Broughton Hall Catholic High School

One Heart One Mind

Maths

17/1/18

Ratio

1) 250g cake mixture the ingredients egg, flour and sugar in the ratio 1:4:5

250g

250 ÷ 10 = 25

egg = 1 × 25 = 25g

flour = 4 × 25 = 100g

Sugar = 5 × 25 = 125g

~~250g~~

Year 8 and 10 have been studying ratio and proportion. In particular, we have been looking at problem solving questions where where ratio and proportion is used in real life situations. We have linked it to food / recipe problems, money and finance problems.

Name: Orange Dream

Ingredients: Orange, Yogurt, Orange Juice, ice

Ratio: 4 : 1 : 3 : 2

1) Orange = 4 × 30 = 120ml

2) Ice = 2 × 30 = 60ml

3) Yogurt = 30ml

Name: Very Berry

Ingredients: Rasberrys, milk, honey, cherries & lemon juice

Ratio: 2 : 1 : 1 : 2 : 1

1) Milk = 1 × 7 = 7ml

2) lemon juice = 1 × 7 = 7ml

3) Cherries = 2 × 7 = 14ml

Name: Apricot Madness

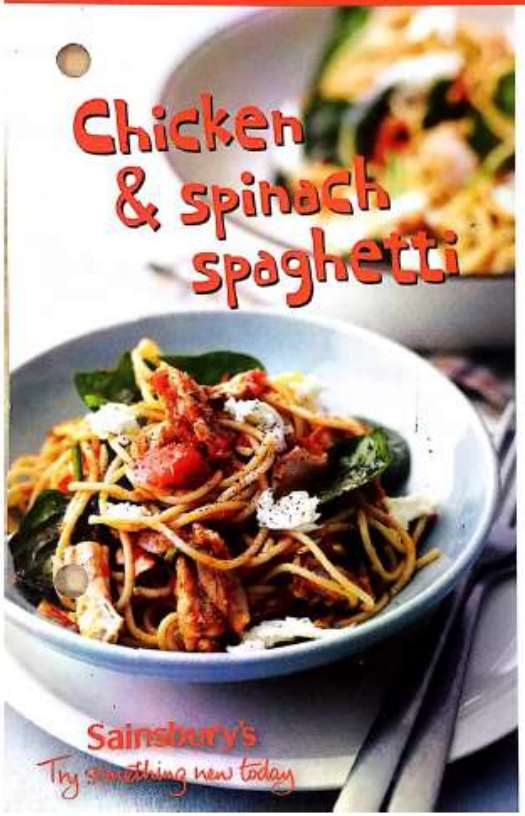
Ingredients: Apricot, mango, yogurt, lemon juice, ice

Ratio: 6 : 2 : 1 : 1 : 2

1) 1 × 12 = 12ml

2) 2 × 12 = 24ml

3) 1 × 12 = 12ml



How much do I need...	
Olive and Pumpkin Seed Pasta	For 6 people
Oriental Veggie Kebabs	For 9 people
Hawaiian Calzone	For 10 people
Sausage and Apple Cobbler	For 6 people
Tuna and Spinach Cannelloni	For 7 people
Chicken and Spinach Spaghetti	For 9 people

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Religious Education

The academic year continues a pace, so to does the season of Lent. KS3 students will mark this **time** of preparation by attending reconciliation services. Many of us enjoy Pancake Tuesday, known traditionally as shrove Tuesday, by accurately **measuring** and mixing key ingredients. Shrove Tuesday was a day simply to use up your luxury food items so that you could better spend Lent in a state of fasting and abstinence (limiting and avoiding certain behaviours e.g. meat, desserts and a treats).

Q. As a school we often celebrate Ash Wednesday (The first day of Lent) by receiving ashes. If there are roughly 1100 people in our school community, how many grams of ash do you think Kasia our chaplain has to order?

Numeracy features in KS4 where the girls will often use **shape** to create effective diagrams that express key religious beliefs and teachings. Most recently Yr10 have looked at John's Gospel and his description of Jesus as 'The Word' and the nature of God as expressed in the Incarnation.

