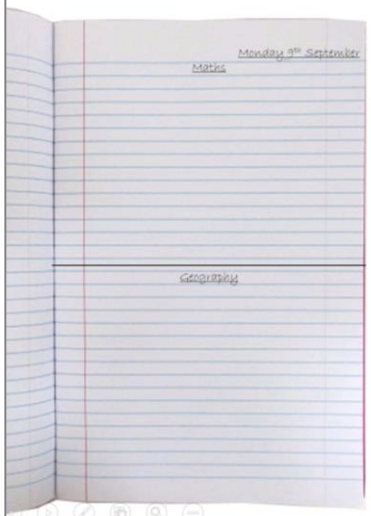
Knowledge Organisers
Year 7 – Term 1

How to complete your Knowledge Organiser Homework

- Learning is an **active process**, just reading the information will not be enough



Each day, in your Knowledge Organiser book, you must write the date at the top and then draw a line to divide the page in half using a ruler.

Use the top half of the page for one subject and the bottom half of the page for the other

You can use some of the techniques you have been taught;

- Look, cover, write, correct, repeat
- Mind maps
- Word Up
- Flashcards

(YouTube channel – Woodrush Online)

Key Points

- Follow the schedule to see which subjects your need to do each night and spend 20 minutes on each
- You should also read your book each night for 20 minutes
- You must have evidence of your work in your knowledge organiser exercise book (reading the knowledge organisers is not enough!)
- Your learning of the information will be checked in your lessons and once a week by your form tutor. If you have completed the work well you will gain achievement points.
- If you need ideas of what to do each night your can use the ideas pages and tick these off (but you do not have to do this)
- On the back page is a list of optional extra challenges that will help you earn hours for your Children's University Passport

NAME: _____ FORM: _____

Need some ideas?

If you have watched the Woodrush Online YouTube videos and you are still not sure what to do you can use these ideas on these pages for activities to complete and tick them off. You can use as many or as few of these ideas as you want!

Science

Draw and plant and animal cell from memory and label them - check and correct your work	
Once you can draw the cells from memory add in detail about what the fucntion of each cell part is	
Write all the key words from the B1 Cells page in your book and then try and write definitions without looking in your knowledge organiser. Check and correct	
Draw the particle diagrams for solids liquids and gases from memory and describe how the particles are arranged in your own words	
Explain the different between filtration, crystalisation and distillation in your own words - check and correct	
Make flashcards for the key words on the C1 - Particle model page and keep testing yourself on them until you know them off by heart	
Make a multiple choice quiz on the keywords on the P1 Forces page	
Go back and complete your multiple choice quiz	
Try and write the rules for a perfect graph from memory. Check and correct	

Art

Try and write the keywords from memory and write definitions for each. Check and correct	
Draw an apple using the information from Independent study task 1	
Complete independent study task 2 on Kandinsky	

History

Write from memory the key terms and names of the people in Normal times. Use your knowledge organiser to check your and correct your spellings	
Write as many facts as you can remember about the 4 key people in Norman times, check in your knowledge organiser and add missing details	
Write from memory as many key words about Medieval life and say what they mean. Check and correct	
Create from memory a timeline for the Tudor kings and queens, add in facts about in monarch. Check and correct	

Geography

Draw the settlement hierarchy from memory, keep practicing until you can get all the parts in the right places and spelt correctly	
Cover, write, check and correct all of the key terms until you can remember them and spell them correctly.	
Draw a simple version of the Hydrological cycle, keep practicing drawing it until you can do it from memory	
Copy the names of the key processes that shape rivers and coasts, try and explain what they do from memory – check and correct	

Faith and Ethics

Draw a mind map of the main religions, add in detail about their core beliefs	
Make some flashcards for the main religions with the name of religion on one side and their key beliefs on the other. Keep practicing until your know them off by heart	
Write a paragraph explaining in your own words why some people find it hard to believe in God	

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Spanish

Say the Spanish alphabet out loud, checking your pronunciation in the knowledge organiser. Keep practicing until you are completely correct.	
Write 4 difference sentences greeting someone and saying how you are from memory. Check your spellings	
Write down the different questions from 'all about me' in Spanish. Close your knowledge organiser and translate them into English. Check and correct	
Draw mindmap of different adjective for what kind of person your are, write these both in Spanish and English	
Make flashcards for the numbers from 1 to 31, keep testing yourself until you know them off by heart	
Try and learn the Spanish tongue twisters – impress your Spanish teacher next time you see them!	
Create a mind map of Spanish colours using the write colour pen for each of the Spanish words	

Music

Copy a blank picture of the keyboard notes. Close your knowledge organiser and add in the names of the notes. Check and correct	
Name as many music instruments as you can – put them into the 4 families of the orchestra	
Look, cover, write, check and repeat with the key words and definitions from the music page.	
Draw the different music notes from memory and name them	

DT

Draw 3 different size boxes using 3 point perspective. Describe in words how you have done it.	
Write from memory the key ingredients form making bread and why they are important. Check and correct	
Name the 5 common fabrics. Find items of clothing you own that are made of these fabrics and list them	
Create a mindmap on marking out, key equipment and joints	

Computing

Make flashcards of the keywords and definitions about computing. Keep testing yourself until you know them.	
Crate a spelling list from the keywords. Look, cover, write, check and correct until your know them	
Copy the example IF statement from the computing page without the speech bubbles. Try and explain what each part means. Check and correct	
Make a mindmap of the key terms to do with databases. Add in definitions. Check and correct	

PE

Draw a mind map for Tennis, Football and Athletics, add in the core skills and tactics	
Choose one of the 4 sports, write a checklist of what you need to do to succeed	
Name from memory as many key words from the PE page. The link each one with the sport it belongs to	

English

Identity

Key Terms	
Autobiography	A book about a person's life, written by that person.
Culture	The behaviour shared by a group of people. Many different things make up a society's culture such as: food, language, clothing, music, arts, customs, beliefs, and religion.
Effect	In a reading response, we talk about the effect of a writer's choices. This might include how it makes the reader feel,, or what meaning is created.
Identity	Your identity is who you are. This can include your characteristics, your beliefs, and how you spend your time.
Inference	This is when you use evidence to work out the deeper meaning of what is written. This can be known as 'reading between the lines.'
Parts of Speech	
Adjective	A word which describes the quality of a noun. For example: **She read an exciting book.** **The weather was cold and miserable.**
Adverb	Words which give us more information about a verb; they tell us how, why, where, or when a verb is carried out. Often ends in -ly: **The athlete sprinted rapidly**
Article	**Definite and indefinite articles** are parts of speech referring to the terms "the," "a," and "an."
Noun	A noun is the name of a person, place, or thing.
Preposition	A preposition helps to explain where something is. Examples include: **On, over, in, by, under**
Verb	Every sentence must contain a verb. A verb is a word which describes an action, state, or process. **Jack always runs to school.** **She made a mess of her homework.** **That glass may fall off that wobbly table.**

Features of an Autobiography

- ✓ Autobiographies are written in **1st person**
- ✓ Writers will often talk about their family and childhood
- ✓ Will include stories about special or important moments in a person's life
- ✓ Although autobiographies will be written in standard English, they may have quite a **personal** or even a 'chatty' tone
- ✓ A range of **adjectives and noun phrases** will be used when describing interesting details
- ✓ Writers will use a range of **sentence types** to effectively communicate their ideas
- ✓ **Time connectives** are often used when describing events in their life
- ✓ Writer's don't simply describe events – they will give the reader their **thoughts and feelings**

Poetic Methods

Alliteration	Deliberately beginning 2 or more words with the same sound	The furrow followed free
Metaphor	Describes an object or action in a way that isn't true, but helps explain an idea or make a comparison	My mind is full of scorpions.
Onomatopoeia	A word which sounds like the song it is describing	Woosh! Bang!
Personification	Where a non-human object is given human attributes or qualities	The wind blew an angry gust through the trees
Rhyme	This is usually at the end of each line	Twinkle twinkle little star How I wonder what you are
Rhythm	This refers to the 'beat' of the poem.	A poem about a chaotic topic might have a more unsteady rhythm when read.
Simile	Where something is described by comparing it to something else using 'like' or 'as.'	Her hair stood out from her head like a crest of serpents.

English

SPaG

Key Punctuation

Capital letters

Aa

Should be used at the start of every sentence
Should be used for proper nouns (names, places, titles)
Should be used for the words I / I'll / I'm / I'd / I've

A comma has many uses but its 2 most common functions are:

To separate items in a list:
Julie loves ice cream, books and kittens.
I still have to buy a gift, pack the suitcases, and arrange for someone to water the plants while we're at the wedding.
To separate a main clause from a dependent clause:
If you love relaxation, this resort is the ideal choice.
Gorillas, which are large and originate in Africa, can sometimes be found in zoos.

,

Full Stops

A full stop should be used at the end of every sentence (unless it is a question or an exclamation)

Tense

When using verbs, you need make sure they are in the correct tense. You should also make sure you stay in the same tense when you are writing.
Present tense is for describing things as they are happening
I can hear my heart thumping in my chest
Past tense is for describing things that have already happened
My heart was thumping in my chest
My heart thumped loudly in my chest

Subject-Verb Agreement

This means that the verb used in your sentence must change depending on whether the subject is singular (one) or plural (more than one)
For example, because 'I' is singular, you could say:
I am running
I was running

But not:
I are running
I were running

Keywords and sentence starters for reading responses

Analytical phrases you can use instead of 'this shows':	Effect on the reader: This may/might/could...
This illustrates that ...	make the reader sympathise/empathise with _____ because...
This presents the idea that...	evoke a sense of anger from the reader because...
This therefore demonstrates...	evoke a sense of sadness from the reader because...
This implies...	encourage the reader to reflect on...
This reinforces the idea that...	inform the reader that_____ which could be important because...
This therefore emphasises...	shock the reader. They may want to do this to...
As a result, this highlights...	create a sense of suspense which would make the reader want to find out...
This word connotes...	
This is effective because...	
By including this, the writer is communicating that...	

Film-makers' methods

Mise-en-scéne is the name given to the general staging of the scene, which is everything in the shot and where it is.
Costume is what the characters wear.
Setting/set design is the chosen location for the scene and how it looks.
Colour palette refers to the range of colours a director has used in a scene.
Props are the items characters have/use.
Framing/Composition is the name for where things are in the frame and how the director makes use of all the space within the shot.

Speaking and Listening Tips

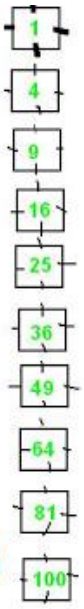
- ✓ Introduce your topic in a clear and interesting way
- ✓ If you are using a PowerPoint, avoid putting words on there. Instead, you could add interesting images, numbers, or Speak loudly and clearly
- ✓ Try using cue cards to write notes instead of reading your speech from a piece of paper
- ✓ Rehearse at home so you don't have to rely on reading from your paper
- ✓ Use connectives so the audience can follow what you are saying
- ✓ Use a wide range of vocabulary as well as devices such as metaphors and similes to interest the audience
- ✓ Speak about each idea in detail. Give examples to explain your ideas

MATHS

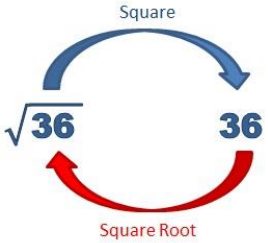
Factors and multiples

Square numbers

$1^2 = 1 \times 1 = 1$
$2^2 = 2 \times 2 = 4$
$3^2 = 3 \times 3 = 9$
$4^2 = 4 \times 4 = 16$
$5^2 = 5 \times 5 = 25$
$6^2 = 6 \times 6 = 36$
$7^2 = 7 \times 7 = 49$
$8^2 = 8 \times 8 = 64$
$9^2 = 9 \times 9 = 81$
$10^2 = 10 \times 10 = 100$



Square roots



Square roots are the inverse operation of squaring a number.

Prime numbers

A Number is Prime if it has exactly 2 factors: 1 and itself

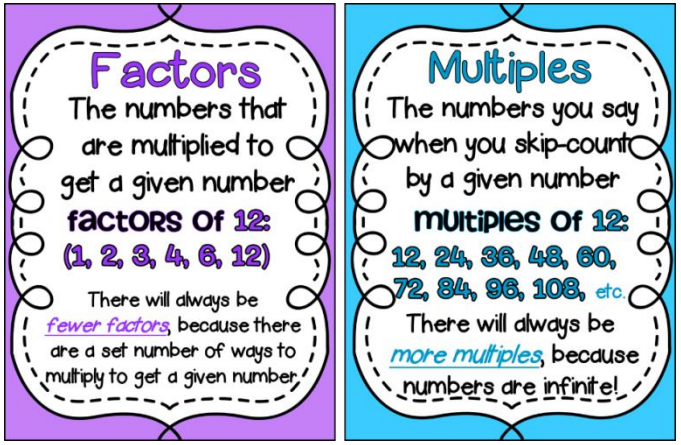
No other number can divide into it exactly

1 is not a prime number

2 is the only even prime number

Prime numbers up to 50

2, 3, 5, 7, 11, 13, 17, 19, 23, 29, 31, 37, 41, 43, 47



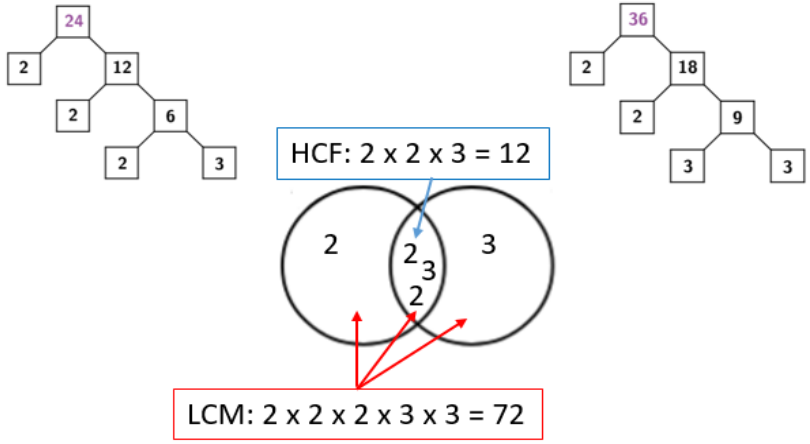
Factors and multiples in context

Example of when this appears in real life:
One bus leaves Wythall to Birmingham at 10:00 and then every 20 minutes after. Another leaves Wythall for Solihull at 10:00 and every 15 minutes after. When is the next time they both leave Wythall at the same time?

