

Numeracy Newsletter

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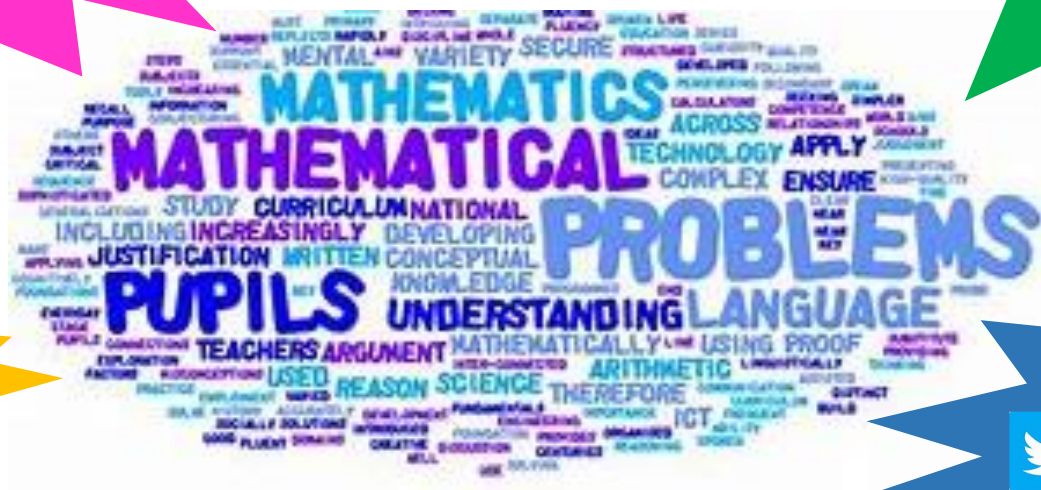


Designed by AM
and SS year 9

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Term 1



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Term 1



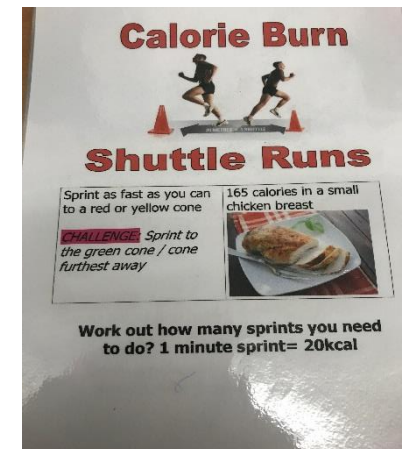
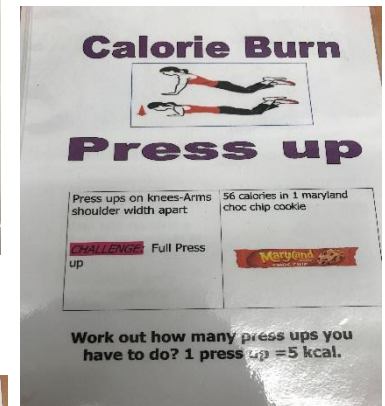
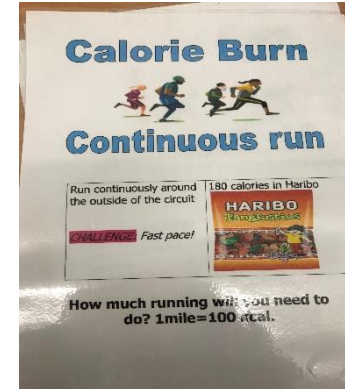
Here are some examples of how we use numeracy in our subject...

Numeracy in Physical Education –WJEC Practical Lesson

The aim of the lesson was to investigate how much physical activity pupils are required to do in order to burn enough calories and to replicate their own knowledge, skills and understanding previously learnt in their 'diet and nutrition' theory lessons.

Pupils participated in a 'calorie burn circuit' in pairs or individually. A different exercise, food type, food source and a numeracy question was placed at each of the stations on a card (displayed). Pupils had to complete the calorie burn circuit within a set amount of time.