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Numeracy in PE SJA

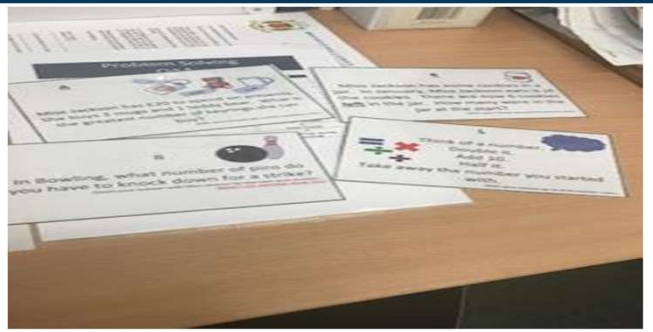
Outdoor & Adventurous Activities

The learning objectives for this lesson was for pupils to demonstrate how to navigate to certain areas whist problem solving.

The activity was a competitive team game. Pupils worked as a team challenging themselves to solve a problem at each area. Each area was clearly marked 1-10 with a numeracy question that pupils had to resolve and collect a clue before moving on.

Pupils collect the clue which is a number at each station. Once they have completed all 10 questions they add together all the clues (number) and use symbols (+,%,-) to solve an equation.

The winning team was the group who managed to navigate to each area, collect all clues and solve the end equation.



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Languages

In languages we use Maths to analyse survey results and work out how much free time young people have and what they do. Below, you can see percentages from a survey to find out the amount of pocket money received by young people in Europe.

Lee el artículo. Luego escucha y apunta los detalles para cada persona en español. (1–6)

- su nombre
- el número de la actividad
- ¿con qué frecuencia?
- ¿cuándo?

Los pasatiempos de los jóvenes españoles

Según una encuesta del Instituto de la Juventud, en España los jóvenes suelen tener una media de 32,6 horas de tiempo libre a la semana.

Las diez actividades de ocio más populares son:

1. usar el ordenador
2. salir con amigos
3. escuchar música
4. ver la tele
5. descansar
6. leer periódicos o revistas
7. escuchar la radio
8. leer libros
9. hacer deporte
10. ir al cine

el ocio *leisure*

Lee el texto. Escribe un resumen en inglés.

Los padres españoles, entre los más generosos

Según los resultados de una encuesta, los padres españoles son de los más generosos de Europa.

- Los españoles son los terceros de Europa en dar más cantidad de paga a sus hijos, después de los italianos y franceses.
- El 41% de los niños españoles de entre 5 y 15 años reciben de cinco a diez euros por semana.
- Un 13,8% de niños mayores de 15 años reciben más de cincuenta euros a la semana.