HCF and LCM from prime factors

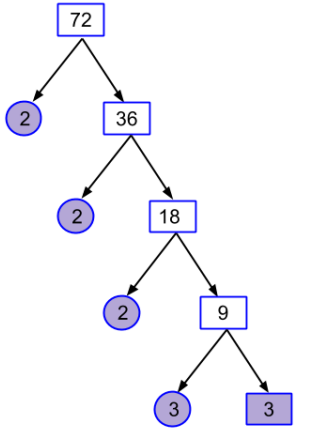
For larger numbers to find the HCF and LCM use prime factor decomposition and then put the numbers into a Venn diagram. The middle numbers multiplied give you the HCF, multiply all of the numbers you get the LCM

Find the HCF and LCM of 24 and 36



Prime factor decomposition

Use only prime numbers to divide until you cannot divide anymore.



Prime factors of 72 = 2 x 2 x 2 x 3 x 3

MATHS

Expressions and Formulae

Algebraic Notation

Algebra is the language we use to communicate mathematical information.
Letters used to represent values are known as variables.
Notation creates shortcuts:

$$a \times b = ab$$
$$x + x + x + x = 4x$$
$$y \times y = y^2$$

Numbers, symbols and operators (such as + and ×) grouped together that show the value of something.
e.g. $6xy - 5\frac{a}{b} + 21x$ is an expression

Each individual part is a term.
Eg. $6xy$
$-5\frac{a}{b}$
$21x$

The same rules of BIDMAS applies to Algebra.

Collecting like terms

Collecting like terms enables us to simplify expressions making them easier to use. Terms that contain the exact same variable can be classed as 'like' terms and be simplified.
Be careful of the signs in front of the variable!

$$5x + 6y - 2x - 5y = 3x + y$$

$$5xy + 3x - 2xy + 4y = 3xy + 3x + 4y$$

$$2x^2 + 3x + 5x^2 - 5x = 7x^2 - 2x$$

Formulae and algebra

A formulae explains how to calculate the value of a variable.
e.g. ' The price of a taxi fare in Manchester depends on the distance driven. Each fare is charged a flat fee of £2 and then £3 for each mile driven.'

C= 2 + 3M

If you travel 20 miles then you would calculate the cost by doing 2 + 3 x 20

Cost = £62

MATHS

Expressions and Formulae

Expanding a single bracket

Multiply terms outside by all terms inside

$$10\,(x + y + 4) = 10x + 10y + 40$$

$$3x\,(6x - 2) = 18x^2 - 6x$$

Expanding brackets often the first step in simplifying algebra

$$2\,(x + 3y) - 7(2x - y) = 2x + 6y - 14x + 7y$$

Include sign in multiplication

$$= -12x + 13y$$

Expanding a double bracket

$(x + 4)(x - 3)$ Split brackets up around grid

Multiply each term in the grid

	x	$+4$
x	x^2	$4x$
-3	$-3x$	-12

Then simplify

$x^2 + x - 12$

Factorising an expression

Look at whole expression, identify HCF and divide out

$12x - 6y + 3z$ HCF = 3

$3(4x - 2y + z)$

$ax + aby + 4az$ HCF = a

$a(x + by + 4z)$

Look at each term separately, divide numbers first then the algebraic terms

Key terms

Variable · varying quantity represented by a letter or symbol, e.g. *x*

Constant · a fixed quantity that does not vary, e.g. a number

Coefficient · a number which multiplies a variable, e.g. *5x*

Exponent · shows the number of times a variable or number is multiplied by itself, e.g. $y^4 = y \times y \times y \times y$

Operator · a symbol indicating what operation must be done, e.g. + - x ÷

Term · one part of an expression which may be a number, a variable or a product of both, e.g. $5x^2$ $4xy$ 12

Expression · one or a group of terms. May include variables, constants, operators and grouping symbols e.g. $5x^2 + 2x(x + 2) - 8$

MATHS

Equations

Solving linear equations

Solve $2x + 3 = 13$

This means: $x \xrightarrow{\times 2} \xrightarrow{+ 3} = 13$

To solve, we reverse the process:

$x \xrightarrow{\times 2} \xrightarrow{+ 3} 13$

$x \xleftarrow{\div 2} \xleftarrow{- 3} 13$

Use the opposite (inverse) operation and undo in reverse order.

$2x + 3 = 13$ | $- 3$

$2x = 10$ | $\div 2$

$x = 5$

We have solved the equation when we get to a single value of x (here, x = 5).

Solve $3x - 8 = 19$

$3x - 8 = 19$ | $+ 8$

$3x = 27$ | $\div 3$

$x = 9$

Solve $4x + 6 = 14$

$4x + 6 = 14$ | $- 6$

$4x = 8$ | $\div 4$

$x = 2$

Inverse operations

Operation	Inverse
+	−
−	+
×	÷
÷	×
x^2	$\sqrt{x}$

To be able to solve equations you need to know the inverse operations. You will need to work backwards to find the missing value by doing the inverse operation.

Solving more complex equations

Expand brackets and simplify (collect like terms)

If x is on both sides, eliminate smallest value

Eliminate excess number

Divide and solve for x

ORDER

$3(x + 1) = 2(x + 2)$

$3x + 3 = 2x + 4$

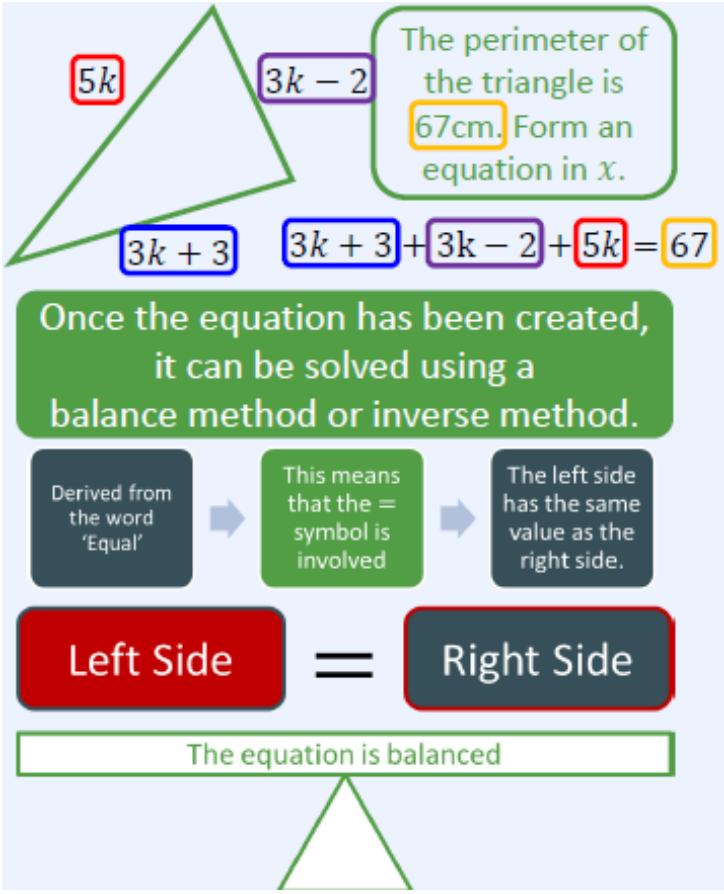
$-2x \quad -2x$

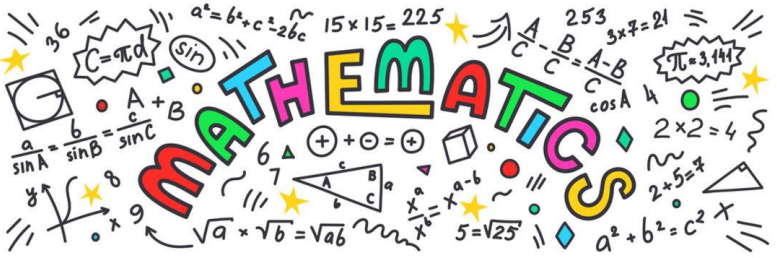
$x + 3 = 4$

$-3 \quad -3$

$x = 1$

Solving equations in context





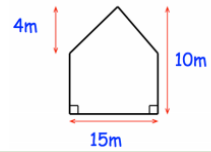
MATHS

Perimeter, area and volume

Perimeter, area and volume in context

Perimeter, area and volume are used when considering the amount of something needed for a certain area, such as paint for a house. Have a look at the question below.

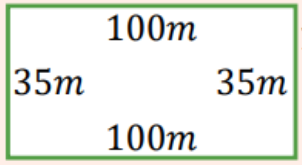
William is painting the side of his house.
He has 8 litres of paint and each litre of paint covers $16m^2$
Does William have enough paint?



Perimeter

The total distance **AROUND** a 2D shape

Adding all the side lengths together



$100 + 100 + 35 + 35$

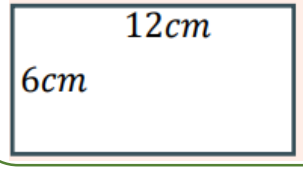
$270m$

Area of a rectangle

The total **space** taken up by a 2D shape

Multiplying two side lengths together

Area of rectangle $= l \times w$



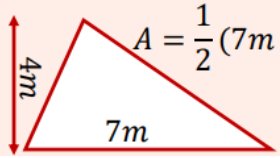
$\text{Area} = 6cm \times 12cm$

$72cm^2$

Area of triangle

The area of a triangle takes up **half** the space of the rectangle that is formed around it

Area of triangle $= \frac{1}{2}(b \times h)$

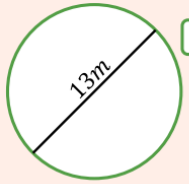


$A = \frac{1}{2}(7m \times 4m) = \frac{1}{2}(28m^2)$

$14m^2$

Area of circle

$A = \pi r^2$ ➡ Pi times the radius squared



Diameter is double the radius

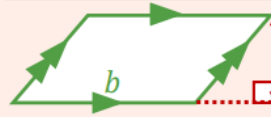
$A = \pi \times 6.5^2$

$A = \pi \times 42.25$

$A = 132.73m^2$

Area of parallelogram

Imagine a tilted rectangle



$\text{▱} = b \times h$

Be sure to use **perpendicular heights**

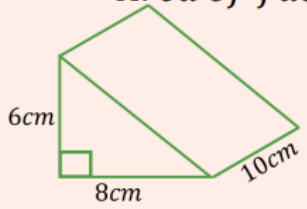
Volume of prism

The same cross sectional area throughout

$Volume = Area\ of\ face \times depth$

$Area\ of\ face = \frac{1}{2}(8 \times 6)$

$24cm^2$



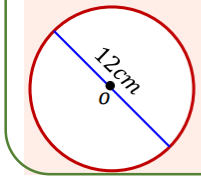
$24cm^2 \times 10cm = 240cm^3$

Circumference of a circle

$C = \pi d$

$C = 2\pi r$

The circumference is always about three time the length of the diameter



$C = \pi \times 12cm$

$C = 37.7cm$

MATHS

Fractions

Remember what you do to the top you must do to the bottom!

Simplifying fractions

You need to identify a common factor of both the numerator and the denominator and divide them both by the same number. Keep going until you cannot find a common factor.