Before, pupils participated in the exercise's they had a set amount of time to work out how many times they would require performing that specific exercise. They had the ability to do this due to collecting calorie information on each food type.





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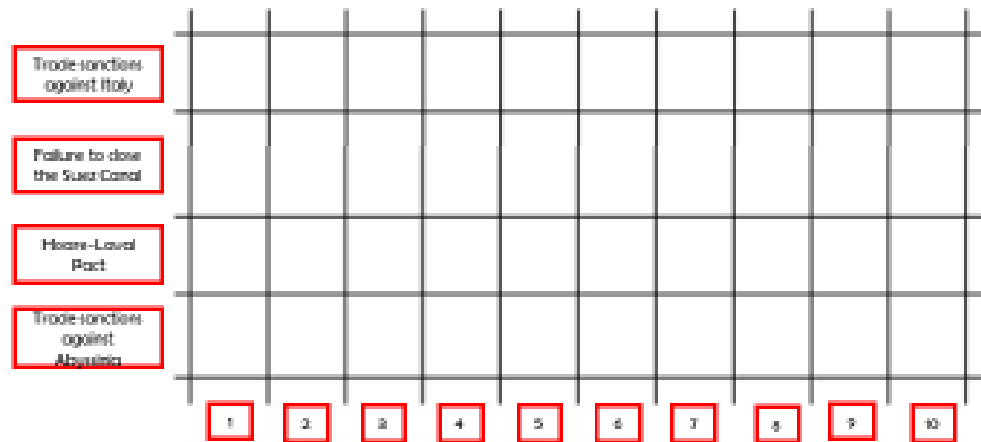
Opinion polls

The aim of this activity is to develop the students understanding of the impact of different policies of the League of Nations during the Abyssinian Crisis.

This allows students to visualise difference between the actions of the League and judge which was the greatest failure.

This can also lead to discussion as to why students polls differ.

To what extent did the League fail in dealing with Abyssinia? (10= complete failure, 1= success)



Which response shows the greatest failure of the League of Nations? Explain your choice

Trade sanctions against Italy

Failure to close the Suez Canal

Hoare-Laval Pact

Trade sanctions against Abyssinia

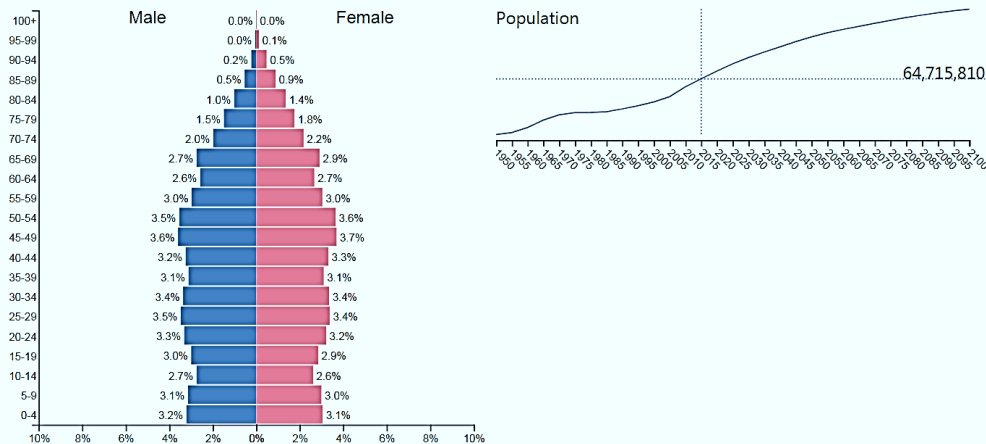


Here are some examples of how we use numeracy in our subject...

Numeracy is important in all key stages in Geography.

This term, Y7 have made use of scatter graphs, including lines of best fit, and the analysis of the graph.

Y8 and Y10 have produced and interpreted population pyramids, which show age and sex structure of population, and which are used to forecast population change.



Year 13 – we have made use of statistical analysis, to prove and determine patterns and determine how unequal the city of London is.

