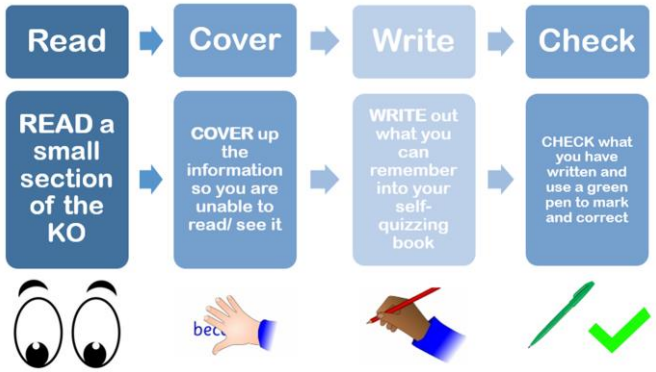
Year 8
Knowledge Organiser: Cycle 2

Name: _____

Tutor group: _____



Article 29:
Education must develop every child's personality, talents and abilities to the full. ***UNCRC***

Your Knowledge Organiser

- Knowledge Organisers contain critical knowledge you must know. This will help you recap, revisit and revise what you have learnt in lessons in order to remember this knowledge for the long-term.

- You must have this book for every lesson – it is part of your equipment.

Using Your Knowledge Organiser for Revision

- Students remember 50% more when they test themselves after learning.
- You can use your book to help **memorisation**.
- **Read** a section of your Knowledge Organiser.
- **Cover** it up.
- **Write** out what you've remembered.
- **Check** the Knowledge Organiser to see if you're right.
- **Repeat** this process.
- Do this **every day** to help commit the information to your **long-term memory**.

How to Use the Book for Self-Quizzing

Read	Cover	Write	Check
READ a small section of the KO	COVER up the information so you are unable to read/ see it	WRITE out what you can remember into your self-quizzing book	CHECK what you have written and use a green pen to mark and correct

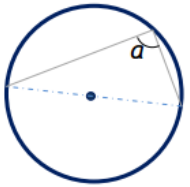
Using Your Knowledge Organiser for Revision

Research shows that students remember 50% more when they test themselves after learning something.

You can use your 100% book to create **flashcards**.

These should be:

- **double-sided**
- **a question on one side, the answer on other**
- **a keyword on one side, a definition or image on the other**
- **used for self-testing.**

Circles	**Circles**
1. What is the size of angle a? 2. State the rule. 	1. What do you know about the angles *x* and *y*? 2. State the rule. 

Q1 What is **emulsion**? Oil, water, droplet, shake, immiscible, bond, mixture.	**Q2** What is **one similarity** between an **alkene** and an **unsaturated** fat?
Q3 What is the name for the **test** for **unsaturated fat** or **alkene**? Describe what you would **see**.	**Q4** Describe two ways that **saturated** fat and **unsaturated fat** (oil) are **different**.
Q5 What is **the advantage** of cooking food in **oil**? **Explain** your answer.	**Q6** **Describe** what an **emulsifier** molecule does.
Q7 Name the **two parts** of an **emulsifier** molecule.	**Q8** What is the difference between a **monounsaturated** fat and **polyunsaturated** fat? **Mono** = one **Poly** = many

Feedback

Your teachers will give you feedback about your learning and progress in many different ways. These will include:

- Verbal feedback about something you are working on in the lesson (practical or written work).
- Verbal feedback through asking questions.
- Guided independent self-assessment.
- Guided peer assessment.
- Instant/quick written comments or identification of SPAG errors on your work as you complete it.
- Written feedback on your work and setting R4 or extension questions for you to complete.
- Knowledge quizzing/short tests that give you a score (i.e. 15/20).
- Longer tests that may also give a score (i.e. in %) as well as feedback about the content you need to re-learn/refresh.

You will be expected to respond to feedback in the following ways:

- ✓ Correcting all SPAG errors and copying out spellings as directed by your teacher.
- ✓ Answering R4 questions and completing extension questions/tasks in green pen.
- ✓ Giving peer feedback when it is expected by the teacher, using the format provided.
- ✓ Setting yourself targets when required, to ensure that you keep developing your knowledge and skills.
- ✓ Focusing on the areas of knowledge that you need to learn and quizzing yourself on these for homework.
- ✓ Showing that you take pride in your work by presenting it neatly.
- ✓ Always asking for help if you don't understand the work or what to do.

The Literacy Mat

Connectives

Adding Ideas
Furthermore, in addition, similarly, also, and, too.

Showing Difference
But, however, on the other hand, although, whereas, alternatively, arguably.

Evaluating
Consequently, surprisingly, significantly, interestingly, unexpectedly.

Listing
Firstly, secondly, last, then, next, finally.

Common Mistakes

Correct Capital Letters
To start EVERY sentence.
For 'I' (as in 'I went').
For ALL names.
Film/book names.
NeVeR To be uSed RanDomLy!

Would HAVE' vs 'Would OF'
NEVER use '**of**' after a modal verb:

'Would have' **NOT '**would of'
'Could have' **NOT '**could of'
'May have' **NOT '**may of'
'Should have' **NOT '**should of'
'Might have' **NOT '**might of'

Great Big Nevers!
Gonna - going to
Ain't - am not
We/they was - we were
Gotta - have got to
Innit - isn't it
Gotten - got
Coz/cause - because

Homophones
To/too - I went to school (towards). I ate too much (more than enough). I am happy too (also).
Their/there/they're - They're (they are) over there (that place) reading their (belonging to them) books.
Your/you're - Your work is great (belonging to you). You're awesome (you are).

Correct Sentences

Simple Sentence - must contain a verb and a subject.

subject — verb
Matt was very cold today.

subject — verb
I always eat breakfast in the morning

Compound Sentence - two **simple sentences** joined by a **connective**.

connective
I tried to speak slowly **but I was far too excited.**

connective
Dan is very organised and he always helps others.

Complex Sentence - contains a **simple sentence** and one or more '**subordinate clauses**' (extra information!).

subordinate clause — comma
When he handed in the homework, the teacher knew he had worked hard on it.

comma — comma
She told a joke, **which was hilarious**, to her friends.
subordinate clause

Proof Reading

Follow this checklist when proof-reading or editing your work, especially assessments!

1. Check your presentation: Underline your date, title and any subtitles. Check that your work is laid out in paragraphs.
2. Skim read: Make sure capital letters and full stops are 100% accurate.
3. Skim read again: Check that your complex sentences have accurate commas.
4. Skim read again: Check the spelling of words you are not sure about (neighbour/dictionary/teacher/literacy mat).
5. Read a final time but carefully: Do **ALL** of your sentences make sense? Is there a better, clearer way of explaining/describing something?