1. $\frac{10}{16} \xrightarrow{\div 2} \frac{5}{8}$ ($\div 2$)

2. $\frac{20}{50} \xrightarrow{\div 5} \frac{4}{10} \xrightarrow{\div 2} \frac{2}{5}$ ($\div 5$, then $\div 2$)

Multiplying fractions

When you multiply fractions just times the numerators and the denominators!

$$\frac{2}{3} \times \frac{5}{7} = \frac{10}{21}$$

Multiply across the top and bottom

Dividing fractions

To divide fractions, keep the first one the same, change the divide to a multiply and flip the second fraction

$$\frac{10}{3} \div \frac{2}{3} \xrightarrow{\text{Multiply by the Reciprocal}} \frac{10}{3} \times \frac{3}{2} = \frac{30}{6} = 5$$

Finding the reciprocal of a fraction swaps the numerator and denominator

Adding and subtracting fractions

$$\frac{2}{9} \xrightarrow{+} + \frac{5}{9} \Rightarrow \frac{7}{9}$$

When denominators are the same, simply add the numerators

When the denominators are different you need to find a multiple that they both have. Once you have found a common multiple multiply the whole fraction to get the denominators the same!

$$\frac{7}{9} - \frac{1}{6}$$

$\times 2$ $\times 3$

When denominators are different, multiply the fractions

$$\frac{14}{18} \xrightarrow{-} - \frac{3}{18} \Rightarrow \frac{11}{18}$$

Remember to simplify your answers

Fractions of amounts

Divide amount by denominator ⇒ Then multiply by the numerator

$\frac{3}{5}$ of $60 \Rightarrow 60 \div 5 = 12 \Rightarrow 12 \times 3 = 36$

MATHS

Decimals and percentages

Adding and subtracting decimals

136.04 + 102.27 → 136.04 + 102.27 = 238.31

Write in vertical column, aligning the decimal points.

Add each column, starting on right. Carry digits when needed.

2.37 - 0.031 → 2.370 - 0.031 = 2.339

Write in vertical column, aligning the decimal points.

Subtract each column, starting on right and working left. Borrow as needed.

Percentage of amounts

Find 35% of 40

Method 1- Unitary method

Find 1%, 10%, 5% etc.

$10\% = 4 \quad (\div 10)$

$30\% = 12$

$+ \ 5\% = 2$

14

Method 2- Decimal method

Turn % to a decimal (÷ 100) Then multiply by amount

$35\% \div 100 = 0.35$

$0.35 \times 40 = 14$

2017

This works best if you have a calculator!

Dividing decimals

$0.5\overline{)4.5}$ $05\overline{)45.}$ $05\overline{)45.}$ $-45.$ 0 $90.$

Steps:

1. If the divisor has a decimal, move it as many places to the right as necessary to make it a whole number.
2. Move the decimal in the dividend the same amount of times to the right as you did the divisor.
3. Divide.
4. Place the decimal in the same spot as the decimal in the dividend.

Multiplying decimals

16.82 x 2

$$\begin{array}{r} 16.82 \\ \times \quad 2 \\ \hline 33.64 \end{array}$$

Steps:

1. Align both numerals to the right (do not line up decimals).
2. Multiply.
3. Count over from the right of each numeral to the decimal. Add those together.
4. Counting from the right, put the decimal in the correct spot based on how many decimals you counted in step 3.

Decimals and percentages in context

Below are some examples of percentages and decimals in context- often the context is money! Have a go can you work out the correct answer?

The cost of a meal for 17 people was £315.35 and they shared the amount equally. How much did each pay?

Emma is paid £24,000 each year. She is given a pay rise of 12%. Work out 12% of £24,000.

SCIENCE

B1 Cells

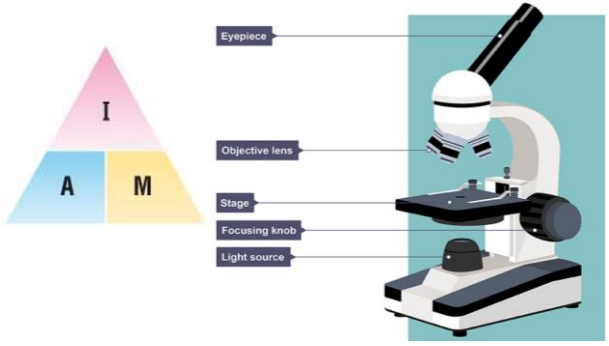
Microscopy

Microscopes are used to **magnify** things that are too small to observe with the human eyes.

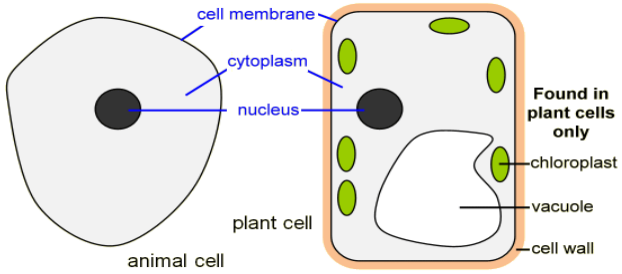
Magnification is how much bigger an object appear compared to its real size.

Resolution is the ability to see fine detail clearly

Total magnification = Eye piece lens x objective lens

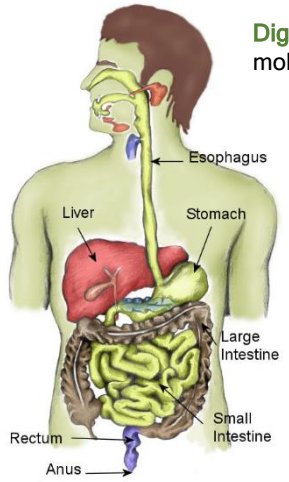


Cell structure



Organelle	Function
Nucleus	Contains DNA
Cell membrane	Controls what enters/exits
Chloroplast	Where photosynthesis occurs
Mitochondria	Where respiration occurs
Cytoplasm	Cellular reactions occur here

Digestive System & Enzymes



Digestion is breaking larger, complex food molecules into smaller, simple molecules

Carbohydrate → Simple sugars

Proteins → Amino acids

Lipids → Glycerol + Fatty acids

Physical/Mechanical digestion is when large pieces of food are physically broken up into smaller pieces.

Chemical digestion is the break down of food using **enzymes & acid** whereby a **new chemical substance** is formed.

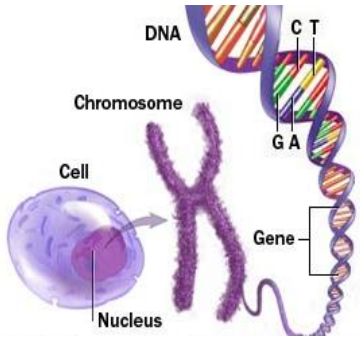
MRS GREN

M	Movement
R	Respiration
S	Sensitivity
G	Growth
R	Reproduction
E	Excretion
N	Nutrition

Unicellular organism =is a living thing that is just one cell eg bacteria and yeast

Multicellular organism = is an organism with more than one cell eg animals and plants

DNA



- DNA (deoxyribonucleic acid) is found in the nucleus of cells

It is stored in tightly coiled up structures called **chromosomes**

When chromosomes are unwound, it reveals a structure of DNA called a **double helix**

The double helix has a **sugar-phosphate backbone** and **bases** in the centre

Variation & inheritance

Variation means differences in characteristics.

Inherited variation is differences due to genetics passed on from parents.

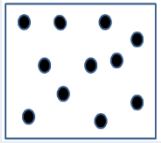
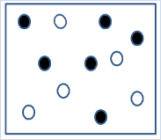
Environmental variation is differences due to the environment that the organism has developed in.

Continuous variation is a characteristic that changes gradually over a range of values.

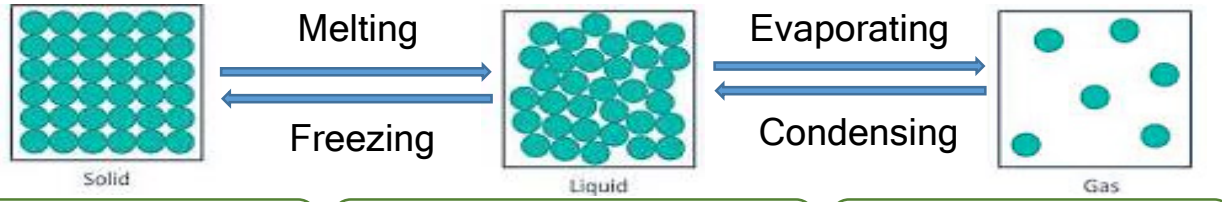
Discontinuous variation is a characteristic with only a limited number of possible values

Science

C1: The Particle Model

Key Term	Definition
Dissolve	The process of a solid mixing with a liquid to make a solution
Solute	The solid substance that dissolves in the liquid
Solvent	The liquid in a solution
Solution	The solute and the solvent mix to form a solution
Insoluble	Describes a substance which can't dissolve
Pure	Made up of just one substance 
Mixture	Made up of more than one substance 
Chroma-tography	A process where a spot of a mixture is separated into spots of it's components to be identified

Solids, liquids + gases - Particle model

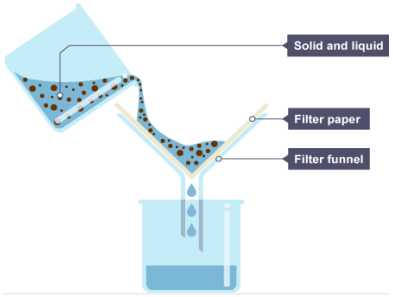


Particles: Close, regular pattern
Properties: Hard, fixed shape + volume

Particles: Close, but free to move
Properties: Flow, fixed volume, no definite shape

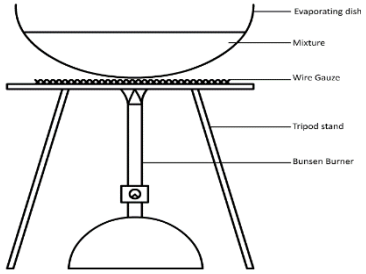
Particles: Spread out, free to move
Properties: No fixed shape or volume

Filtration: Separates an insoluble solid from a liquid



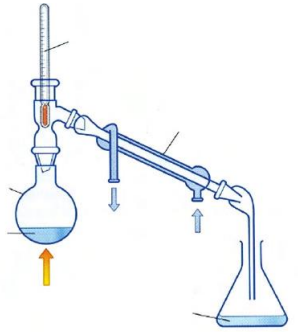
Example: Separate sand + water
Products: Residue (Solid left on the filter paper) + Filtrate (Liquid that passed through the filter)

Crystallisation: Separates a soluble solid from a liquid



Example: Separate salt + water
Products: Crystals of the soluble solid (can be filtered). The liquid will evaporate.

Distillation: Separates liquids out of mixtures



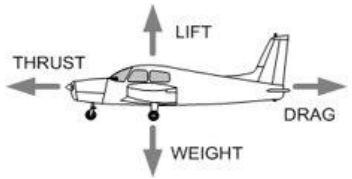
Example: Separate water out of orange juice
Products: Distillate (the liquid with the lowest boiling point) in collection beaker + everything else left in the flask

Science

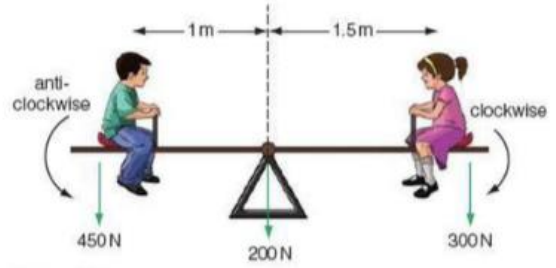
Isaac Newton discovered the rules of forces in 1681

P1 Forces

Keyword	Definition
Contact force	Force that can only acts when two objects are in contact
Non-contact force	Force that can act when two objects are not in contact
Newton	Unit of force.
Newton meter	Equipment used to measure the force on an object
Friction	Contact force caused by 2 objects rubbing against each other. Causes loss of energy as heat
Drag	Drag is a frictional force that acts when an object moves through a fluid.
Gravity	Gravity is an attractive force caused by objects with mass.
Mass	Amount of matter - measured in kg
Weight	The force of gravity on a mass - measured in N.
Upthrust	Force on an object when placed in a liquid
Density	Density = mass / volume
Tension	Force that acts when an object is stretched
Hooke's Law	Extension is directly proportional to force applied, provided the elastic limit is not exceeded.
Moment	The turning affect of a force
Pivot	The point at which rotation happens
Speed	Speed = distance / time. Unit = m/s
Force diagrams	Show direction and size of forces acting on an object.
Pressure	Pressure = force / area. Bigger area = less pressure, smaller area = more pressure.
Levers	Simple machines that can allow small forces to move heavy loads
Distance Time Graph	Show the distance an object has moved in a time period. The gradient = the speed.

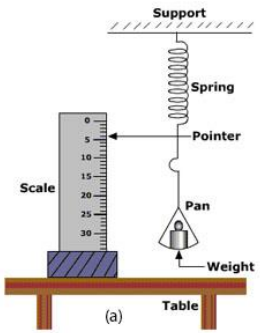


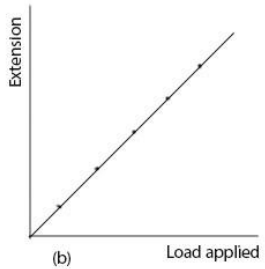
- Force diagrams show all the forces on an object.
- Forces are vectors – the arrow shows the direction and the length shows the size of the force.

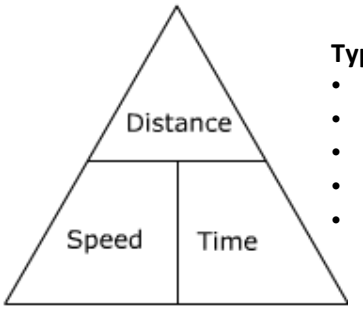


- No change in movement if moments are balanced (anticlockwise moments = clockwise moments
- **Moment (Nm) = Force (N) x distance (m)**

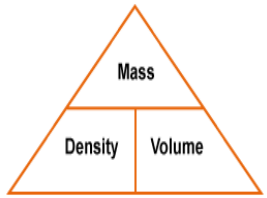
- **Hooke's law** – force is directly proportional to force applied – providing the elastic limit is not exceeded.
- When stretched beyond the **elastic limit** a material is permanently deformed.