A statistical investigation of the geography of life expectancy or house prices in London

This enquiry aims to investigate the possible scale and significance of inequalities in life expectancy and house prices within London.

Statistical Investigation

Null Hypothesis: There will be no variation in life expectancy and house prices in London

Method:

In order to test the above hypothesis you will be using the following graphical and statistical techniques:

- ✓ mean
- ✓ mode median
- ✓ range
- ✓ interquartile range
- ✓ dispersion graph
- ✓ standard deviation



Inner Borough	Life expectancy	Outer Borough	Life expectancy
Camden	76.9	Barking and Dagenham	76.3
Haringey	76.1	Barnet	79.5
Hackney	75.7	Bexley	78.7
Hammersmith and Fulham	78	Brent	78.5
Islington	75.1	Bromley	79.5
Kensington and Chelsea	83.7	Croydon	78.3
Lambeth	75.8	Ealing	78.2
Lewisham	76	Enfield	78.5
Southwark	77	Greenwich	74.9
Tower Hamlets	75.3	Harrow	79.6
Wandsworth	76.9	Havering	78.3
Westminster	81.5	Hillingdon	78
Newham	75.7	Hounslow	76.9
		Kingston upon Thames	79.3
		Merton	79.7
		Redbridge	78.3
		Richmond upon Thames	79.3
		Sutton	78.7
		Waltham Forest	75.9



Here are some examples of how we use numeracy in our subject...

Task 1... Mandala Tile Design

You will need:

- Drawing paper
- Pencil
- Compass/Cup (for concentric circles)
- Coloured pencils
- Fine liner (optional)

Mandala Tile Design

As part of their project exploring Indian and Persian art Year 9 GCSE Art students have been using concentric circles, symmetry and repetition to come up with their own intricate Mandala tile designs by hand.

These designs then went on to inspire their 3D salt dough tile designs.

Concentric circles templates – can you create a design using concentric circles?

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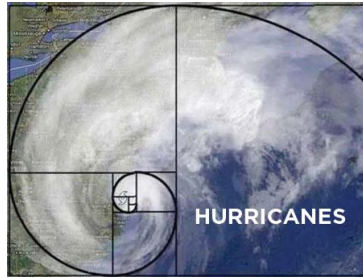


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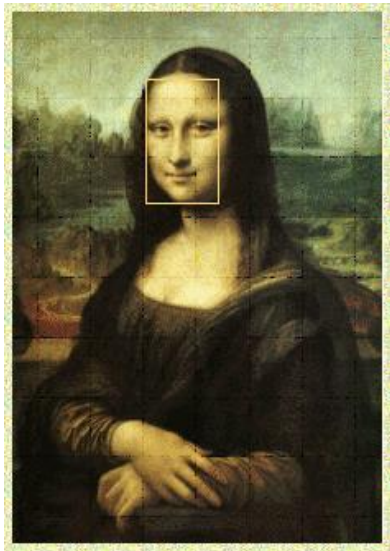
Year 9 and 10 have been learning about sequences. We have looked at the Fibonacci sequence which is derived by adding the two previous terms together, as follows:

1, 1, 2, 3, 5, 8, 13, 21, 34, 55, 89, 144, ...