Apostrophe Rules

1. Contractions
The apostrophe is put in the place of missing/omitted letters:
I will becomes I'll / should not becomes shouldn't etc.

2. Possession
If something belongs to someone, we put an apostrophe, then an 'S':
Toby's football / The dog's collar / The door's handle.
But if the name already ends in an 'S', you just put an apostrophe:
Chris' guitar / Jess' book / Mr Jones' classroom.

3. Plural Possession
If something belongs to a group, we just put an apostrophe at the end.
The class' whiteboard / The boys' shoes.

4. It's vs Its
'It's' should ONLY have an apostrophe if it is being shortened from 'it is'.
NEVER for possession: Its legs were long and hairy.

Never use an apostrophe for plurals! Carrot's / Ball's / CD's

The Literacy Mat: Common Spellings

accommodation	daughter	improvise	performance	soldier
actually	decide/decision	industrial	permanent	stomach
alcohol	definite	interesting	persuade/persuasion	straight
although	design	interrupt	physical	strategy
analyse/analysis	development	issue	possession	strength
argument	diamond	jealous	potential	success
assessment	diary	knowledge	preparation	surely
atmosphere	disappear	listening	prioritise	surprise
audible	disappoint	lonely	process	survey
audience	embarrass	lovely	proportion	technique
autumn	energy	marriage	proposition	technology
beautiful	engagement	material	questionnaire	texture
beginning	enquire	meanwhile	queue	tomorrow
believe	environment	miscellaneous	reaction	unfortunately
beneath	evaluation	mischief	receive	Wednesday
buried	evidence	modern	reference	weight
business	explanation	moreover	relief	weird
caught	February	murmur	remember	women
chocolate	fierce	necessary	research	
climb	forty	nervous	resources	
column	fulfil	original	safety	
concentration	furthermore	outrageous	Saturday	
conclusion	guard	parallel	secondary	
conscience	happened	participation	separate	
conscious	health	pattern	sequence	
consequence	height	peaceful	shoulder	
continuous	imaginary	people	sincerely	
creation				

Maths Core Knowledge

hegartymaths

http://hegartymaths.com

Maths Lesson Essentials!

- Have you written and underlined the date and title?
- Have you written the question and shown your working out?
- Have you shown your units?
- Have you brought your calculator?
- Have you marked your answer in green pen?
- Does your answer make sense?

Number and Algebra

Ascending	Solution
Descending	Decimal
Denominator	Percentages
Numerator	Binary
Solve	Integer

Data

Mean
Median
Mode
Range
Scale
Proportion
Discrete data
Continuous data
Frequency
Cumulative frequency
Upper quartile
Lower quartile
Interquartile range
Distribution
Correlation
Scatter graph

Shape

Names 3D

Sphere
Cylinder
Tetrahedron
Prism
Cone
Pyramid

Shape

Names 2D

Quadrilaterals
Parallelogram
Trapezium
Rectangle
Rhombus

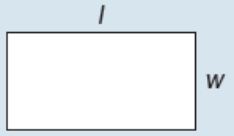
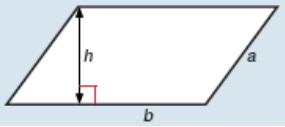
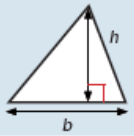
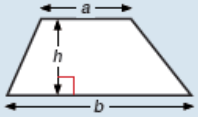
Triangles
Equilateral
Right-angle
Isosceles
Scalene

Keywords

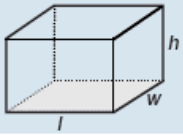
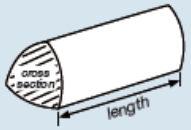
Circle
Polygon
Interior angles
Exterior angles
Acute angle
Right angle
Obtuse angle
Reflex angle
Vertically opposite angles
Corresponding angles
Alternate angles
Co-interior angles
Pythagoras
Trigonometry
Parallel
Perpendicular

Maths Core Knowledge

Areas

Rectangle = $l \times w$	
Parallelogram = $b \times h$	
Triangle = $\frac{1}{2} b \times h$	
Trapezium = $\frac{1}{2}(a + b)h$	

Volumes

Cuboid = $l \times w \times h$	
Prism = area of cross section × length	
Cylinder = $\pi r^2 h$	

Important Formulae

Compound measures

Speed

$$\text{speed} = \frac{\text{distance}}{\text{time}}$$

Pressure

$$\text{pressure} = \frac{\text{force}}{\text{area}}$$

Density

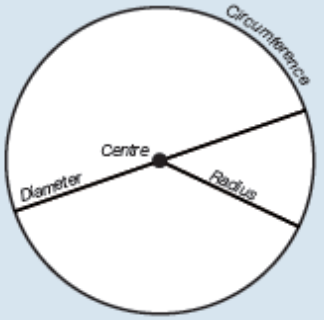
$$\text{density} = \frac{\text{mass}}{\text{volume}}$$

Circles

Circumference = $\pi \times$ diameter, $C = \pi d$

Circumference = $2 \times \pi \times$ radius, $C = 2\pi r$

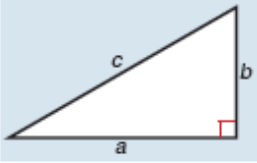
Area of a circle = $\pi \times$ radius squared $A = \pi r^2$



Pythagoras

Pythagoras' Theorem

For a right-angled triangle,
$a^2 + b^2 = c^2$



Trigonometric ratios (*new to F*)

$$\sin x^\circ = \frac{\text{opp}}{\text{hyp}}, \quad \cos x^\circ = \frac{\text{adj}}{\text{hyp}}, \quad \tan x^\circ = \frac{\text{opp}}{\text{adj}}$$

http://hegartymaths.com

hegartymaths

Science Core Knowledge

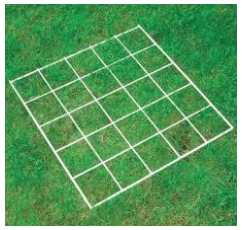
1. How Science Works Keywords

Keyword	Definition
Evidence	A set of data that proves a prediction or hypothesis.
Hazard	Something that could be dangerous.
Risk	Chance of something dangerous happening.
Prediction	Something you think will happen.
Hypothesis	Why you think something will happen.
Variables	Something that changes.
Independent variable	The variable that is changed or controlled in an experiment to test the effects on the dependent variable.
Dependent variable	The variable being tested and measured in an experiment.
Control variable	Something that is constant and unchanged during the experiment.
Repeatability	Closeness of repeats of results to each other.
Reproducibility	Agreement of results from different groups testing the same factor.
Accuracy	Closeness of a measured value to a standard or known value.
Precision	Closeness of two or more measurements to each other.
Reliability	The degree to which the result of a measurement can be depended on to be accurate.