Typical Speeds
- Walking 1-2 m/s
- Running 5-8 m/s
- Cycling 10-12m/s
- Car on road 20m/s
- Train - 40m/s



- Objects more dense than liquid sink.
- Objects less dense than water sink.

Science

PS1 practical skills

Word	Definition
Hypothesis	A prediction of what will happen in an experiment
Repeatable	If the same person does an experiment using the same method and equipment, they will get the same results
Reproducible	If someone else does the experiment, or a different method or piece of equipment, the results will be similar
Valid	If an experiment if both repeatable and reproducible

Variables

Analysis

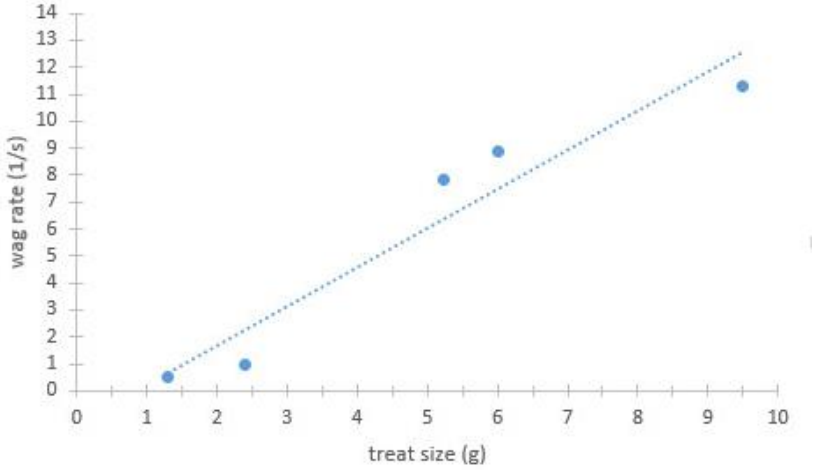
- State the trend shown in your results.
- Quote data.
- Identify any anomalous results

Evaluation

- What went wrong in your experiment?
- How can it be improved?

Drawing graphs

- Must be at least half of the page
- Axis must be labelled, including units (in brackets)
- Accurate plotting
- Line of best fit
- Independent variable always goes on the x axis and the dependent variable goes on the y axis
- Always use a pencil and ruler



Example risk assessment

Hazard -an item that can cause harm	Risk - how it causes harm	Precaution - how to prevent harm
Eg Hydrochloric acid	Corrosive	Wear googles, rinse off skin if there is contact

Study Time vs. Grades

Student	Study Time (hours)	Grade
Bob	2	84
Carlos	4	91
Cindy	5	92
Florence	3	89
Kim	4	88
Lori	4	93
Marisa	1	78
Pat	2	89
Thomas	5	94
Wendy	2.5	87

Drawing tables

- Use a ruler and pencil
- Units should only be in column headings (not in columns)
- Independent variable always goes in the right hand column

$$\text{Mean} = \frac{\text{Sum of values}}{\text{Number of values}}$$

For example, the mean of 3, 6, 7, 9 and 9 is

$$\frac{3+6+7+9+9}{5} = \frac{34}{5} = 6.8$$

History

The Norman Conquest

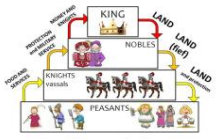
Key Terms:

Hierarchy	A system where a few people at the top have a lot of power, while the people at the bottom have the least.
Feudal	The hierarchy that William put into place.
Conquest	A successful invasion of a country i.e. William became known as William the Conqueror.
Tax	Money collected off the public to be used by the government.
Heir	The next person in line to the throne.
Monarch	Another word for the king or queen.
Reign	The amount of time a King or Queen is in power for.
Normandy	The area of France where William was from.

How did William keep control of England after the Battle of Hastings?

Motte and Bailey Castles: **simple castles** made out of wood and built on high ground to **intimidate people who wanted to rebel against William.**

The Feudal System:
William used the **Feudal System to organise English society into a hierarchy** with the King at the top, followed by Barons/Lords, Knights and finally the peasants. Land would be exchanged for money or work at each step of the pyramid.



Feudal Pyramid of Power

Control

The Domesday Book:
William sent officials around England, recording everyone's details about how much they earned and what property they had. This **allowed William to know how much tax he could collect.**

The Harrying of the North:
The North of England had rebelled against William. **To force them to stop (and to intimidate other rebels) William killed the rebels, killed their animals, burnt down their homes and crops, and then sowed salt into the soil so nothing else would grow!** Over 100,000 were killed as a result.

Key People:

Edward the Confessor:

Edward was **King of England** from 1042 until 1066- he was known for his **religious lifestyle and beliefs** (this is why he was known as the confessor). People believed that his **touch could cure them of disease.** When the Vikings invaded England in 1013, Edward and his family **ran away to Normandy where he stayed for 25 years!** He was only allowed back into the country in 1041 and became King the year after- he **faced a number of rebellions throughout his reign** though, including from Harold Godwinson.

Harold Godwinson:

Harold Godwinson was **Edward the Confessor's brother-in -law**. He became King of England after his death. He was an **experienced warrior** and could also be **brutal** (he had chopped the head off a Welsh leader in the past). His **family was one of the most powerful in England**. 15 years before, **Harold's family had tried to take over England** from Edward but they had lost. Godwinson **defeated Harald Hardrada at Stamford Bridge** before being **killed at the Battle of Hastings**.

William, Duke of Normandy:

Ruled an area of France called Normandy. He could be **brutal-** he had ordered 30 townsmen to be skinned alive! William's **parents were not married** so he was not a legitimate (legal) heir. He wanted to be King of England after Edward and **claimed that Edward had promised him the crown** of England when he died. He invaded England when Harold Godwinson became king and **took the crown at the Battle of Hastings.**

Harald Hardrada:

England had been ruled by Vikings up until 1042 when Edward the Confessor took the throne. The **Vikings said they were the real Kings of England**. Harald Hardraada was next in line to the Viking throne. At the age of 51, he was the **most famous soldier of the age.** His name means '**hard ruler' and he was nicknamed 'The Ruthless**,' The people in the north of England supported him. When Godwinson became King after Edward died, **Harald Hardrada invaded England** and was **killed at the Battle of Stamford Bridge**

History

Medieval Life

Life in Medieval England:

In the Middle Ages nearly everyone lived in a village. There were no shops in these villages and villeins (the people who lived in the village) could only go to the nearest town if the lord of the manor let them.

Each village was surrounded by 3 open fields. They had no fences or hedges in them. Everyone got a share of the land in the village. Each year one of the fields was left fallow. This meant that no crops were grown in it to help the soli recover. Animals would be allowed to graze there, the droppings acting as fertilizer.

Magna Carta

Causes of the barons' revolt

King John spent ten years raising taxes for a war in Normandy with France. The barons did not support this. John lost the war and ran up huge debts.

John increased taxes and did not consult the barons on important issues. The barons were angry with John. In April/May the barons took up arms against the King, led by Robert FitzWalter. They marched on London, Lincoln and Exeter, which all fell to the barons and the rebellion grew in size. The barons issued a royal charter of demands which John was forced to accept on the field of Runnymeade on 15th June 1215. This became known as the MAGNA CARTA.

Some of the key terms of this were:

- It promised the protection of church rights
- The King could not sell justice.
- Protection from illegal imprisonments
- All people were to be tried by jury.
- New taxation only with the consent of the barons
- The King could not sell justice
- A council of 25 barons would be set up to ensure that the King was respecting the rights and the laws of the charter.

The charter defined that a formal relationship should exist between the monarch and barons. The king was now subject to the law. These were radical ideas!

Black Death

What were the causes of the Black Death?

We know today that he Black Death was caused by fleas that lived on black rats. The fleas sucked the rat's blood which contained the plague germs. When the rat died the flea jumped onto humans and passed on the deadly disease. However in the Middle Ages there was no scientific understanding of illness and disease.

They used several different ways of explaining the cause of the Black Death:

- Caused by a miasma - an 'evil air'.
- It had been sent as a punishment by God for the sins of the people.
- A 'Cosmic Serpent' had come too close to Earth. It's evil breath had caused the illness.
- Mars and Saturn had moved too close to each other. The Earth had been polluted by an 'evil dust'.
- The Jews of England had poisoned the wells.

What cures were used to stop the Black Death?

Ask for God's forgiveness/ bleeding/strong smelling herbs/ lancing buboes

How did Medieval people try to prevent catching the Black Death?

Pray/ Pilgrimage/self - flagellation/ escape!/ carry a posy of flowers/ do joyful things/ quarantine laws

Consequences of the Black Death

Short Term	Long Term
Half the people in Britain died from the Black death. More died in later outbreaks of the disease. Food prices went up by 4 times as animals and crops died with no one to look after them. An estimated 35 million people, two thirds of the world's population, died from the disease. As there were less people alive after the Black Death, survivors could charge more for their services. Wages increased.	The Black Death lasted from 1348-1350. Later outbreaks did occur, but they were less severe. After the Black Death people demanded freedom but lords refused. This led to the Peasants Revolt in 1381. It took 300 years for the population to recover to the same level as before the Black Death.

Key Terms:

Bubonic Plague	The more common Plague that was carried in the bloodstream of rats. Fleas bit the rats and become infected. They then hopped onto humans, bit them and passed on the disease.
Pneumonic Plague	This was more deadly. It was caught by breathing in the germs when an infected person coughed or sneezed. They would cough up blood and their lungs rotted inside them.
Freeman	These people paid rent to the lord to farm their land, but they weren't 'owned' by the Lord, and could come and go as they pleased.
Villein	They were Medieval peasants who were 'tied' to the Lord's land. They had to farm their own land and the land of the Lord, and they had to get the Lord's permission to do things like get married or leave the village
King John (1199-1216)	Brother of the popular King Richard I, who died shortly after his return from the 3rd Crusade. John was suspicious and had rebelled against both his father and brother. John inherited the cost of his brother's costly wars, but was a cruel and incompetent king.

History

The Tudors

Who were the Tudors?

- Henry VII (1485 – 1509) The first Tudor monarch, crowned winning The Battle of Bosworth.
- Henry VIII (1509 – 1547) Famous for having eight wives. Began The Church of England so he could have a divorce.
- Edward VI (1547- 1553) Henry VIII's only son. He came to the throne at 9 and died at 16.
- Lady Jane Grey (1553) Queen for only nine days. Mary had her imprisoned and beheaded.
- Mary I (1553 – 1558) Henry VIII's eldest daughter. She was Catholic and was also known as 'Bloody Mary' because she had so many Protestants killed.
- Elizabeth I (1558 – 1603) Henry VIII's last heir. She never married nor had children so the Tudor era ended with her.

Key Terms:

Heir	The next person in line to the throne.
Annul	To cancel a marriage
Protestant	A member or follower of any of the Western Christian Churches that are separate from the Roman Catholic Church. They broke away from the Church during the Reformation.
Catholic	A form of Christianity, followers of the Roman Catholic Church.
Reformation	Reformation, also called Protestant Reformation, the move of part of the church away from the authority of the Pope
Dissolution of the Monasteries	The closure of English Monasteries by Henry VIII in 1536-1540. Monasteries were run by the catholic church and were homes for Monks and Nuns. They also provided hospital care and charity to the local people.

Why did Henry VIII break from Rome?

Succession – Henry desperately needed an heir to ensure a peaceful and stable succession. By the late 1520s he no longer believed that his wife, Catherine of Aragon, could provide him with a son.

Love – Henry had fallen in love with one of his wife's ladies in waiting, Anne Boleyn. Anne did not want an affair, but marriage.

Power – Henry's ministers had been unable to get the Pope to agree grant the divorce. This was humiliating. Henry believed that Kings should have power over the church in their own country.

Money – the Church was extremely wealthy because of tithes, donations and the amount of land they owned. Henry was quite poor from his wars with France and needed money to fight future wars.

Religious beliefs -Some people criticised the Catholic Church for being corrupt. These were known as Protestants. Many of the supporters of Anne Boleyn were Protestant.

Mary I – Does she deserve the nickname, 'Bloody Mary'?

When she became queen people celebrated in the streets and bells were rung across the country.

Mary executed an estimated 284 Protestants by burning them at the stake for refusing to convert to Catholicism.

Mary was a committed Catholic. She tried to restore England to Catholicism as she believed that Protestantism was heresy

Mary married the Catholic King Phillip II of Spain. This was unpopular and led to a rebellion against her in 1554 led by Sir Thomas Wyatt. It was stopped by Mary's forces in London.

While she was queen, Mary restored the navy and increased England's wealth, she also established new hospitals and improved the education of the clergy.

In 1557 Mary's husband Phillip persuaded Mary to go to war against France, in support of Spain. However, this was expensive, taxes were raised, and disastrous. Calais, the last English possession in France, was lost.