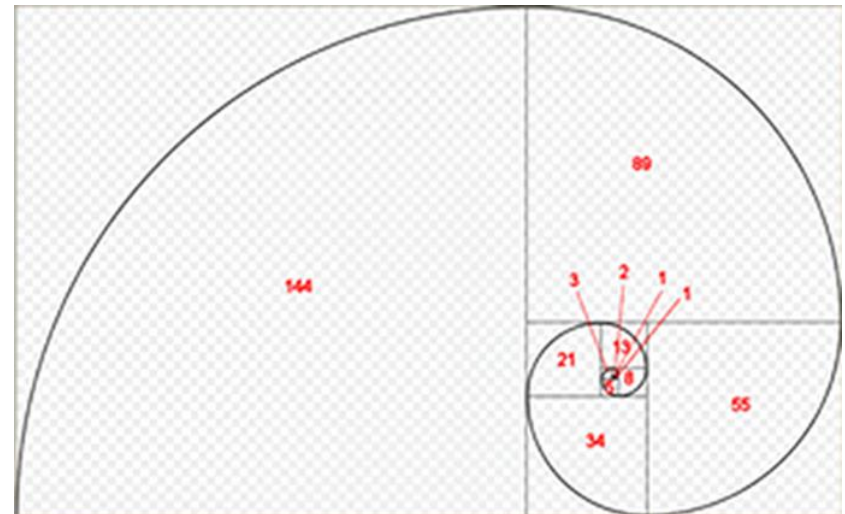
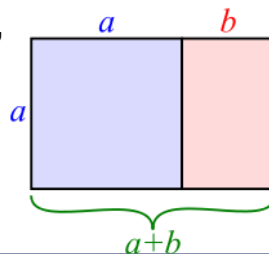


As shown in the below picture, if we compare this to area, a spiral shape is formed that appears often in the natural world.

Another example is the number of petals in flowers - this follows the Fibonacci sequence. Examples include the lily which has three petals, buttercups have five, the chicory's 21, the daisy 34, and so on.



This led on to the Golden Rectangle: considered to be one of the most pleasing and beautiful shapes to look at, which is why many artists have used it in their work. If you draw a rectangle around Mona Lisa's face, that rectangle will turn out to be golden.


















Here are some examples of how we use numeracy in our subject...

Year 10 have been learning about the number of units in different types of alcohol and the law regarding alcohol and age.

If you're under 18, it is against the law:

- to buy or try to buy alcohol
- for someone to sell you alcohol
- for an adult to buy or try to buy alcohol for you
- to drink alcohol in licensed premises (eg a pub or restaurant)
- If you're 16 or 17 and accompanied by an adult, you can drink (but not buy) beer, wine or cider with a meal.
- If you're 16 or under, you may be able to go to a pub (or premises primarily used to sell alcohol) if you're accompanied by an adult. However, this isn't always the case. It can also depend on the specific conditions for that premises.
- It's illegal to give alcohol to children under 5.

1 unit	1.5 units	2 units	3 units	9 units	30 units
 Normal beer half pint (284ml) 4%	 Small glass of wine (125ml) 12.5%	 Strong beer half pint (284ml) 6.5%	 Strong beer large bottle/can (440ml) 6.5%	 Bottle of wine (750ml) 12.5%	 Bottle of spirits (750ml) 40%
 Single spirit shot (25ml) 40%	 Alcopops bottle (275ml) 5%	 Normal beer large bottle/can (440ml) 4.5%	 Large glass of wine (250ml) 12.5%	<p>Government advises alcohol consumption should not regularly exceed:</p>  Men 3-4 units daily	
		 Medium glass of wine (175ml) 12.5%	 Women: 2-3 units daily		



Here are some examples of how we use numeracy in our subject...

A2 REVISION ON TOPIC: PROFITABILITY, GEARING AND LIQUIDITY RATIOS

Using the data below, identify the firm that you think performed better over the last year? Use ratios to help you justify your decision

	£m	
	Firm A	Firm B
Sales Revenue	45	30
Gross Profit	20	15
Net Profit	5	5
Current assets	15	15
Current liabilities	10	5
Capital employed	50	20

- Decision:

B

- Justification:

After looking at both calculations I can see that B has a high net profit margin as for every £1 they make they are able to keep 17% higher than A which allows them to reinvest in the business.

$$A = \frac{5,000,000}{45,000,000} \times 100 = 11\%$$

$$A = 15:10 = 1.5:1$$

$$B = \frac{5,000,000}{30,000,000} = 17\%$$

$$B = 15:5 = 3:1$$

b) How much profit would be made per wardrobe if the firm sold 500 wardrobes?

$$1,500 \times 500 = 750,000 - T.R.$$

$$800 \times 500 = 400,000 - T.V.C$$

$$750,000 - 450,000 = 300,000.$$

$$TC = TVC + FC = 400,000 + 50,000 = 450,000$$

c) Why has the amount of profit made per wardrobe changed when production and sales increase?