2. Key Equipment

Measuring cylinders – 10 ml cylinders will allow measurement to the nearest 0.1 ml.
100 ml cylinders will allow measurement to the nearest 1 ml.

Thermometers – digital thermometers allow measurement to 1 decimal place, whereas alcohol thermometers only allow measurement to the nearest degree.



Quadrats – are used to do sampling and find the amount of a species in a certain area. Quadrats are placed onto the ground.

Metre ruler – used in multiple investigations in the lab. Allows us to measure to the nearest cm.

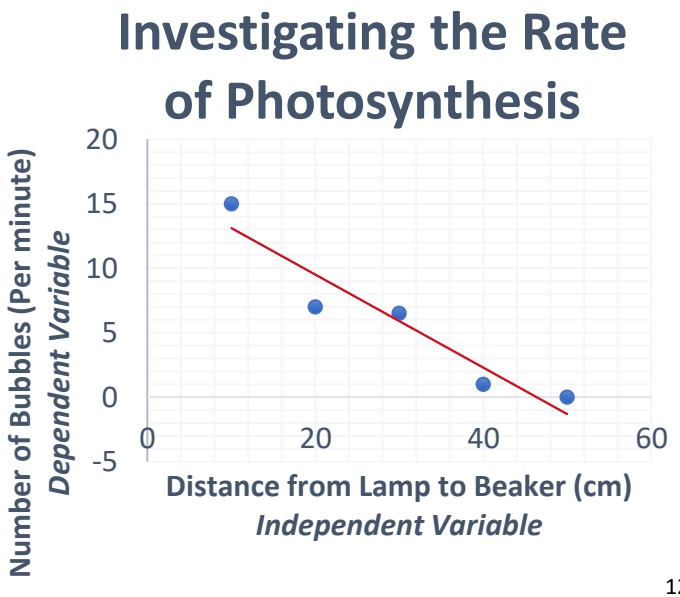
Measuring tape – used in sampling alongside the quadrat. Placed onto the ground to make a transect line to measure against.

Science Core Knowledge

3. Graphing, Analysis and Evaluation Keywords

Keyword	Definition	Example
Hypothesis	An educational guess based on what you already know.	The rate of photosynthesis will increase as the lamp moves closer to the beaker.
Independent Variable	The variable that can be changed by the scientist, it is the cause. Found on the *x*-axis.	Distance from lamp to beaker (cm)
Dependent Variable	The variable that the scientist observes, it is the effect. Found on the *y*-axis.	Number of bubbles (per minute)
Control Variable	The variables that must always be kept the same	Temperature, the size of the pond weed, amount of water
Line of Best Fit	A line that goes roughly through the middle of all the scatter points on a graph.	The red line on the graph above shows the line of best fit for the data plotted
Calculations	Use the correct equation to be used based on the variables of the experiment. Use correct units.	Calculation for mean of number of bubbles per minute: Trial 1 + Trial 2 + Trial 3 ÷ 3 15 + 14 + 15 ÷ 3 = 14.6
Results Analysis	Identify patterns in data. Describe what the table and graph show.	As the lamp is getting closer to the beaker, more bubbles are produced
Conclusion	Answer your original question. State whether or not the hypothesis was supported.	The results prove that the rate of photosynthesis is effected by the distance of the light source. As the lamp was moved closer to the baker, more bubbles were produced
Evaluation	Suggest an improvement for the equipment used. Suggest an improvement for the method used.	Use an LED lamp. Measure the volume of oxygen produced.

Distance from lamp to beaker (cm)	Number of bubbles (per minute)			Mean number of bubbles
	Trial 1	Trial 2	Trial 3	
10	15	14	15	14.6
20	7	7	7	7
30	7	7	6	6.7
40	1	2	1	1.3
50	0	0	0	0



Art

Practical Skills Visited

Skills

Colour

- Complementary colours
- Colour and light
- Tertiaries – greys/browns
- Perspective through colour

Drawing

- Directional mark making/shading to create form
- Measuring with a pencil, basic foreshortening
- Proportions of the figure
- Line and stylisation
- Drawing with a pen

Painting

- Colour mixing and variety of colours to create light and shade.
- Brushstrokes to create texture, form and movement

Printing

Printing for pattern Batik or repeat block printing

3D

Sculpture – small scale

Photography

Use of photography to record images to work from in a more independent way – e.g. own landscape images.

Editing images to create contrast/interesting colour ways

Literacy

Ability to compare and contrast two artists' works.

Vocabulary

Complementary colours – colours that are opposite each other on the colour wheel

Tertiary colours – the 'in between' colours e.g. yellow mixed with orange. Purple mixed with red

Motif – a symbol or image used throughout a particular art work or art style, e.g. the whiplash motif in Art Nouveau

Monet – 'The father of Impressionism'

Impressionism – an art movement that at the time was considered shocking. From the 19th Century, focusing on lose brushstrokes, colour and depicting light

Henry Moore – British sculptor famous for large scale semi abstract figures and also drawing of the underground during WW2

Giacometti – sculptor known for his textured ghost like sculptures

Sculpture/Sculptor – a 3D art work, an artist who creates sculptures

Maquette – a small try out of a 3D art work

Stretch/Further Reading

Drawing

1. Complete drawings of figures from real life using line only – try to use continuous line.
2. Draw a sky using colour only without doing outlines first – paint if you can.
3. Draw insects in detail – look at botanical drawings of insects to help you.

4. Find out about Indian Art and pattern.

5. Find out about the Impressionists and the Post Impressionists. If possible visit the National Gallery in London to see some of their work.
Also the Courtauld Gallery is fabulous for Impressionism.