Geography

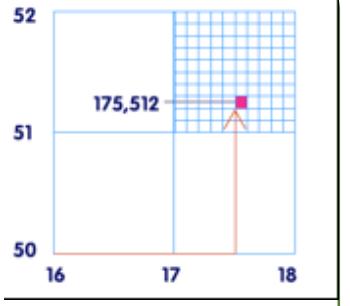
My Place: Settlements and Regeneration

Why cities decline

1. Factories close down because of cheaper products made abroad. DE-INDUSTRIALISATION
2. Inner Cities have higher UNEMPLOYMENT and POVERTY
3. This leads to SHOPS and SERVICES CLOSING due to a lack or sales. They become run down and VANDALISED
4. Then, CRIME rates increase and HOUSING quality DECLINES
5. Finally, COUNCILS draw up plans for REGENERATION

Six figure grid reference rules.

Rule 1. Put a dot in the bottom corner of the square you are looking for
Rule 2. Always go along the bottom first, read first two numbers (17).
Rule 3. Divide the big square into 9x9 in your head, how many little squares going across ? (5) so 175.
Rule 4. Now go up the side, read the first two numbers (51)
Rule 5. Count the little squares going up the side 2
So its 175 going across and 512 going up.
Find an example on google images to practice at home!



Key terms

DE-INDUSTRIALISATION-The decline of manufacturing in the UK in the 1970's -1990's.

REGENERATION-The attempt to reverse decline in cities by improving the physical environment and economy.

INNER CITY- The area near the city centre that is often run down and full of old factories.

DEPRIVATION- Where people have a standard of living below what is acceptable.

URBAN - Towns and cities **RURAL** - Countryside

SUBURBANISTION- A population shift from the cities into suburbs, usually families in search of more space

URBANISATION- The growth in the percentage of people moving to urban areas from rural are.

SUSTAINABILITY- Improving **social** wellbeing
- Improving **economic** prosperity and wealth and……
- Improving the **environment**

for future generations……

Birmingham's regeneration

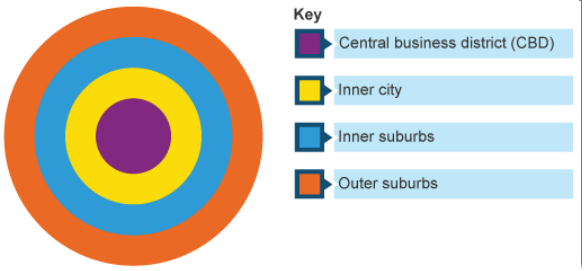
Mailbox- cost £150 million
Opened Dec 2000
Designer shops and restaurants, improved 2013.

Grand central- £600 million
Opened- Sept 2015
John Lewis, 2000 jobs
Can hold 200,000 passengers per day

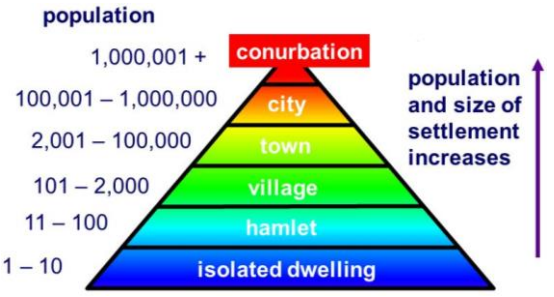
Bull Ring- £400 million
200 shops, 8000 jobs in total
Busiest shopping centre in UK, 35 million ppl per year

Brindley Place- Offices, pubs Restaurants, health clubs employ 8500 people, **NIA** opened in 1991.

Settlement land zones



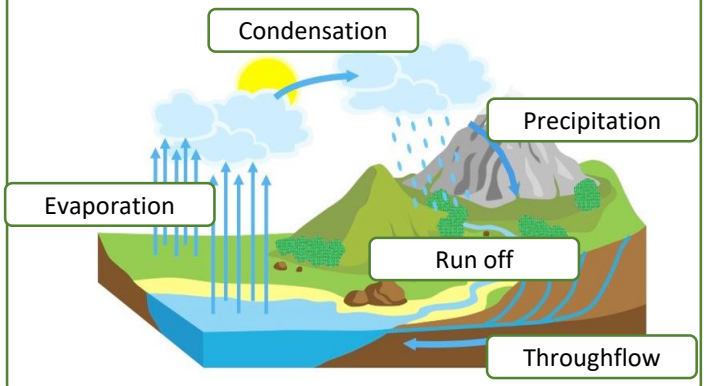
Settlement Hierarchy



Geography

My Place: Rivers and Coasts

Rivers: The Hydrological cycle



Key Processes

Erosion-

Abrasion- River beds and cliffs are scraped away by pebbles and sand like sandpaper.

Attrition- Pebbles and stones bash together and become smaller and rounder.

Hydraulic action- The power of the water breaking off bits of rock.

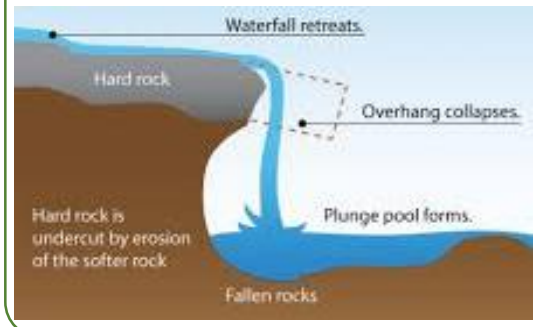
Traction- Pebbles roll along the river bed or beach

Saltation- Sand bounces along the beach

Solution- Smaller pieces of rock eventually dissolve within the water.

Deposition- Rocks, sand and clay are "dumped" after water retreats or slows down.

Rivers: Waterfalls

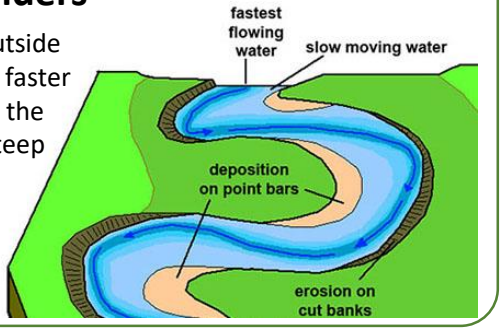


Form when soft rock is more easily eroded than hard rock.

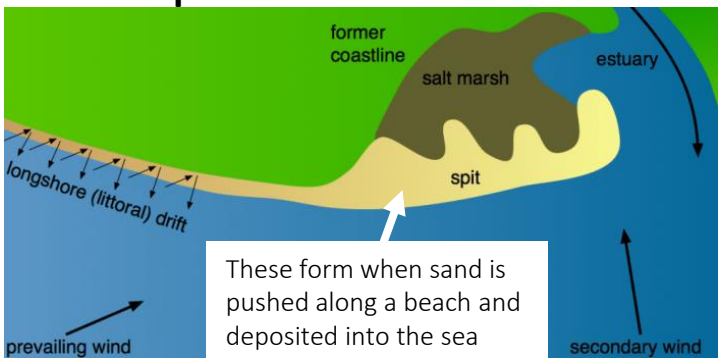
The falling water creates a gorge, which is then eroded backwards

Rivers: Meanders

Form because the outside bend of a river flows faster eroding and wearing the river away to form steep outside bends and gentle inside bends.



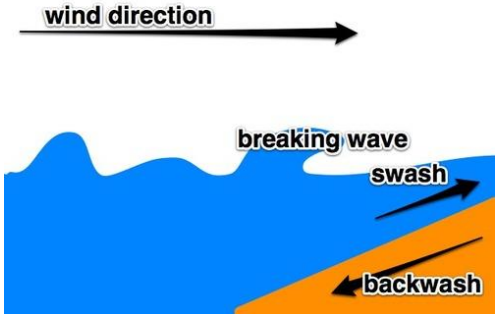
Coasts: Spits



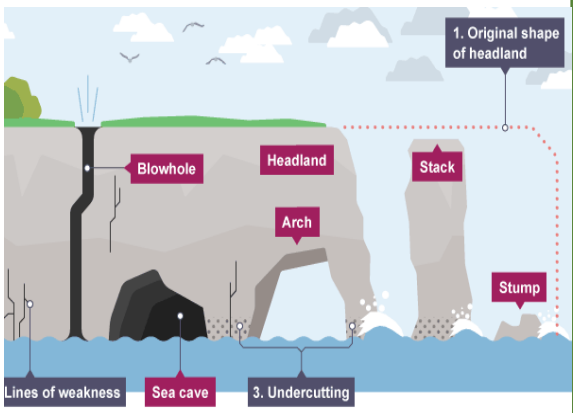
These form when sand is pushed along a beach and deposited into the sea

Coasts: What is a wave

These are created when wind pushes water towards the coastline. The longer and stronger the winds are the bigger the waves are.



Coasts: Cave-Arch-Stump



Waves make coastlines weaker because of erosion. Firstly cracks appear, then Caves, Arches, stacks and finally stumps! Remember, it is the key processes that creates these landforms

Faith & Ethics

Is there a God?

Does God exist?

Key Terms	Definition
Cosmological / first cause argument	Who else could have made the world? It must be God
Teleological / design argument	It is perfectly designed for us so God must have designed it this way
Ontological argument	If people talk about God, then he must exist. Otherwise, no one would talk about him
Atheist	People who do not believe that God exists at all
Agnostic	People who are not sure if God exists
Theist	People who believe that God exists

What makes it hard to believe in God?

Science
Some people say science has disproved religion and ditched God. They believe that the universe started with the Big Bang, and that it was not God that created the world in seven days, as some faiths believe.

Suffering
Some people say that the amount of suffering in the world means that God does not exist because if he did, he would not allow people to go through the hardship and pain that they do. Some people argue that God does not have any control over people's actions, therefore, he cannot be blamed for people's suffering. They believe people have the free will to make their own choices.

Evil
Some people say that the power of evil proves that God does not exist. They believe if God existed he would not allow evil in the world in cases such as slavery, genocide and wars.

What do different religions / beliefs say about God?

Christians believe there is one God and within that one God there are three aspects of God's nature. They are the Father, the Son and the Holy Spirit.
Jews believe there is one God and that there are no words to accurately describe him as he is too powerful and beyond human understanding.
Muslims believe that God is responsible for all of creation and without God there would be nothing. They use the Arabic word for God which is Allah.
Sikhs believe in one God who is ever-lasting and absolute truth. They believe God gave the ten gurus special ability to guide people and convey wisdom.
Hindus believe there is one supreme God called Brahman and that there are hundreds of different deities (holy figures) that represent the different sides of Brahman.
Buddhists do not acknowledge a supreme god or deity. They instead focus on achieving enlightenment; a state of inner peace and wisdom.
Humanists do not believe in a God or in the supernatural. They believe that a person's sense of right and wrong have evolved from human experience.

Miracles

A miracle is when something happens, usually something good, that cannot be explained and is considered to be the work of God. Two types of miracles are:
1. Events that cannot be explained by science. For example, Jesus was said to have turned water into wine.
2. Happy coincidences, where natural laws aren't broken but the event occurs at the right time to cause a good outcome. For example, a train stopping just in time to avoid hitting a toddler who has wandered onto the train tracks.

Spanish

All about me

Unit 1 – All About Me		
1	Buenos días.	Good morning!
2	¿Cómo te llamas? Me llamo Yazmine.	What are you called? I'm called Yazmine.
3	¿Cómo se escribe? Se escribe Y-A-Z-M-I-N-E.	How do you spell that? It's spelt Y-A-Z-M-I-N-E.
4	¿Dónde vives? Vivo en Madrid.	Where do you live? I live in Madrid.
5	¿Qué tal? Fenomenal, gracias.	How you are? Great, thanks.
6	¿Qué tipo de persona eres? Soy bastante generoso/a.	What sort of person are you? I am quite generous.
7	¿Cuántos años tienes? Tengo once años.	How old are you? I'm eleven years old.
8	¿Tienes hermanos? Tengo una hermana que se llama Silvia.	Do you have any brothers or sisters? I have one sister who is called Silvia.
9	¿Cuándo es tu cumpleaños? Mi cumpleaños es el primero de julio.	When is your birthday? My birthday is on the 1st July.
10	¿Tienes mascotas? Tengo un gato.	Do you have any pets? I have a cat.
11	¿Cómo es? Es blanco y muy tonto.	What is it like? It is white and very silly.
12	¡Hasta luego!	See you later!

Me Presento (Let me introduce myself)			
Greetings	**¿Cómo te llamas?** (What are you called?)	**¿Qué tal?** (How are you?)	**¿Dónde vives?** (Where do you live?)
Hola (Hello) **Buenos días** (Good morning) **Buenos tardes** (Good afternoon) **Buenas noches** (Good night) **Adiós** (Bye) **Hasta luego** (See you later)	**Me llamo** (I am called)	**Fenomenal** (Great) **Bien** (Good) **Regular** (Ok) **Fatal** (Awful)	**Vivo en** (I live in)

El alfabeto

A ah	B bay	C thay	CH chay	D day
E ay	F effay	G hay	H ahchay	I ee
J hota	K kay	L elay	LL el-yay	M emay
N enay	Ñ en-yay	O oh	P pay	Q koo
R eray	S essay	T tay	U oo	V oovay
W oovay doblay	X aykis	Y ee-grey-ga	Z theytah	

Spanish

All about me

¿Qué tipo de persona eres? (What sort of person are you?)