as production and sales increase so does

TASK THREE: Calculation Practice Questions

1. During the summer weeks, Devon Ice Cream has average sales of 4000 units a week. Each ice cream sells for £1 and has variable costs of 25p. Fixed costs are £800.

a) Calculate the total costs for the business in the summer weeks

b) Calculate Devon Ice Cream's weekly profit in the summer

$$TC = TVC + FC = 4000 \times 0.25 = 1000 + 800 = 1800$$

$$TR - TC = \text{profit} = 1.00 \times 4000 = 4000 - 1800 = 2,200$$

2. a) If a firm sells 200 widgets at £3.20 and 40 squidgets at £4.00, what is its total revenue?

b) Each widget costs £1.20 to make, while each squidget costs £1.50. What are the total variable costs?

c) If fixed costs are £300, what profit is the business making?

$$200 \times 3.20 = 640 - \text{widgets} \quad 640 + 160 = 800 - TR.$$

$$40 \times 4 = 160 - \text{squidgets}$$

$$200 \times 1.20 = 240 \quad 240 + 60 = 300 - TVC.$$

$$40 \times 1.50 = 60$$

$$800 + 300 = 1100 - TC$$

$$800 - 600 = 200 - \text{profit..}$$

On the left is Financial revision for A2 Business where they perform calculations to assess the businesses Liquidity, Profitability and Gearing levels .

On the right is Cost, Revenue and Profit calculation examples for 12 Applied General Business



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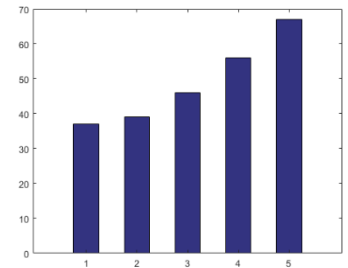
Religious Education

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Numeracy in Religious Education

During their first term at Broughton Hall, Year 7 have been using numeracy in many different and effective ways...

- They have used numbers to look up Bible references and to locate correct verses.
- They have also looked at the timeline of Catherine McAuley's life and how these events inspire the students of Broughton Hall.
- And finally, Year 7 have looked at and analysed graphs showing increases and decreases surrounding religion and belief in God.