Artists

The Impressionists and Post Impressionists:

- **Monet**
- **Henry Moore**
- **Giacometti**

Computing – Databases

Database Keywords	Definition
Data	Values, typically letters or numbers. 'text' – writing, 'date/time' – date or time, 'currency' – euro, pound, dollar, ,'autonumber' – number increases by one each time, 'yes/no' – only yes or no can be entered
Fields	A category of data in a database, e.g. First Name or Date of Birth
Mail merge	A method of creating lots of documents customised with data from a database, e.g. one letter sent to multiple people. The address of each person is read from and stored in a database
Query	A search or question performed inside a database
Table	Consists of related records, e.g. Students
Primary Key	A field that contains data that is unique for each record
Record	Consists of related fields, e.g. Paul Smith who is 1.8 m, achieved a grade 9 and is in the basketball team

Homework Checklist for First Term

1	Get Ahead	https://www.bbc.com/bitesize/guides/zswnb9q/revision/1
2	Homework – Idea Badges	Problem Solving, What Is The Cloud? Teamwork Internet & Web Automation Internet of Things (look on class charts for others to do).
3	Keywords	You could also use Quizlet to practice.
4	Extension work	Research, what are the advantages of an online database?

Using Query Operators

Query Operator	Meaning	Example
<	Less than	<1.65
<=	Less than or equal to	<=40
>	Greater than	>1.9
>=	Greater than or equal to	>=30
=	Equal to	="M"
BETWEEN	Tests for a range of values	BETWEEN 18 AND 25
AND	All criteria must be satisfied	>13 AND Female
OR	At least one of the criteria must be satisfied	"medium" OR "overweight"
NOT	All criteria are satisfied except for the ones specified	NOT "bald" AND NOT "fair"

Performance (Drama and Dance)

Drama Skills and Techniques

1	**Gesture:** Hand actions to emphasise your character's feelings or show what they are doing, e.g. a point or a wave. Sometimes gestures are symbolic.
2	**Facial expression:** Changing or adapting your facial features to show your character's emotions, such as frowning by furrowing your eyebrows to show that your character feels cross!
3	**Posture:** How you stand to show what your character is like, e.g. a straight and upright posture or a hunched and slouched posture.
4	**Stock character characterisation:** Stock characters are: heroes, villains, damsels etc. and specific gestures, posture, physicality and facial expressions create characterisation of these characters.
5	**Mime:** Silent movement and gestures to make it look as though you are doing something but without props.

Drama Skills and Techniques

1	**Slapstick Comedy:** An over exaggerated style of physical comedy, usually involving a character falling or getting 'hurt' – but never too badly! The trick is making it look like pain has been inflicted while keeping the actor completely safe and unhurt!
2	**The comedy rule of 3:** Repeat an action or movement 3 times but something different should happen the third time!

Dance: Mental Skills

1	**Systematic rehearsal**: Repeating something in an arranged or ordered way.
2	**Response to feedback**: Using peer, self and teacher feedback to improve your dance performance.
3	**Capacity to improve**: The ability and desire to improve your performance.

Dance: Physical and Expressive Skills

1	**Alignment**: Correct placement of body parts in relation to each other.
2	**Isolation**: An independent movement of part of the body.
3	**Mobility**: The range of movement in a joint; the ability to move fluently from action to action.
4	**Extension**: Lengthening one or more muscles or limbs.
5	**Facial expression**: Use of the face to show mood, feeling or character.
6	**Sensitivity to other dancers**: Awareness of and connection to other dancers.
7	**Communication of choreographic intent**: The aim of the dance; what the choreographer aims to communicate.
8	**Interrelationship between constituent features of dance works**: How costume, music, set design and action content relate to each other.

English

Keywords

Evidence	the use of information to prove a point that you are making
Quotation	a selection of words or phrases taken, word for word, from a text
Fiction	writing that describes imaginary events and people, e.g. *Private Peaceful*
Non-fiction	writing that describes people's opinions or information on facts and reality, e.g. a newspaper
Identify	to pick out a specific piece of information from a text
Inference (noun)	a thought or opinion about a text that is formed by looking at the evidence
Infer (verb)	to have a thought or opinion about a text, formed by looking at the evidence
Explicit	obvious, specific or clear
Implicit	suggested, not openly stated, an educated guess
Analysis (noun)	the close examination of a text
Narrator	the person telling the story
Perspective	the views and opinions of the writer

Language Devices

Simile	Comparing two objects using 'as' or 'like' to create imagery
Metaphor	Comparing one thing to another by saying it is something else
Personification	Giving inanimate objects human properties
Pathetic fallacy	When you give human emotions to nature (specifically the weather) to create atmosphere
Alliteration	Words in a passage / sentence that begin with the same sound.
Onomatopoeia	Words that sound like the sounds they are describing
Semantic field	A group of words that suggest a theme / topic

Structural Devices

Sequence	the order of events in a text (opening, middle, end)
Flashback / flash-forward	an interruption of the story to describe a past or future event
Past and present tense	identifying whether the events are happening now, or if they have already happened
Narrative viewpoint	writing in the first person ('I'), second person ('you'), or third person (he, she, it, names)
Foreshadowing	Hints about what might happen later in the speech

Parts of Speech

Noun	People, place things
Adjective	Describes a noun
Adverb	Tells you how, when, where or why something is being done
Verb	Describes an action
Pronoun	Works as a noun and indicates other people in the discussion
Connective	A word used to connect clauses or ideas together
Preposition	Usually used in front of nouns or pronouns and they show the relationship between the noun or pronoun and other words in a sentence

Rhetorical Devices

Rhetorical question	Asking a question that gets the reader to consider or do something. Used to emphasise a key point.
Direct address	Directing a statement clearly to the reader / audience using the pronoun 'you'.
Tripartite sequence	When you list three actions or descriptions in a sentence.
Inclusive pronouns	Use of 'us' / 'our' etc. to make the audience feel included and therefore more likely to agree.
Hyperbole	Exaggerated or over the top language
Facts / statistics	A statement that is known or proven to be true.
Opinions	A view or judgement of something that someone could disagree with
Repetition	Words or phrases repeated across a text for emphasis

Food Preparation and Nutrition

KEYWORDS

Nutritional Analysis – Annotation of nutrients and their functions.

Sensory Analysis – Annotation of how the product looks, tastes, texture and smell.

Gluten – Protein found in wheat.

CO_2 – Gas produced from yeast, used to make bread rise.

Modification – Changing the recipe to meet needs of consumer.

Seasonal foods – Foods that are only available at certain times of the year.

THE EATWELL PLATE

1. Base your meals on starchy food
2. Eat lots of fruit and vegetables
3. Eat more fish
4. Cut down on saturated fat and sugar
5. Try to eat less salt – not more than 6 g a day
6. Drink plenty of water
7. Don't skip breakfast
8. Get active and try to be a healthy weight

FARM ASSURED

The Union Jack on the Red Tractor logo confirms that your food has been born, grown, prepared and packed in the UK.
The label also confirms that the welfare of the animals have been regulated to make sure they are well cared for.