Verb	Intensifier	Adjective (Masculine)
Soy (I am)	**un poco** (a bit)	**divertido** (funny)
		estupendo (brilliant)
		generoso (generous)
No soy (I am not)	**bastante** (quite)	**listo** (clever)
		serio (serious)
		simpático (kind)
Es (He/She is)	**muy** (very)	**sincero** (sincere)
		tímido (shy)
		tonto (silly)
No es (He/She isn't)		**tranquilo** (quiet/calm)

Adjective (Feminine)
divertida (funny)
estupenda (brilliant)
generosa (generous)
lista (clever)
seria (serious)
simpática (kind)
sincera (sincere)
tímida (shy)
tonta (silly)
tranquila (quiet/calm)

Connectives
y (and)
pero (but)
también (also)

¿Cuántos años tienes? (How old are you?)

I have	Years	Year(s) old
Tengo (I have)	**un** (1)	**año** (year old)
	dos (2)	**años** (years old)
	tres (3)	
	cuatro (4)	
	cinco (5)	
	seis (6)	
	siete (7)	
	ocho (8)	
	nueve (9)	
	diez (10)	
	once (11)	
	doce (12)	
	trece (13)	
	catorce (14)	
	quince (15)	

¿Cuándo es tu cumpleaños? (When is your birthday?)

My birthday	Is the	Number	Of	Month
Mi cumpleaños (My birthday)	**es el** (is the)	**primero** (first)	**de** (of)	**enero** (January)
		dos (2)		**febrero** (February)
		tres (3)		**marzo** (March)
		cuatro (4)		**abril** (April)
		cinco (5)		**mayo** (May)
		seis (6)		**junio** (June)
		siete (7)		**julio** (July)
		ocho (8)		**agosto** (August)
		nueve (9)		**septiembre** (September)
		diez (10)		**octubre** (October)
		once (11)		**noviembre** (November)
		doce (12)		**diciembre** (December)
		trece (13)		
		catorce (14)		
		quince (15)		
		dieciséis (16)		
		diecisiete (17)		
		dieciocho (18)		
		diecinueve (19)		
		veinte (20)		
		veintiuno (21)		
		veintidós (22)		
		veintitrés (23)		
		veinticuatro (24)		
		veinticinco (25)		
		veintiséis (26)		
		veintisiete (27)		
		veintiocho (28)		
		veintinueve (29)		
		treinta (30)		
		treinta y uno (31)		

Spanish

All about me

¿Tienes hermanos? (Do you have any brothers or sisters?)			
I have	**Brothers/Sisters**	**Name**	**Age**
Tengo (I have)	**un hermano** (a brother) **una hermana** (a sister) **un hermanastro** (a half-brother/step brother) **una hermanastra** (a half-sister/step sister)	**que se llama** (who is called)	**Tiene … años** (He/She is … years old)
	dos hermanos (2 brothers) **tres hermanas** (3 sisters)	**que se llaman** (who are called)	**Tienen … años** (They are … years old)
I don't have any brothers or sisters			
No tengo hermanos (I don't have any brothers or sisters) **Soy hijo único** (I'm an only child - m) **Soy hija única** (I'm an only child - f)			

¿Tienes mascotas? (Do you have any pets?)			
Verb	**Pets (Singular)**	**Pets (Plural)**	**Name**
Tengo (I have) **Quiero** (I want)	**un perro** (a dog) **un gato** (a cat) **un conejo** (a rabbit) **un pájaro** (a bird) **un caballo** (a horse) **un ratón** (a mouse) **un pez** (a fish)	**dos perros** (2 dogs) **dos gatos** (2 cats) **dos conejos** (2 rabbits) **dos pájaros** (2 birds) **dos caballos** (2 horses) **dos ratones** (2 mice) **dos peces** (2 fish)	**que se llama** (who is called)
	una serpiente (a snake) **una tortuga** (a tortoise) **una cobaya** (a guinea pig)	**dos serpientes** (2 snakes) **dos tortugas** (2 tortoises) **dos cobayas** (2 guinea pigs)	**que se llaman** (who are called)
I don't have any pets			
No tengo mascotas (I don't have any pets)			

Pancha plancha con cuatro planchas. ¿Con cuántas planchas Pancha plancha?

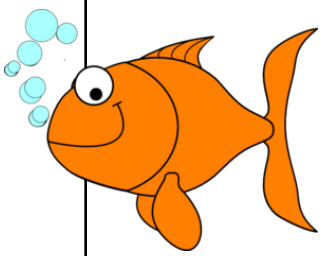
Tres tristes tigres comen trigo en un trigal. Tanto trigo tragan que los tres tigres tragones con el trigo se atragantan.

Spanish

All about me

Describe las mascotas (Describe pets)				
Verb	**Animals (Masculine Singular)**	**Colours**	**Verb**	**Personality Adjective**
Tengo (I have) **Quiero** (I want)	**un perro** (a dog) **un gato** (a cat) **un conejo** (a rabbit) **un pez** (a fish) **un ratón** (a mouse) **un pájaro** (a bird) **un caballo** (a horse)	**blanco** (white) **negro** (black) **amarillo** (yellow) **rojo** (red) **verde** (green) **marrón** (brown) **gris** (grey) **azul** (blue) **rosa** (pink) **naranja** (orange)	**Es** (He/It is)	**divertido** (funny) **estupendo** (brilliant) **generoso** (generous) **listo** (clever) **serio** (serious) **simpático** (kind) **sincero** (sincere) **tímido** (shy) **tonto** (silly) **tranquilo** (calm)
	Animals (Feminine Singular)	**Colours**	**Verb**	**Personality Adjective**
	una serpiente (a snake) **una tortuga** (a tortoise) **una cobaya** (a guinea pig)	**blanca** (white) **negra** (black) **amarilla** (yellow) **roja** (red) **verde** (green) **marrón** (brown) **gris** (grey) **azul** (blue) **rosa** (pink) **naranja** (orange)	**Es** (She/It is)	**divertida** (funny) **estupenda** (brilliant) **generosa** (generous) **lista** (clever) **seria** (serious) **simpática** (kind) **sincera** (sincere) **tímida** (shy) **tonta** (silly) **tranquila** (calm)

Describe las mascotas (Describe pets)				
Verb	**Animals (Masculine Plural)**	**Colours**	**Verb**	**Personality Adjective**
Tengo (I have) **Quiero** (I want)	**dos perros** (2 dogs) **dos gatos** (2 cats) **dos conejos** (2 rabbits) **dos pájaros** (2 birds) **dos caballos** (2 horses) **dos ratónes** (2 mice) **dos peces** (2 fish)	**blancos** (white) **negros** (black) **amarillos** (yellow) **rojos** (red) **verdes** (green) **marrónes** (brown) **grises** (grey) **azules** (blue) **rosas** (pink) **naranjas** (orange)	**Son** (They are)	**divertidos** (funny) **estupendos** (brilliant) **generosos** (generous) **listos** (clever) **serios** (serious) **simpáticos** (kind) **sinceros** (sincere) **tímidos** (shy) **tontos** (silly) **tranquilos** (calm)
	Animals (Masculine Plural)	**Colours**		**Personality Adjective**
	dos serpientes (2 snakes) **dos tortugas** (2 tortoises) **dos cobayas** (2 guinea pigs)	**blancas** (white) **negras** (black) **amarillas** (yellow) **rojas** (red) **verdes** (green) **marrónes** (brown) **grises** (grey) **azules** (blue) **rosas** (pink) **naranjas** (orange)		**divertidas** (funny) **estupendas** (brilliant) **generosas** (generous) **listas** (clever) **serias** (serious) **simpáticas** (kind) **sinceras** (sincere) **tímidas** (shy) **tontas** (silly) **tranquilas** (calm)

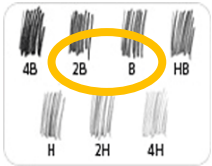


Art

Line and Tone

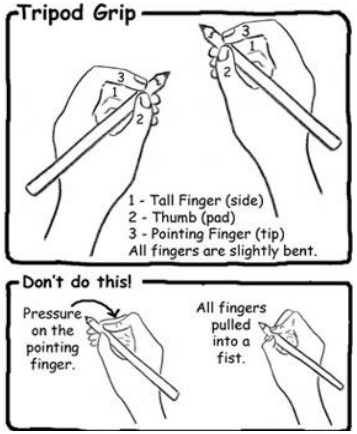
Using Pencils

Pencils come in different grades.
The softer the pencil the darker the tone



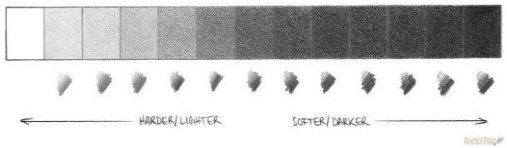
H=Hard, B= Black (soft)

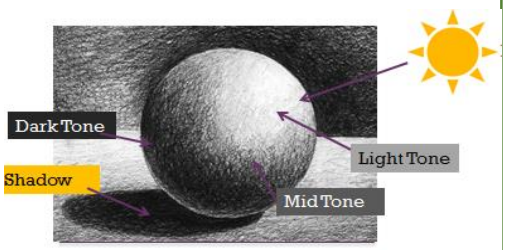
In Art the most useful pencils are B and 2B



Tone

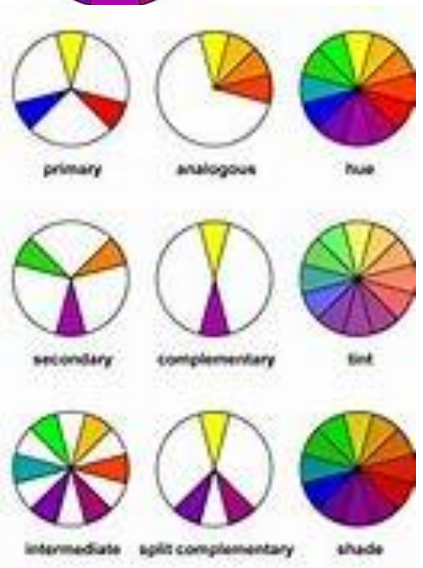
Pressing harder or lighter with a pencil creates different tones





Including shadows will help make objects appear 3D

Colour



Keywords

Tone
Light or dark values used to add definition and texture.

Contouring
Bending and shaping the lines to give the impression of a 3D form.

Blending
Merging two or more colours to create a gradual change or soften a line

Complementary Colours
The colours that are OPPOSITE each other on the colour wheel.

Harmonious/Analogous
The colours that are NEXT to each other on the colour wheel

Developing skills

Some basic shape, and some attempt to add more than one tone.

Shape is accurate and a variety of tones have been used. Lines have been contoured to follow the shape of the apple.

Accurate shape, a full tonal scale is seen and tones have been blended smoothly form one to another.

INDEPENDENT STUDY TASK 1

Complete a PENCIL drawing of a whole Apple,

Then eat half of the apple and draw it again.

Finally eat the apple down to the core and draw its appearance .

Shade to show TONE.

ARTIST IN FOCUS:

Wassily Kandinsky (1866-1944) was a Russian painter and art theorist. Kandinsky is generally credited as the pioneer of <u>ABSTRACT ART</u>.

INDEPENDENT STUDY TASK 2

Use the colour wheel/theory a Kandinsky 4 concentric piece.

Ensure you use a 10x10cm square paper and geometric shapes

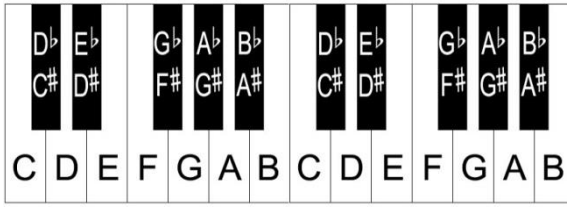
Each section should be based on the colour theory.