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Numeracy in History

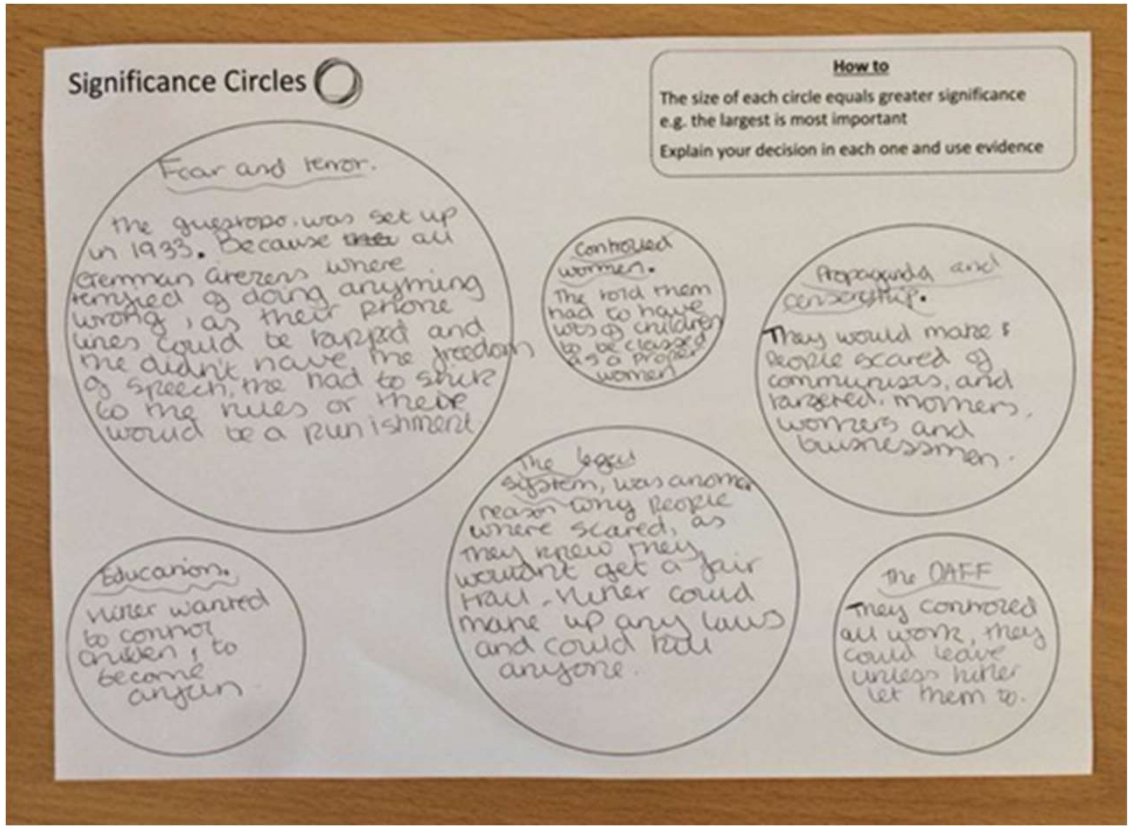
Significance circles

The aim of this activity is to challenge students to provide explanations for the significance of different causes, events etc.

Students are given a series of significance circles. They must decide which circle represents each factor & inside describe why they have been awarded the cause or feature to this circle.

This will allow students to have a visual of the significance of the events.

Students must assess the size of the circle to determine how significant each cause/ event is.