FAIRTRADE

Changes the way trade works through better prices, decent working conditions and a fairer deal for farmers and workers in developing countries.

SEASONAL FOOD

These foods are only available at certain times in the year. Choosing seasonal food has many advantages:

- More likely to be locally grown
- Food miles will be low
- Support for local farmers
- More nutrients as they are fresher
- Fruit can be used to make chutneys, pickles or jams.

RICE DISHES

Rice dishes can harbour a bacteria called ***Bacillus cereus.*** The bacteria can form spores that are not easily destroyed by heat.
If rice is cooled down slowly or kept warm for some time before serving, the spores will germinate and produce bacteria. The bacteria will multiply and will not be destroyed by heating.
It is therefore important to cool rice down quickly by running it under a cold tap and placing it into a fridge straight away, or with stir fries, risottos and so on, cool in a shallow dish then refrigerate. All foods stored in a fridge should ne kept at 0–5 degrees Celsius. It will then be safe to reheat rice.
All reheated food should be served piping hot. The rice you prepare will reheat in the microwave for 3 – 5 minutes, depending on how powerful your microwave is. If you have any left it must not be heated up again.

HEAT TRANSFERENCES

CONDUCTION – when heat travels through solid materials such as metal and food.
CONVECTION – when heat travels through air or water.
RADIATION – when heat rays directly heat and cook food.

Food Preparation and Nutrition – Recipes

PIZZA

200 g strong bread flour
3 tbsp oil
1 sachet of yeast
50 g cheese
200 ml passata or thick tomato pasta sauce
2 of your own chosen toppings

FOCACCIA

375 g strong plain flour
1 sachet quick acting yeast
3 tbsp olive oil
at least 2 additional ingredients as mentioned in class, e.g. sundried tomatoes, rosemary, garlic, olives, grated cheese

EGG FRIED RICE

2 tbsp vegetable oil
4 rashers of smoked bacon
1 onion
2 spring onions
200 g rice
100 g frozen peas
2 eggs
2 tbsp soy sauce

BOMBAY POTATOES

6 medium sized potatoes
3 tbsp vegetable oil
1 medium onion
2 cloves garlic
1 red pepper
1 × 400 g tin chopped tomatoes
1 tbsp madras curry powder
fresh coriander and a lemon wedge to garnish

MUFFINS

250 g plain flour
2 tsp baking powder
100 g caster sugar
240 ml semi skimmed milk
2 egg
125 ml vegetable oil
muffin cases

ROCKY ROAD

250 g digestive biscuits
150 g milk chocolate
150 g dark chocolate
100 g butter
150 g golden syrup
100 g dried apricot, chopped
75 g raisins

CHICKEN NUGGETS

100 g flour
1 egg
100 g bread crumbs
1 chicken breast
3 tbsp oil

SCONES

300 g self-raising flour
1 tsp baking powder
75 g margarine
50 g caster sugar
150 ml milk
25 g of chosen ingredients depending on savoury or sweet

ALWAYS REMEMBER A CONTAINER TO TAKE YOUR FOOD PRODUCTS HOME!!!!

LEARN VOCAB — French — BUILD SENTENCES

Time Expressions

Hier soir,	Yesterday evening
Chaque jour,	Every day
Deux fois par semaine	Twice a week
Parfois	Sometimes
Le mardi	On Tuesdays
Demain soir,	Tomorrow evening

Core Questions

1) Qu'est-ce que tu as fait le week-end dernier?	What did you do last weekend?
2) Que faites tu normalement pendant ton temps libre?	What do you normally do in your free time?
3) Qu'est-ce que tu vas faire le weekend prochain?	What are you going to do next weekend?
Tu veux…? - Aller - Manger - Regarder	Do you want…? - To go - To eat - To watch

Verb Phrase (past tense)

J'ai regardé…	I watched…
J'ai écouté…	I played…
On a joué…	we played…
J'ai lu….	I read…
J'ai bu…	I drank…
C'était…	It was…

Verb Phrase (present tense)

Je regarde…	I watch…
On joue…	We play…
Je fais…	I do…
Je lis…	I read…
Je vais…	I go…
J'achète…	I buy…
C'est…	It's…

Verb Phrase (future tense)

Je vais aller…	I'm going to go…
On va acheter…	We are going to buy…
Je vais manger…	I'm going to eat…
Je vais boire…	I'm going to drink…
Il sera….	It will be…

Opinions

Le meilleur	The best
Le pire	The worst
Bonne idée!	Good idea!
Je n'ai pas envie!	I don't feel like it.
Ce n'est pas mon truc.	It's not my cup of tea.
Mon émission/ livre préféré est…	My favourite TV show/ book is…

Nouns (places)

À la patinoire	to/in the ice rink
À la piscine	to/in the swimming pool
En ville	to/in town
Dans ma chambre	in my room
Au stade	to/at the stadium
Au musée	to/at the museum
Aux magasins	to/at the shops
Chez moi	at my house

Nouns (transport)

À pied	on foot
En vélo	by bike
En voiture	by car

Nouns (TV shows/ films)

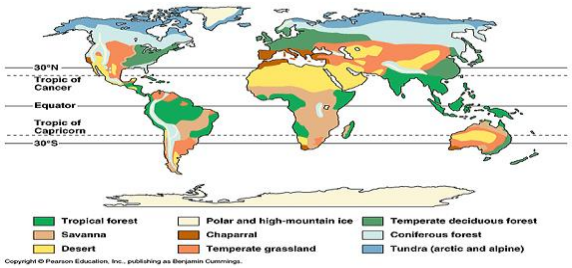
Les films de guerre	war films
Le météo	the weather
un dessin animé	a cartoon
Un feuilleton	a soap opera
les actualités	the news
Les jeux vidéos	video games
Les romans	novels

Nouns (people)

Tout seul	by myself
Avec ma tante	with my aunt
Avec mes amis	with my friends

Geography

Global distribution of biomes



Grassland: There are **two types** of Grassland. **Savannah grasslands** are found **between the tropics**. They have a dry and wet season, although annual rainfall is low, most of the **vegetation** is **grasses** with a **few scattered trees**. **Temperate grasslands** are found in **higher latitudes**. The temperature varies more here, but rainfall is less. They have **no trees** just **grasses**.