Oe square should be warm colours, one cool, one harmonious and one complimentary,

Music

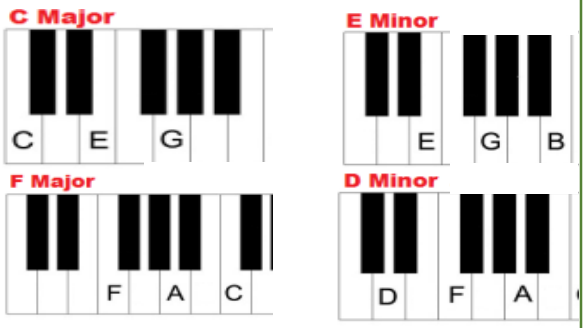
The Elements of Music & Introduction to the Keyboard

The Notes on a Keyboard



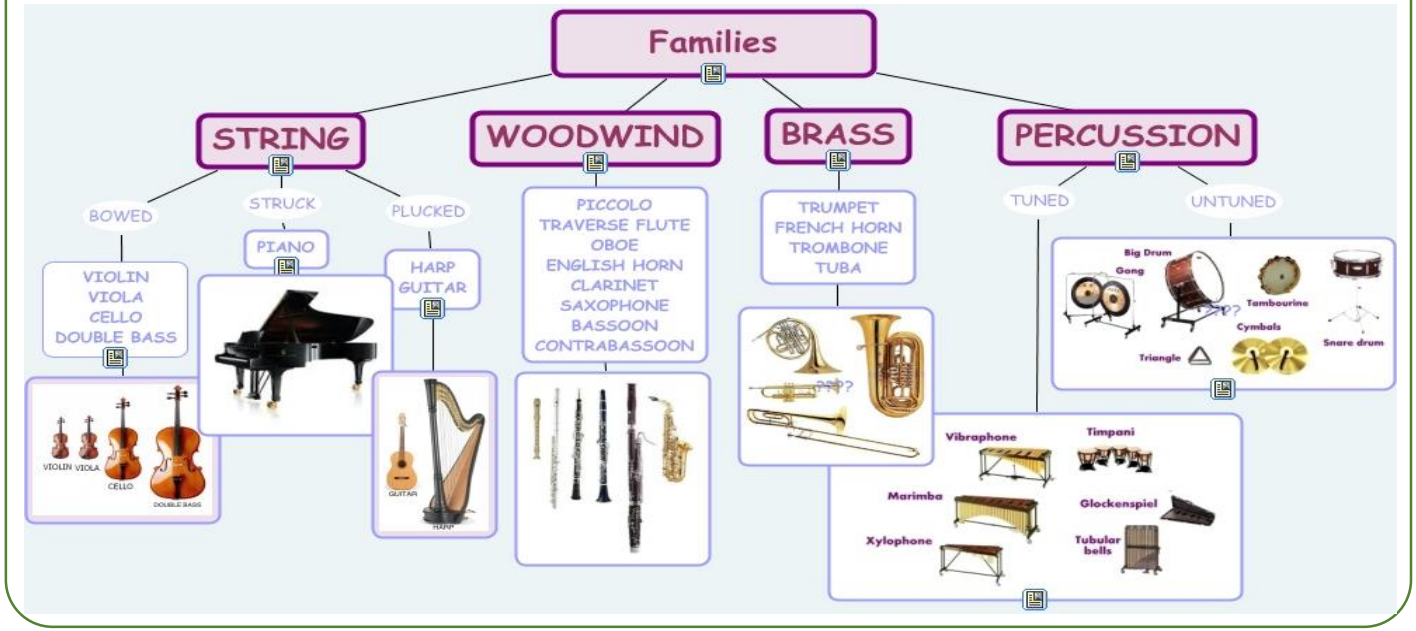
- The notes on a keyboard run from A to G and start again, just getting higher in pitch.
- The black notes are called sharps (#) and flats (b)

Chords



- Chords in music are where you play more than one note at the same time.
- On the keyboard we often play chords in groups of 3.
- Major chords give a light happy tone and minor chords give a much darker sadder tone.

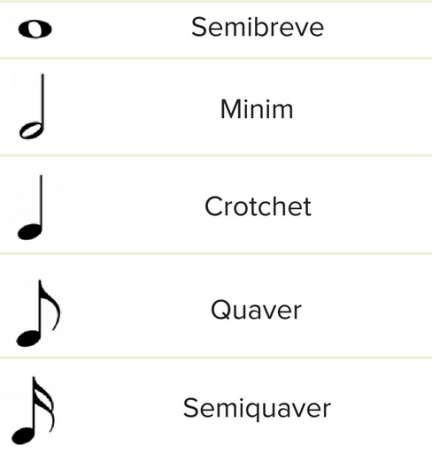
Instruments of the Orchestra



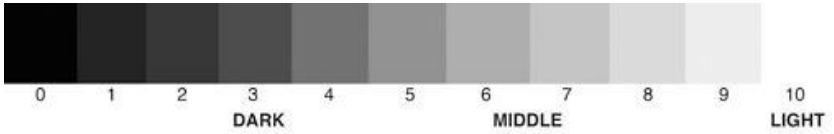
Keywords

Pitch	How high or low the notes are
Duration	The length of the notes used
Dynamics	How loud or quiet a piece is
Tempo	The speed of the music
Texture	Musical layers (thick - lots of parts, thin - a few parts)
Timbre	Type of instruments used
Structure	Order the parts come in (Verse, Chorus etc)
Pulse	The beat of the music

Note Names



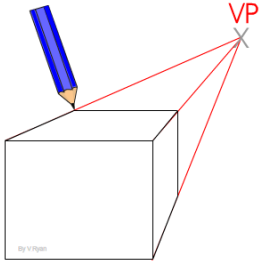
Graphics



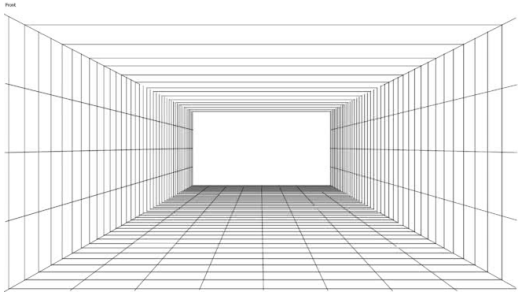
Year 7

Graphics Techniques

1 Point Perspective

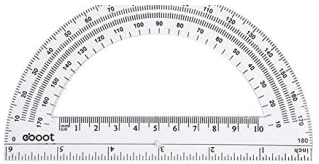


1. Decide where your vanishing point will be.
2. Draw a 2D shape.
3. Join each point of the shape to your vanishing point with a ruler.
4. Add parallel lines to complete your shape.



Useful tools for InkScape

Key Equipment



Keywords

Perspective	**Perspective** is what gives a three-dimensional feeling to a flat image such as a **drawing** or a painting
Illustration	An **illustration** is a decoration, interpretation or visual explanation of a text, concept or process.
Tone	Tone refers to how light or dark a colour or shade is.
Construction Lines	Lines which are lightly added to a drawing to help guide you to create the correct angles.
Typography	The style and appearance of writing.

Computer Aided Design – "CAD"

Any design created using a computer is classed as CAD. The CAD industry is huge and includes **Engineering, Architecture, Movies**, **Advertising** and **Video Games**. Graphic Designers will have a keen eye for detail when creating realistic renderings and textures for movies and games etc.

Jon Burgerman

Jon Burgerman was asked what the worst piece of criticism he's received about his work…

"That it looks like a child has drawn it. I mean, children often have amazing imaginations and their drawings are really loose, free and uninhibited. ***I wish I could draw like that****."*

- Jon Burgerman is a British illustrator. He creates vibrant illustrations and murals featuring monsters and patterns using continuous line.
- He has been commissioned all over the world to create murals on walls in public places.
- He has also created illustrations for advertising campaigns with Pepsi, Coke, Nike, Sony, New Era, Sky, Puma, Nintendo, MTV, Levis and AOL.

Food & Nutrition

Function of ingredients & balanced diets

The function of ingredients in bread making

Flour – gives bulk and structure to the bread. Gives taste and absorbs the moisture.
Salt – gives structure by helping gluten form. Adds taste.
Sugar – provides food for the yeast, adds flavour, and helps the bread brown.
Yeast – is the raising agent in the bread
Water – helps the gluten form, adds moisture for the yeast to grow

Measurements

G = grams

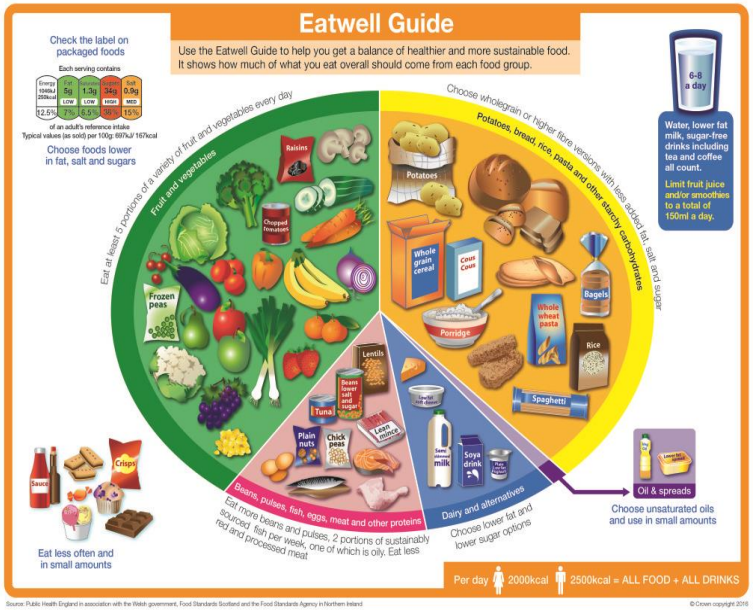
kg = kilograms - 1kg = 1000g

ml = millilitre

L= litre - 1 litre = 1000ml

Tsp = teaspoon = 1 tsp = 5g

Tbsp = tablespoon = 1 tbsp = 15g



Key Words

Nutrient	The properties found in food and drink that give the nourishment that are vital for growth and life. The main nutrients are carbohydrates, protein, fats, vitamins and minerals
Contamination	The presence in food of an item that can cause harm. Contamination can be physical, chemical or biological.
Enzymic browning	A chemical process where oxygen and enzymes in the food react to cause the surface to go brown. This process cannot be reversed.
Gluten	formed from the two proteins in wheat when water is added. It is developed when it is needed.
Fermentation	The chemical breakdown of sugar to acid, gas or alcohol by bacteria, yeast or other micro-organisms

Jamie Oliver states that 'Cooking from scratch is a fantastic way to save money and keep ourselves and our families healthy.' He goes on to say that 'Teenagers should all know how to cook a variety of healthy, balanced and cost effective dishes by the time they are 14.'

Textiles

Oscar the Owl Doorstop

Textile Techniques

Applique

Pieces of fabric sewn on to a larger piece to form a picture or pattern.

Seams

A line where two pieces of fabric are sewn together on a product.

Paper Pattern

A paper pattern acts like a template. You pin it onto your fabric in order to cut fabric the correct size. Paper patterns include seam allowance

Stitches

Running Stitch

Back stitch

Blanket stitch

Key Equipment

Fabric Scissors are sharper than paper scissors in order to cut fabrics. You must not use them for paper as it makes them blunt.

A sewing needle has what is called an eye, which is a small hole, where you place the thread through. This allows you to sew.

Pins are use to attached paper patterns to fabric or keep fabric together before sewing. You remove these once you have finished sewing.

Textiles Keywords

Thread	Thread comes on a reel and it is what you thread through a needle in order to sew.
Seam Allowance	This is 1.5cm extra fabric you add onto your fabric pieces in order for your product to turn out the correct size once sewn.
Design Ideas	Initial design ideas are you first sketches of an idea which you develop into a final design, that you can follow when making.
Fabric	Fabric is the term used for all materials such as cotton, polyester, silk, felt, fleece etc.

Common Fabrics

Cotton – This is a natural fabric that is used to make a wide range of items. For example shirts, dresses, socks, underwear and T-shirts.

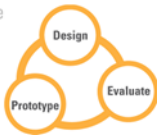
Denim – This is a fabric made of cotton however it is woven in a special way and often dyed in different shades of blue. Denim is most commonly used in Jeans.

Wool – This is a natural fabric that is used to make mainly knitted items. For example jumpers, scarves, hats and gloves.

Polyester – This is a man-made fabric that is often blended with cotton to reduce the cost of items.

Felt – This can be man-made or a natural fabric using wool. It is easy to cut and sew and used a lot for craft items.

Product Design



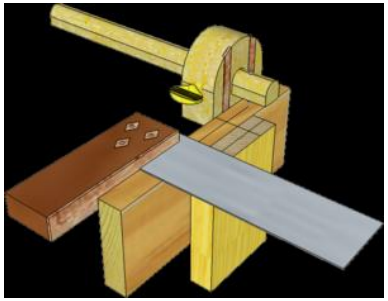
Innovative
Sustainable
Functional

Year 7

What is Product Design and why is it important?

The role of **design** is to create a marketable **product** from an innovation. Design is often the deciding factor in the success of a product.

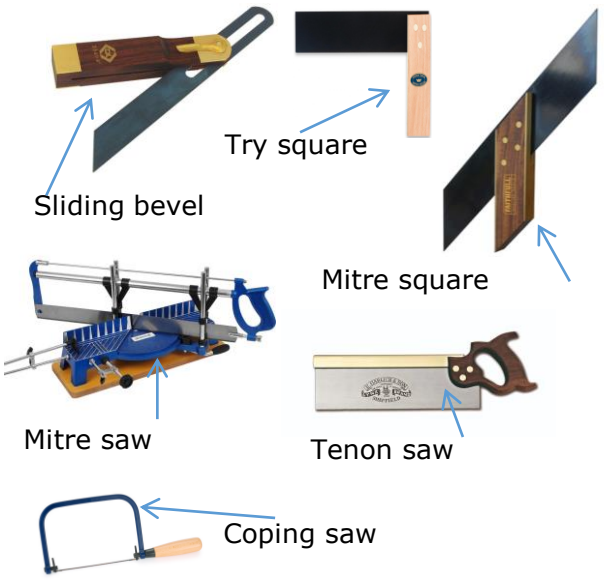
Many customers make purchasing decisions based primarily on product design, because good product design ensures **quality**, **appearance**, **performance**, **ease of use**, and **reliability**.