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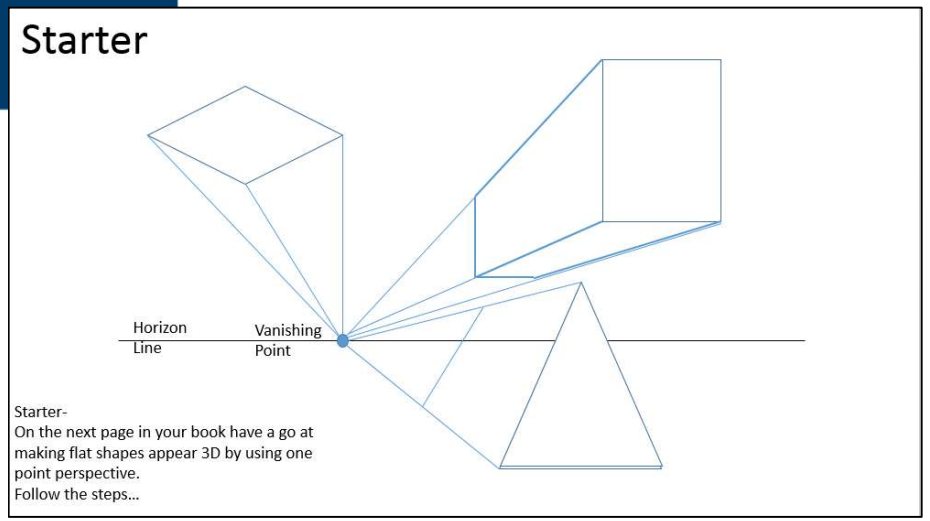
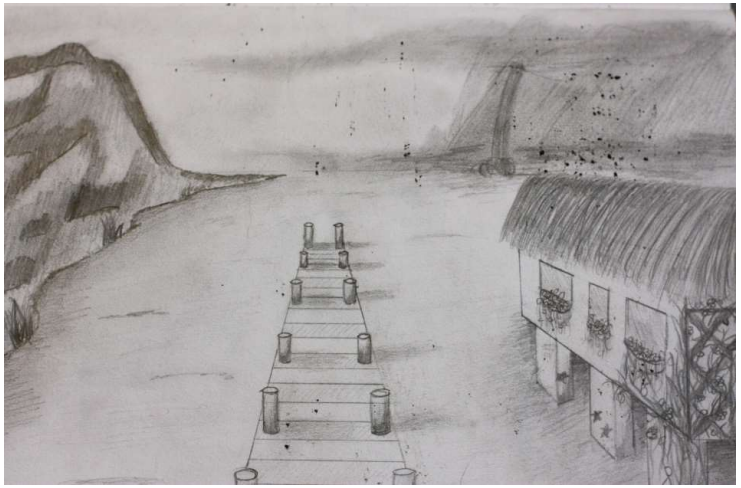
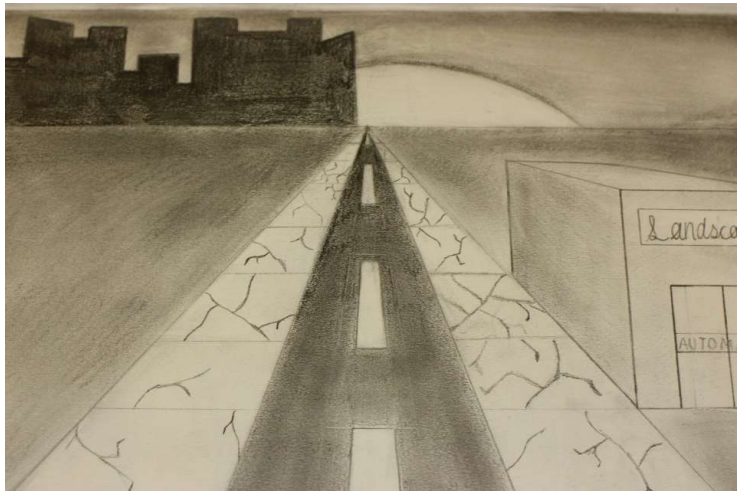
DT / Art

Year 9 Art students have been studying perspective as part of their project on Landscapes. They began by using the rules of one point perspective to make basic two dimensional shapes appear three dimensional. They then put their skills to the test to create their own one point perspective landscapes using a range of tones.







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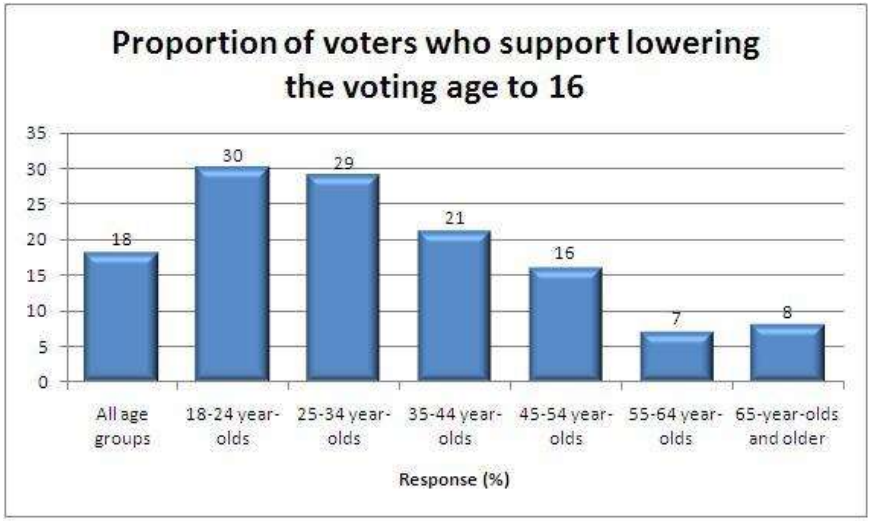
Numeracy in PSHE

During the Spring term KS3 students examine the concepts of democracy and freedom which are linked into the electoral system. Students are given the opportunity to hold their own class election which involves them counting up and analysing the votes. They also discuss the question of whether 16 year old should be allowed to vote.