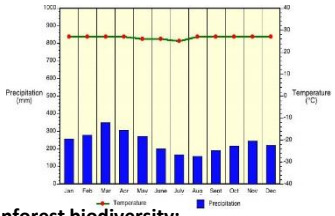
Tundra: Found in **northern Europe, Alaska, and northern Canada**. They are found at **high latitudes** above 60 degrees north of the equator. Winters are very cold and there is little rainfall. Few trees are found here and the main **vegetation is mosses**, grasses and low shrubs. Layers of permanently frozen ground called **permafrost** makes building difficult

Tropical Rainforests: This is a **hot, humid and wet** ecosystem, located on or around the **Equator**. These forests have the greatest variety of plant and animal life in the world. Rainforests have **12hrs of sunlight and darkness**, they **do not have seasons.**

Hot Deserts: Found between 15 and 35 degrees north and south of the equator. They are **very hot** and also very, very **dry (little rainfall)**, it is cold at night as little cloud cover allows warm air to escape. This means there is a big **diurnal range** (difference in temperature between night and day)., The Sahara is the largest desert in the world and is found in northern Africa. Deserts do have seasons.

Temperate Deciduous Forest: Found at **mid latitude** where there are four seasons. This is the main **biome for the UK**, eastern north America and western Europe. **Summers are warm, winters are mild** and there is rainfall all year round. Deciduous trees lose leafs in winter.

Rainforest climate: The graph shows that the climate in the Rainforest is very different to a desert and Tundra areas. The temperature remains fairly constant all year, at around **27 ℃**. This is because the **sun is always overhead**. Rainfall is much higher throughout the year, with around **350mm of rain** falling in March – as mentioned before this is due to convectional rainfall.



Rainforest biodiversity:

Rainforests contain **50% of the world's plants and animals**.

Most trees are **evergreen**.

The **forest floor** has **nutrients** on its **surface** due to the decomposition of leafs and dead animals. However, the **soil has little fertility** due to the darkness of the forest floor.

Rainforest importance?

The vegetation is important in the fight against **global warming**. Trees take in carbon dioxide and turn this into oxygen.

Many **undiscovered medicines** lay within the forest. Currently 3 quarters of anti-cancer medication comes from the forest. Periwinkle was one of the most recent discoveries which helps treat child leukaemia.

Why is the forest being deforested?

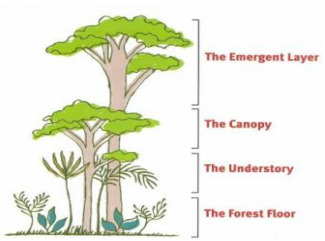
1. **Population pressure** – clear land for new settlements.
2. **Mineral extraction** – gold and iron are mined to make money and to meet the demand. The photograph is of the Carajas mine in the Amazon, it is so large it can be seen from space.
3. **Energy Development** – building hydroelectric power to generate energy from the vast amount of rivers in the Rainforest.

1. **Commercial logging**– trees are felled to make money. Made worse by larger, wider roads needed to transport machinery in and out, resulting in more deforestation.
1. **Commercial farming** – Rainforest is cleared for cattle ranching, palm oil and soya plantations.
2. **Subsistent farming**– Rainforest is cleared for farmers to grow food for themselves and their families. Made worse by population growth.
3. **Slash and burn** – Indigenous people clear the forest to settle, they then burn the deforested trees. They burn the fallen trees as ash provides nutrients so crops can be grown.

What are the impacts of this deforestation?

1. **Animal habitats** are being destroyed, resulting in animal extinction.
2. Further **medical discoveries will become less**, as there will be a reduction in the variety of vegetation.
3. The **indigenous tribes**, such as the Amazonian Indians are losing their land and way of life. This is resulting in drastic changes to their culture.
4. **Desertification increases** as the trees no longer soak up the rainfall, resulting in a reduction in evapotranspiration, and therefore less rainfall in the area.
5. **Soil erosion is increasing**, as the protective canopy has been removed, this means that the heavy rainfall washes away the top soil of the forest floor, meaning a reduction in nutrients.

Layers of the forest



Is made up of 4 layers. The fores floor is very dark and receives little sunlight. The understory shrub layer is not and damp and its plants have long waxy leaves. The canopy layer is where the most trees are.

Plant adaptions in the rainforest:

Trees have **buttress roots**, these wide roots give the trees **stability**, but also allow the trees to take the **nutrients** from the surface layer of the forest floor.

Trees have **drip tips**, these allow the rain to run off the leafs, stopping the trees from becoming too heavy and falling.

Trees have **few branches** lower down as they race to get to the canopy and the sunlight.

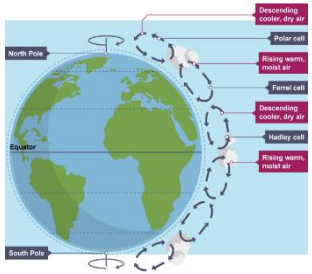
Lianas grow up other trees, to steal nutrients on their journey to the sunlight.

The pitcher plant fills with water and has **slippery sides** to drown insects in to feed on their **nutrients.**

The touch me not shrivels up to look less **appealing** to eat when touched.

Epiphytes grow on other taller trees to take advantage of their **height and sunlight..**

Global atmospheric circulation



Rainforests: At the equator the sun warms the earth, which transfers heat to the air above, **causing it to rise**. This air cools and condenses to form clouds and later rainfall. This is called **convectional rainfall**. This process means it rains each day in the rainforest.

Why is the rainforest found there?

They are found on the **equator** because it sits in line with the sun all year round. Higher **temperatures** lead to high rates of **evaporation** and rainfall on the equator.

Key Terms:

1. **Habitat** - a place where plants and animals live e.g. a pond.
2. **Ecosystem** - a community of animals, plants and micro-organisms, together with the habitat where they live.
3. **Biomes** - large scale ecosystems defined by abiotic factors e.g. climate, soils & vegetation.

Animal adaptions in the rainforest:

The sloth:

Has **long claws** to help it to cling to trees when climbing.

Moves slowly to make it harder for predators to spot them.

Brown fur to help **camouflage**.

The spider monkey:

Long **strong limbs** to help it climb through the rainforest.

Long tail to help with balance when moving through trees.

The toucan:

Long **large sharp bill** that allows it to reach and cup up fruit.

Bright beak also helps to attract a mate.