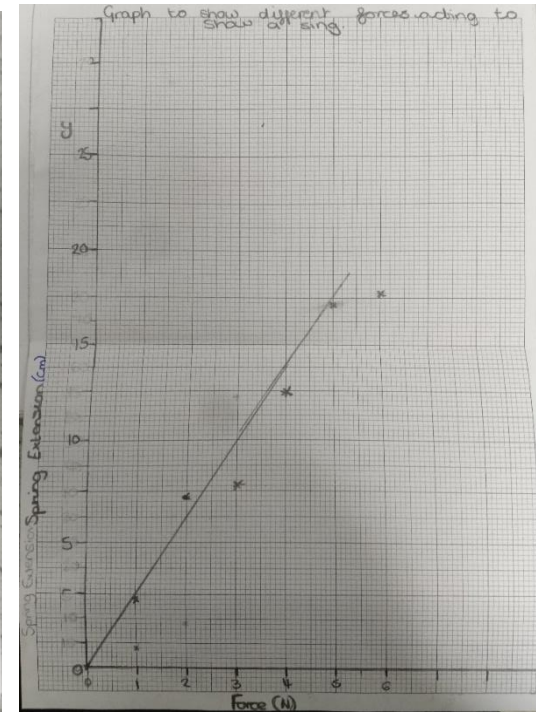
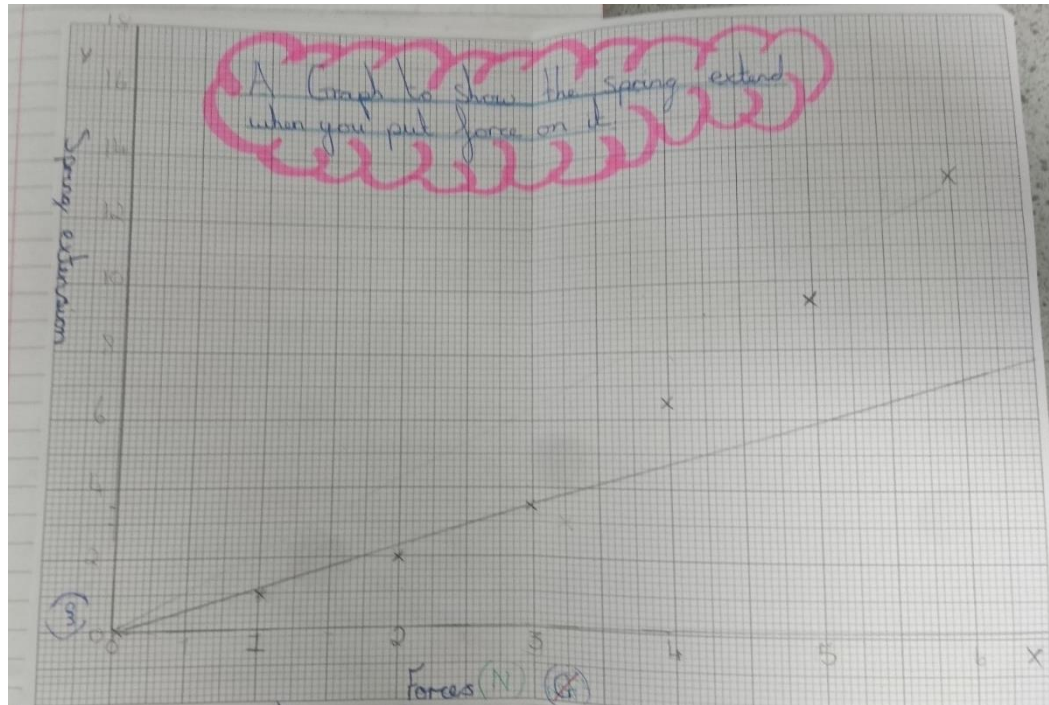




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Science

Here are some examples of how we use numeracy in our subject...



Students have been measuring forces and drawing graphs in year 7 to show Hooke's law (that force applied is directly proportional to spring extension). A lot of the graphs were completed to a very high standard but common mistakes seen were missing out units and errors in drawing a line of best fit. Students were given feedback and guidance on how to improve their graph and also asked about why the graph line became steeper. This showed the elastic limit which the girls described as the point after which the spring would not go back to its original shape.



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Drama

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Devising at GCSE: Creating a performance within a given time frame. Students must create and time individual scenes then add up the timings to ensure they do not go over the maximum performance time limit.

Still image warm up: At KS3 students are given the theme of an image to create and the number of participants in the image. They have 10 seconds to get into the group number, create the image given and freeze.

Storytelling in key moments: In Year 7 students must tell the story of Cinderella in no more than 5 still images.












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Rhythm

Music students need to have a good understanding of **rhythm** (the lengths of notes). As students progress into KS4, they need to understand rhythm symbols (as pictured opposite) to perform, compose and follow a musical score.

We practise how long different note values should be held on for and ensure we add up rhythmic symbols correctly so that each bar adds up to the correct number of beats (the **time signature**). As we start to use Logic software for composition, our understanding of values & fractions helps us use the piano roll function (which uses a grid to measure note values) & the **quantize** function (which makes our music play perfectly in time).

Scientists believe there are links between musical participation & improvements in mathematical skills. The high-level cognitive functions which develop via playing an instrument support one's ability to achieve in academic subjects such as mathematics.

Notes	Name		Value
	Semibreve	Whole note	4 beats
	Minim	Half note	2 beats
	Crotchet	Quarter note	1 beat
	Quaver	Eighth note	1/2 beat
	Semi-quaver	Sixteenth note	1/4 beat
	2 Quavers	2 Eighth notes	1 beat
	4 Semi-quavers	4 Sixteenth notes	1 beat