Y8 students examine the law and how this affects young people at different ages e.g. the legal age of consent is 16 whereas the legal age to buy alcohol is 18.



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Numeracy in Drama

Physical Theatre

A numeracy based activity often used when studying Physical Theatre is 'Points of Contact'. In this activity, students are asked to connect a specific number of points of their body e.g. '3 feet'.

'Chair duets' is a style of Physical Theatre created by Frantic Assembly and studied at KS4. Students must create a sequence of contact using call and response in sets of 3 moves. This movement is then added to music, this part can often be tricky as students must fit their sequence of 3 into the existing rhythm of the music!

Status

In the 'Status Game' students are given a card with a number between 1-10, without looking at it they place it on their forehead. Students are told that 1 is the lowest status and 10 is the highest. In silence students then move around the room and acknowledge each other according to the status they see. Students must then rank themselves across the drama studio on the scale at to whether they feel they were low, middle or high status.

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Business Studies — Example A2 Question

In Business Studies pupils are given a yearly Income Statement for a particular Business.

This records profits / loss and the cash position of a business

Students have to perform calculations and ratios to change this from raw data to a more useable and comparable format – percentages and ratios.

This is a worked example of many of the Financial calculations that can be made from the Income Statement of a Business

Can General Motors Survive the Crunch?

With over 250,000 employees around the world, General Motors is a true business giant. For more than 70 years it was the world's number 1 carmaker. In recent years Toyota and Honda have given it a torrid time. Now it may not be able to survive. The problems are more obvious in its accounts than anywhere else. With the banking crisis of 2008, unless the US government comes to the rescue, bankruptcy may loom.

The figures below enable you to compare General Motors with the Japanese giant, Toyota.

Income Statement for year ending (all figs in $millions)

	GENERAL MOTORS (YEAR TO DEC 31ST)		TOYOTA (YEAR TO MAR 31ST)	
	2007	2006	2008	2007
Sales turnover	178000	171000	262000	203000
Cost of sales	166000	164000	215000	163000
Gross profit	12000	7000	47000	40000
Administrative overheads	16000	18000	25000	21000
Operating profit	(4000)	(11000)	22000	19000
Finance, tax and one-offs	(35000)	9000	(5000)	(5000)
Pre-Tax Profit	(39000)	(2000)	17000	14000

Balance sheet as at … (all figures in $millions)

	GENERAL MOTORS (AS AT DEC 31ST)		TOYOTA (AS AT MARCH 31ST)	
	2007	2006	2008	2007
Non-current assets	89000	121000	203000	176000
Inventories	15000	14000	18000	15000
Receivables and Cash	45000	51000	103000	85000
Current liabilities	70000	67000	119000	100000
Net current assets/Liab	(10000)	(2000)	2000	0
Non Current Liabilities	114000	124000	80000	71000
Net Assets	(35000)	(5000)	125000	105000
Share capital	18000	17000	15500	13000
Reserves	(53000)	(22000)	109500	92000
Total Equity	(35000)	(5000)	125000	105000

Questions (30 marks; 40 minutes)

1a) Calculate the operating profit margins and the return on capital for General Motors and Toyota for the most recent year available. (4)

1b) Comment on the differences between the two companies' performance. (7)

2. Analysis each firm's liquidity and gearing in order to evaluate their financial health. (9)

3. Since Dec31st 2007 US car sales have fallen sharply, adding to the pressures on General Motors. During 2008, cash has been draining out of the business at a rate of $1billion per month. Discuss the ways in which the company might act to avoid bankruptcy. (10)