Time Expressions

Gestern Abend	yesterday evening
Jeden Tag	every day
zweimal pro Woche	twice a week
Manchmal	sometimes
Dienstags	on Tuesdays
Morgen	tomorrow

Core Questions

1) Was hast du letztes Wochenende gemacht?	What did you do last weekend?
2) Was machst du normalerweise in deiner Freizeit?	What do you normally do in your free time?
3) Was wirst du nächstes Wochenende machen?	What are you going to do next weekend?
Willst du - gehen - essen - sehen	Do you want…? - To go - To eat - To watch

Verb Phrase (past tense)

Ich habe…gesehen	I watched…
Ich habe….gehört	I played…
Wir haben.. gespielt	we played…
Ich habe.. gelesen	I read…
Ich habe…getrunken	I drank…
Es war…..	It was…

Verb Phrase (present tense)

Ich sehe	I watch…
Wir spielen	We play…
Ich mache	I do…
Ich lese	I read…
Ich gehe / fahre	I go…
Ich kaufe	I buy…
Es ist…	It's…

Verb Phrase (future tense)

Ich werde… gehen	I'm going to go…
Wir werden… kaufen	We are going to buy…
Ich werde…essen	I'm going to eat…
Ich werde…trinken	I'm going to drink…
Es wird… sein	It will be…

Opinions

Ich mag…	I like
Ich sehe gern	I like watching
Ich mag… nicht Ich sehe nicht gern	I don't like I don't like watching
MeineLieblingssendung / mein Lieblingsbuch ist..	My favourite TV show / book is…

Nouns (places)

ins Kino	to the cinema
ins Schwimmbad	to the swimming pool
in die Stadt	to town
In meinem Zimmer	in my room
bei mir	at my house
in den Park	to the park

Nouns (transport)

zu Fuß	on foot
mit dem Rad	by bike

Nouns (TV shows/ films)

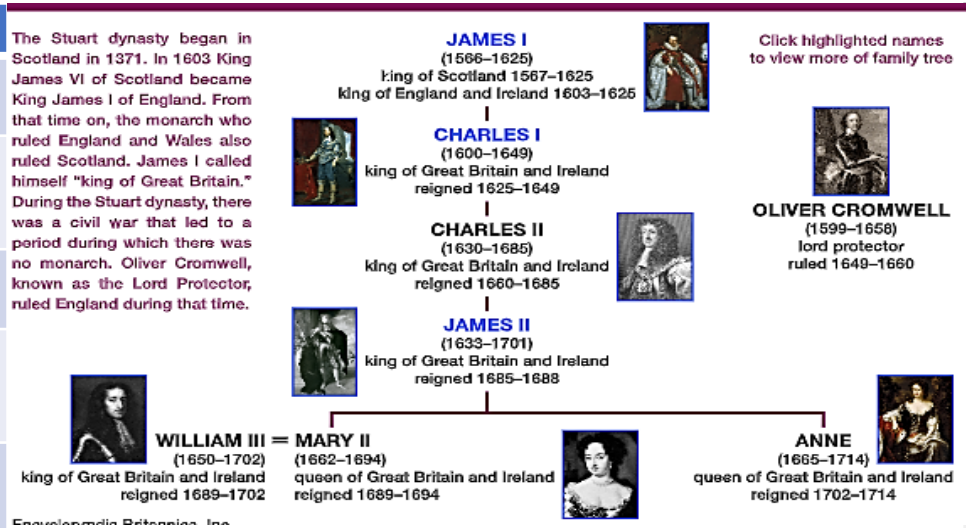
Arbenteuerfilme	adventure films
die Wettervorhersage	the weather report
Zeichentrickfilme	cartoons
Seifenoper	soap operas
die Nachrichten	the news
Sportsendungen	sports programmes
Romane	novels

Nouns (people)

allein	on my own
mit meiner Freundin	with my friend (f)
mit meinem Freund mit meinen Freunden	with my friend (m) with my friends (pl)

History – English Civil War

Keywords	
Stuart period	The **Stuart period** of British history lasted from 1603 to 1714.
Cavalier	The nickname for the soldiers who supported the king during the English Civil War.
Civil War	A war between two sides from the same nation.
Divine Right of Kings	The theory that a monarch is chosen by God and should have complete power.
Member of Parliament	Someone elected to sit in the House of Commons, often abbreviated to 'MP'.
New Model Army	A full-time, professional army formed by Oliver Cromwell during the Civil War.
Parliament	A collection of people representing all of England who approve or refuse laws.
Parliamentarians	Those who are loyal to parliament.
Puritan	A group of radical protestants who wore plain clothing and tried to live without sin.
Roundhead	The nickname for the solider that supported parliament during the Civil War.
Ship money	A tax forced on coastal towns to pay for their defence from naval attack.
The eleven-years tyranny.	A period from 1629 during which Charles I ruled without calling parliament.



Key Individuals	
James I	His mother was Mary, Queen of Scots. He ruled both England and Scotland.
Guy Fawkes	A catholic and member of the failed gunpowder plot who was given responsibility to guard explosives.
Robert Catesby	Leader of the group of English Catholics who planned the failed gunpowder plot of 1605.
Charles I	The second Stuart king who was executed by parliament
William Laud	Archbishop of Canterbury who reintroduced some Catholic practices into church services.
Oliver Cromwell	Lord Protector of the Commonwealth of England, Scotland and Ireland.

Key Dates	
1603	James I becomes King of England
1605	The Gunpowder Plot
1611	Publication of the King James Bible.
1625	Charles I becomes King of England.
1629	The start of the 'eleven-years tyranny'.
1637	Archbishop Laud introduces his prayer book to Scotland.
1640	Charles I recalls parliament to pay for the Bishops' war.
1642 (August)	The English Civil War breaks out.
1645	The Battle of Naseby.
1646	Charles I surrenders to the Scots.
1648	Parliament wins the Second Civil War.
1649	Trial and Execution of Charles I.