Tools we use to mark out;

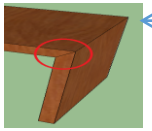
- **Marking gauge**
- **Try square**
- **Pencil**
- **Rule or ruler**

Identifying the equipment



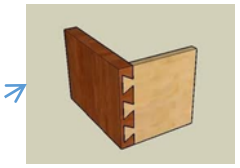
Precision	Being exact and accurate when marking and cutting out.
Tolerance	An allowable amount of variation of a specified quantity, especially in the dimensions of a machine or part e.g. +/- 0.25mm.
Aesthetics	The look and/or feel of a product and how this is incorporated into the design.
Ergonomics	The study of people's efficiency in their working or home environment.
Stakeholders	A person with an interest or concern in something, especially a business.

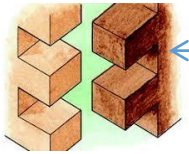
Shaping and joining



Mitre joint

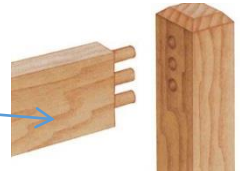
Dovetail joint





Box joint/comb joint

Dowel joint



Famous Designers

This is James Dyson.
He is an influential designer because ….

- He constantly **innovates**, his designs are creative and unique
- His products are designed around the needs of the **stakeholders**
- The "cyclone technology" design, including the 15 years and **5,127 prototypes** it took before the first model, DC01, would ultimately prove successful in 1993. Fifteen years!
- **Design** and **manufacturing** occurs on a **global** scale. Dyson employs over 7,000 people.

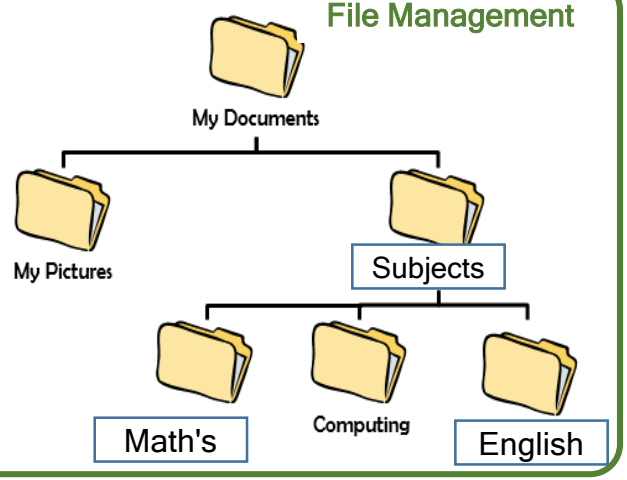
Computing

Digital Literacy and Web Safety

Key Words

Transition	To move from one slide to another with an effect in PowerPoint
Animation	To move a picture or a piece of text to enter /leave the slide that the user is on.
Font	The size of the text can be made larger or smaller
File organisation	The correct way to organise a files within a computer system
Internet	The global system of interconnected computer networks
Packet switching	A message is broken into a number of parts which are sent independently and then reassembled at the destination.
IP address	A unique string of numbers separated by full stops that identifies each computer.
Personal details	Recorded information about an individual that may include his or her name, address, email address and phone number.
Netiquette	The correct or acceptable way of using the Internet.
Copyright	The legal right given to the originator for a fixed number of years, to print, publish, perform, film, or a recording.

File Management



Microsoft Office

Key Words

Ethics	Moral principles that govern a person's behaviour or conducting
SPAM 	Irrelevant messages sent over the Internet, typically to a large number of users, for the purposes of advertising, phishing, spreading malware
Phishing 	The illegal process of sending emails pretending to be from a company in order to gain personal information, such as passwords and credit card numbers.
Virus 	Malicious software that, when executed, replicates itself by modifying other computer programs and inserting its own code.
Firewall 	A security system that monitors and controls incoming and outgoing network traffic.
Encryption 	The process of encoding a message or information so that only authorized parties can access it and those who are not authorized cannot.
Search Engine	A program that searches for and identifies items in a database that correspond to keywords or characters specified by the user.
Password james0898 @!#$%{}	A combination of letters, numbers and symbols used to gain access to a computer system with a username.

Computing

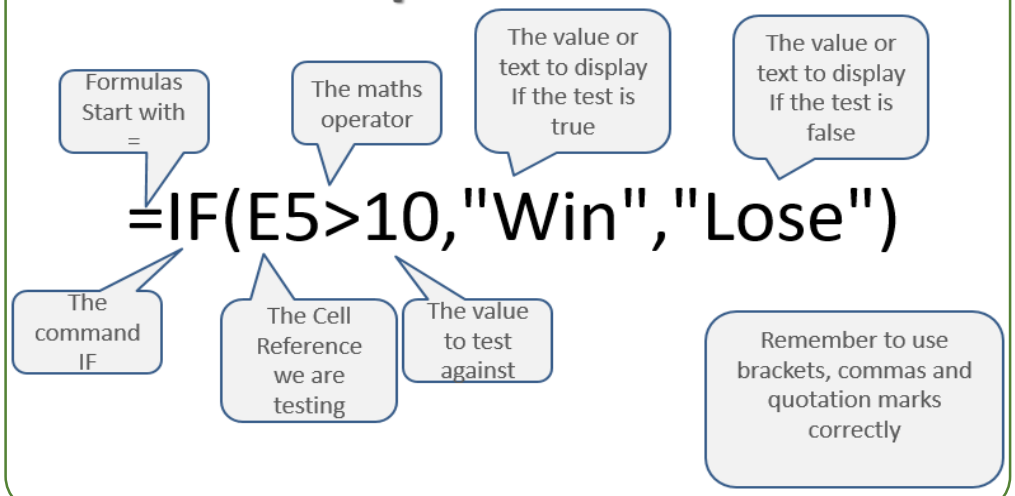
Analyzing data

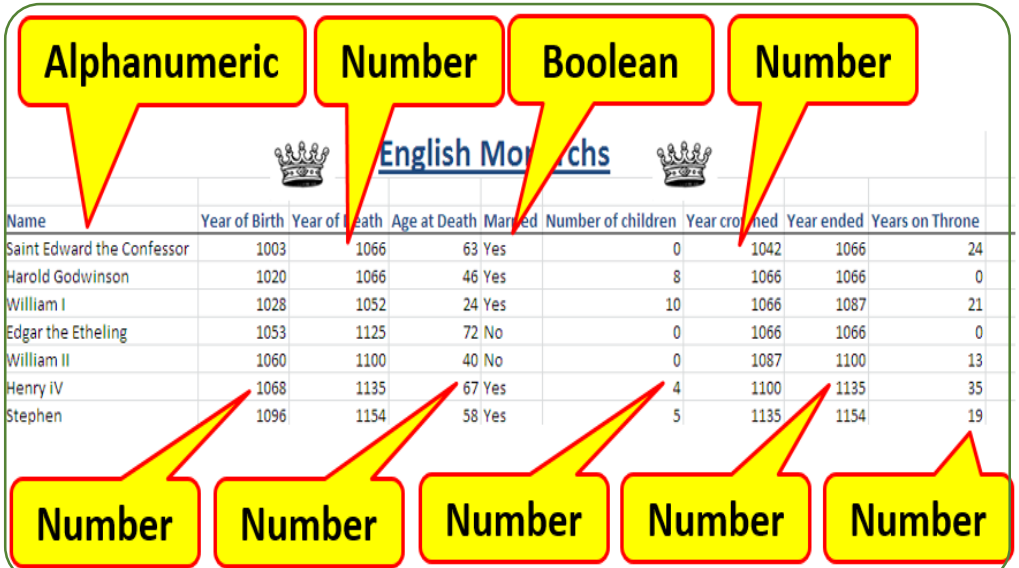
Data analysis	The process of evaluating data using analytical and logical reasoning to examine each component of the data provided
Sort	Sorting is the process of arranging objects in a certain sequence or order according to specific rules.
Filter	allows you to view specific rows in an Excel spread sheet, while hiding the other rows
Spread sheet	A sheet of paper that shows accounting or other data in rows and columns
Database	is a list of data
Field	A column of data
Record	is the complete set of data about one person.
Work sheet	is a single page in a file created with an electronic spreadsheet program such as Excel
Criteria	The correct or acceptable way of using the Internet.

Key Words

Cell Reference	is an alpha-numeric value used to identify a specific **cell** in a spreadsheet
If statement	If statements are decision making commands that can be used in spread sheets and computer programming
Conditional formatting	Conditional formatting is the process of formatting a set of data in a spread sheet automatically based on a set of defined rules.
Absolute cell	An absolute cell reference is a cell address that contains a dollar sign ($) in the row or column coordinate, or both.
Formula	The exclusive and assignable legal right, given to the originator for a fixed number of years, to print, publish, perform, film, or record literary, artistic, or musical material.

An example If Statement





P.E.

Core Skills and Tactics

Tennis

Core Skills.

1. Service – power, placement and variation.

2. Groundstrokes – forehand, backhand and drop shot.

3. Volleys – forehand and backhand.

4. Smash – to show power and/or placement.

5. Lobs – forehand and backhand.

Tactics (Tactics, Strategies & Compositional Ideas):

A: AWAY keep the shuttle away from your opponent.

B: Play on their weakness usually their BACKHAND.

C: Keep the ball in the COURT but play to the COURT boundaries.

Rules:

Mini Tennis matches: Use simple Tie-Break scoring, which is first to 10 points

Football

Core Skills

Passing/receiving – either foot.
Dribbling/moving with the ball – either foot.
Shooting
Heading.
Tackling, jockeying, closing down and marking.

Tactics (Tactics, Strategies & Compositional Ideas):
Attacking and Defending principles:

Attacking:

- Pace
- Depth
- Width.
- Make the pitch as big as possible
- Support: Angle and Distance.

Defending:

- Deny the opposition time and space.
- Make the pitch as small as possible.
- Use of the offside .
- Support: Angle and Distance

Athletics

Core skills

Track:

•Starts/finishes.
•Arm action – effectiveness and consistency.
•Leg action to create appropriate pace – consistency and/or change of pace.

Tactics and strategies:

Use pace judgement to run at a sustained pace for specified periods of time

Analysis of performance:

Compare performances to previous ones, personal bests and Athletics Awards (ESAA Secondary Awards Scheme).

Dance

Core Skills

Action:
Creating a motif
1. Travel, locomotion, stepping and pathways.
2. Balance (static and/or dynamic).
3. Rotation, turning and weight transference.
4. Jumps and elevations.
5. Gestures

Dynamics:

- Performing an action and/or motif
- fast or slow
- smooth or sharp
- heavy or light

Space & relationships:

- Direction
- Levels
- Formation
- Canon
- Unison

Performance

- Perform a full routine in a competition/performance.
- This can be in a solo performance, a duet performance or a group performance
- and should last approximately two minutes.
- Perform within the recognised dance style.

Yr7 Term 1 Challenges

These are **optional** additional homework tasks you can complete to earn credits for your Children's University Passport

Geography

Research the Birmingham Clean Air Zone.

A Clean Air Zone for Birmingham

Create a one page report on what it is, why is has been introduced and the impact that they hope it will have on the city of Birmingham. Show it to your Geography teacher

https://www.brumbreathes.co.uk

1hr of CU Credits

Spanish

Write a letter to an imaginary new pen pal, Introduce yourself, how old you are and when your birthday is. What your personality is like and describe your family and pets. Remember to also ask them questions about themselves too!

Show your letter to your Spanish teacher.

1hr of CU Credits

Computer Science

Do a survey of young people your age to find out what the 5 most popular social media apps they use are.

Once you have your list research how young people can stay safe while using these apps. Create a factsheet with tops tips on how to say safe using these social media apps.

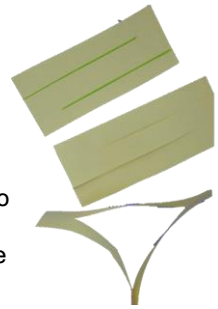
Show it to your computer science teacher your factsheet.

1hr of CU Credits

Science

Conduct your own paper spinner experiment at home.

Using the template and information from the website make yourself spinners made of different types of paper. Design an experiment to find out how and if the type of paper affects the speed they fall.



https://www.science-sparks.com/easy-paper-spinners/

Write up your results including identifying the dependant, independent and control variables and show it to your science teacher.

1hr of CU Credits

History

Compare the Black Death with Coronavirus. Research the following categories and produce an A4 table that compares these two worldwide epidemics

	Black Death	Coronavirus
Scientific name		
When was it around		
How is it transmitted?		
Symptoms?		
How did people protect themselves?		
How many deaths?		

Show it to your history teacher your table of comparison.

1hr of CU Credits

Music

Watch the 'Where's Simon' video from the London Symphony Orchestra to learn out the different sections. When you have finished take the quiz. You need to get 100% to get your CU credit!

https://lso.co.uk/whats-on/alwaysplaying/digitalactivities/wheres-simon.html

If you play an instrument you can also play along with the orchestra at the on the same page

Take a photo or screen shot of your score and show it to your music teacher

London Symphony Orchestra

1hr of CU Credits

Art

Explore the Art of Kandinsky at the Guggenheim museum.

https://www.guggenheim.org/artwork/artist/vasily-kandinsky

After looking at his pieces of art work create one of your own in his style. Show it to your art teacher.

1hr of CU Credits

Technology

Create your own Robot hand.

You can find the instructions via the link below (there are many other video examples on YouTube)

https://www.mombrite.com/diy-model-robot-hand/

Show your finished robot hand to your technology teacher or show them a video/photo.

1hr of CU Credits