Liquidity: CA / CL — Toyota - 2007 : 15000 + 85000 / 100000 = 1

2008 : 18000 + 103000 / 119000 = 1.01

GM - 2008 : 15000 + 45000 / 70000 = 0.86

2007 : 41000 + 51000 / 67000 = 0.97

Gearing: Non current liab. / Tot eq. + non-c liab. ×100 — Toyota - 2007 = 71000 / 105000 + 71000 = 40.3%

2008 : 80000 / 125000 + 80000 = 39%

GM - 2006 : 124000 / 5000 + 124000 = 104%

2007 : 114000 / 35000 + 114000 = 144%

Margain = OP / SR ×100 — Toyota - 22000 / 262000 ×100 = 8.4%

General Motors - (4000) / 178000 ×100 = -2.25%

ROCE = OP / total equity + non-cur liab. ×100 — Toyota - 22000 / 125000 + 8000 ×100 = 16.7%

General Motors - (4000) / (35000) + 114000 ×100 = -5%

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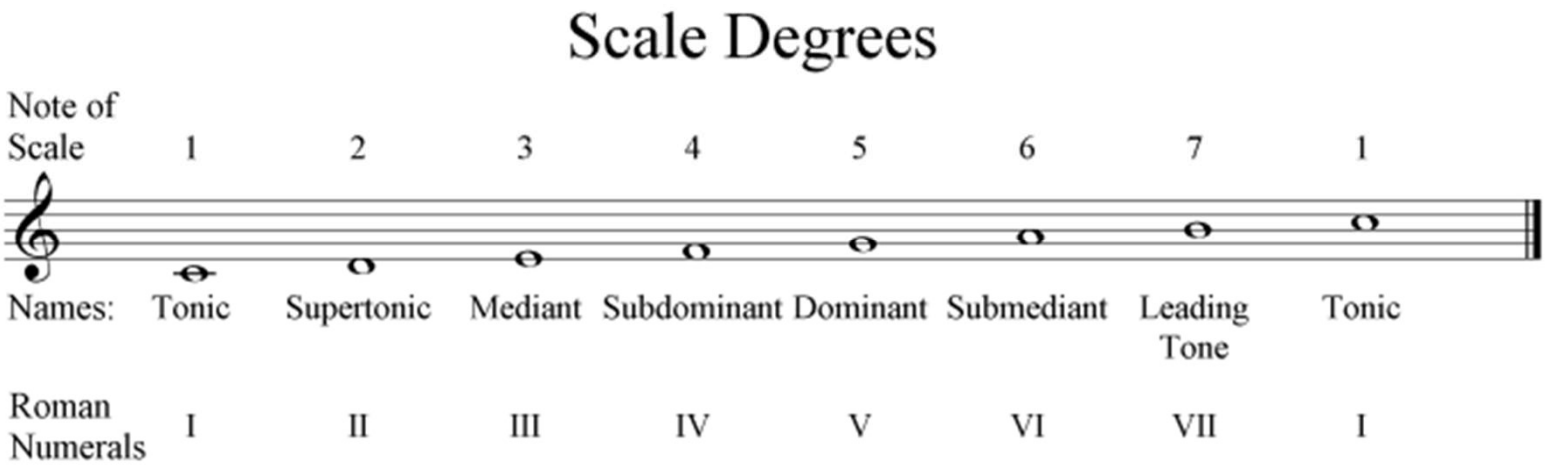
Numeracy in Music



Degrees of the Scale & Intervals

In Music, understanding Western **tonality** is key to combining different notes to make a pleasing overall sound. We use Roman numerals to label the **degrees of the scale** (I-VIII or 1-8) and study **intervals**: the relationship between the sounds of different notes (e.g. thirds, fourths, fifths).

Major or **minor keys** have specific patterns of intervals which give them their distinctive sound. When studying their **key signatures,** one learns how there are mathematical relationships between major keys and their relative minors, as well as the order in which sharps and flats are added (the **circle of fifths**).

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.