dividing a number by 10 my digits move 1 place to the right.
- When dividing a number by 100 my digits move 2 places to the right.
- When dividing a 3 digit number by 1 digit I can partition my number and divide each place value column into equal groups.
- multiplication tables up to 12 × 12.

Place value

- A number in the thousands has at least 4 digits.
- There are 10 thousands in 10,000.
- When rounding to the nearest 10, I look at the ones column.
- When rounding to the nearest 100, I look at the tens column.
- When rounding to the nearest thousand, I look at the hundreds column.
- In Roman numerals, I = 1, V = 5, x = 10, L = 50, C = 100.

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Statistics

- A line graph is used to show data that changes over time.

Position and Direction

- When translating a shape, just the position changes.
- When reflecting a shape, a vertex in the reflected shape will be the same distance from the mirror line as the original shape.

Properties of Shape

- When measuring angles with a protractor, I must line up the vertex of the angle with the dot at the centre of the protractor.
- Angles on a straight line total 180 degrees.
- Angles around a point total 360 degrees.
- An irregular polygon is a 2D shape that has straight lines that are not equal and angles that are not equal.

Measures

- To find the area of a rectangle, I multiply the length by the width.
- Volume is the amount of space a 3d shape takes up.
- I write volume as the measurement cubed, i.e. 12 cm^3
- 1,000 grams = 1 kilogram
- 1000ml= 1 litre

Decimals and Percentages

- 50% is equal to ½ and 0.5
- 25% is equal to ¼ and 0.25
- 75% is equal to ¾ and 0.75
- I can convert a percentage to a fraction by making the denominator 100 and then simplifying if possible.
- I can convert a percentage to a decimal by dividing the percentage by 100.
- The decimal point does not move when adding numbers with decimals.
- When adding or subtracting numbers with decimals, I must layout digits in the correct place value column.
- When adding or subtracting numbers with different decimal places, I can use 0 as a place holder.

Fractions

- To convert a mixed number to an improper fraction, I multiply the denominator by the whole then add the numerator.
- To convert an improper fraction to a mixed number, I divide the numerator by the denominator and include any left over parts.
- To add or subtract fractions with different denominators, I make both denominators the same by finding their lowest common multiple.

Place Value

- A number in the ten thousands has at least 5 digits.
- A number in the hundred thousands has 6 digits.
- There are 10 ten thousands in 100,000.
- There are 100 hundred thousands in 1,000,000.
- When rounding to the nearest ten thousand, I look at the thousands column.
- When rounding to the nearest ten thousand, I look at the ten thousands column.
- In Roman numerals, M = 1,000

Multiplication and Division

- To find a missing number I must do the inverse.
- A common multiple is a multiple found in two or more numbers.
- Factors are numbers we can multiply together to get a product.
- A prime number can only be divided by 1 and itself.
- When multiplying by 1,000 my digits move 3 places to the left.
- When dividing by 1,000 my digits move 3 places to the right.

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Ratio

- Ratio shows the relationship between 2 or more values.
- Scale factor is when you enlarge a shape by multiplying each side by the same number.

- I can use the inverse to find a value.
- When solving a 2-step equation, I can work backwards to find the missing value.
- I can work systematically to find values.

Statistics

- There are 360 degrees in a circle.
- The mean is the total of the numbers divided by how many numbers there is.

Algebra

- To find the area of a triangle, I multiply the base by the perpendicular height and then divide by 2.
- To find the area of a parallelogram, I multiply the base by the perpendicular height.
- To find the volume of a cuboid, I can do length x width x height.

Position and Direction

When reading or plotting coordinates, I go across the x axis then up or down the y axis

Properties of Shape

- Vertically opposite angles are equal to each other.
- The angles in a triangle total 180 degrees.
- The angles in a quadrilateral total 360 degrees.
- The angles in a pentagon total 540 degrees.
- The angles in a hexagon total 720 degrees.

Measure

Fractions

- To simplify a fraction, I divide the numerator and denominator by their highest common factor.
- To find the product of 2 fractions, multiply the numerator by the numerator and denominator by denominator.
- To divide fractions by a whole, I can multiply the denominator by the integer and simplify if needed
- To find the whole when I know a fraction of an amount, I can divide by the numerator and multiply by the denominator.

Percentages Decimals

- To find 10% of an amount, divide the amount by 10.
- To find 50% of an amount, divide the amount by 2.
- To find 25% of an amount, divide the amount by 4.
- To find 1% of an amount, divide the amount by 100.
- To find 5% of an amount, divide the amount by 10 and then divide the answer by 2.
- There are 1,000 thousandths in 1.
- There are 10 thousandths in 1 hundredth.
- When multiplying decimals by integers, I must layout the numbers in the correct place value column.
- I can use short division to divide numbers with decimals by integers.
- To convert decimals to fractions, I use place value.

Multiplication and division

- When multiplying a number by tens, I must use 0 as a placeholder.
- When multiplying decimals by integers, I must put the digits in the correct place value column.
- The decimal point does not move when multiplying numbers with decimals by integers.
- 0.5 x an integer is the same as finding half of the integer.
- When dividing by a composite number, I use factor pairs to solve the division.

Place value

- A number in the millions has at least 7 digits.
- There are 10 millions in 10 million.
- When rounding to the nearest million, I look at the hundred thousands column.
- I must include 0 when adding or subtracting with negative numbers.

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