Maths

hegartymaths

Year 8 Cycle 2

http://www.hegartymaths.com

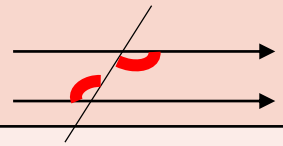
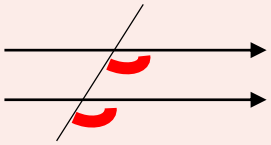
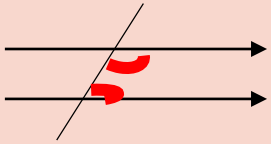
Units of Measure			
× 1000 Kilometres ⇄ Metres ÷ 1000	× 100 Metres ⇄ Centimetres ÷ 100	× 10 Centimetres ⇄ Millimetres ÷ 10	Metric units of length
× 1000 Tonne ⇄ Kilograms ÷ 1000	× 1000 Kilograms ⇄ Grams ÷ 1000	× 1000 Grams ⇄ Milligrams ÷ 1000	Metric units of mass
× 100 Centilitres ⇄ Litres ÷ 100	× 1000 Litres ⇄ Millilitres ÷ 1000	Metric units of volume	
× 60 Hours ⇄ Minutes ÷ 60	× 60 Minutes ⇄ Seconds ÷ 60	Units of time	

Key Vocabulary	
Parallel Lines	Lines that are **equidistant** (of equal distance) and will never meet
Angles	A measure of a turn
Acute angle	Less than 90°
Obtuse angle	Greater than 90° and less than 180°
Right angle	Exactly 90°
Reflex angle	Greater than 180° and less than 360°
Straight line	Angles = 180°
Angles around a point	= 360°
Regular Polygon	A polygon with equal side lengths and equal angles

Angles in Polygons		
Angles in a triangle	Sum to 180°	
Angles in a quadrilateral	Sum to 360°	
Sum of interior angles in a polygon	$(n-2) \times 180$	Where n = the number of sides
Exterior angles	Sum to 360°	Where n = the number of sides
Interior angles + Exterior angles = 180°		
For regular polygons only: exterior angle = $360 \div n$		

Maths

Angles in Parallel Lines

Alternate Angles		Alternate angles are equal
Corresponding Angles		Corresponding angles are equal
Co-interior Angles		Co-interior angles sum to 180°

Key Vocabulary

Fraction	A mathematical expression representing the **division** of one integer by another.
Decimal	A decimal number is often used to mean a number that uses a decimal point followed by digits that show a value smaller than 1.
Percentage	Percent means "per 100". 1% means 1 per 100.
Recurring decimal	A decimal in which a number or group of numbers is repeated indefinitely; e.g. 0.333333333... we show this as $0.\dot{3}$.
Terminating decimal	A decimal number that contains a finite number of digits after the decimal point.

Fraction	Decimal	Percentage
$\frac{1}{2}$	0.5	50%
$\frac{1}{4}$	0.25	25%
$\frac{3}{4}$	0.75	75%
$\frac{1}{5}$	0.2	20%
$\frac{1}{10}$	0.1	10%
$\frac{1}{3}$	$0.\dot{3}$	$33.\dot{3}\%$

Ratio

Ratios are used to show how things are shared.
For example, for every 3 red marbles there are 2 blue marbles.
The ratio of red to blue marbles is 3:2

Simplifying a ratio

Ratios can be simplified just like fractions. Keep them **equivalent** by dividing **all** parts of the ratio by the same number. Simplify fully by dividing by the highest common factor.

54:36
÷ 18 (3:2) ÷ 18

Sharing into a ratio

You can share into a ratio by dividing the amount you are sharing by the total number of parts.

For example, share £80 into the ratio 2:3.

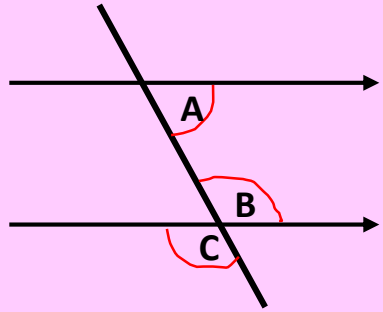
16 16 16 16 16

1) Represent the parts of the ratio as boxes
2) There are 5 boxes in total, so divide your total by 5 (80 ÷ 5 = 16)
3) This means that 16 goes in each box. Total the parts of the ratio.

Stretch and Challenge

The ratio of angle A to angle B is 4:5.

Calculate the size of angle C.



Music

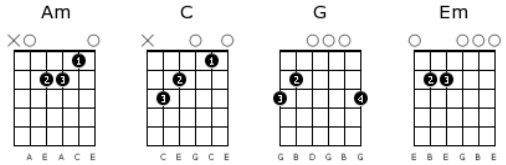
Keywords

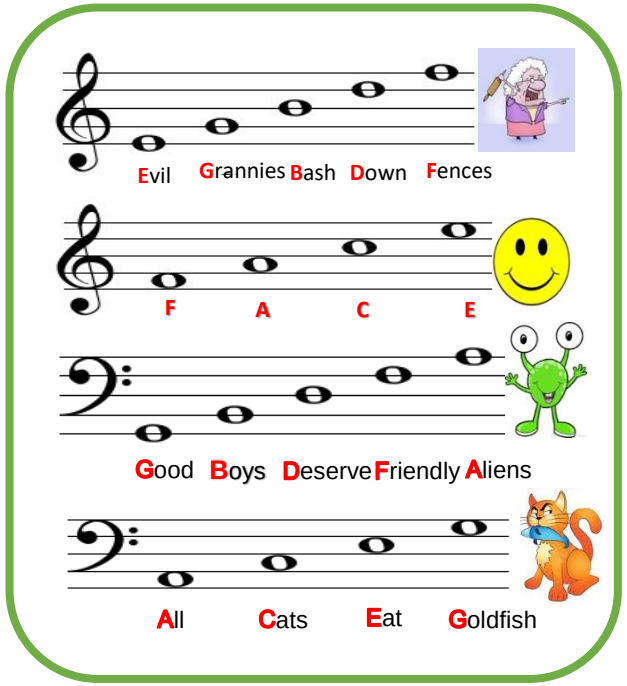
Dynamics	Symbol	Definition
Fortissimo	*ff*	Very Loud
Forte	*f*	Loud
Mezzoforte	*mf*	Moderately loud
Mezzopiano	*mp*	Moderately quiet
Piano	*p*	Quiet
Pianissimo	*pp*	Very quiet
Crescendo	<	Becoming gradually louder
Decrescendo	>	Becoming gradually quieter

Tempo	Definition
Lento	Slowly
Largo	Slow and stately
Adagio	Leisurely
Andante	At a walking pace
Allegro	Fast
Vivace	Lively
Presto	Very Quickly

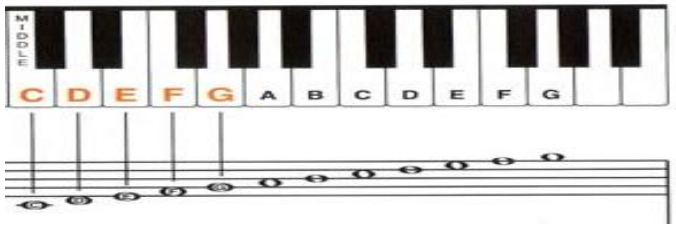
Stretch and Challenge

Can you play these chords on a guitar?





Common Chord Guide			
A	A C# E	**D**	D F# A
Am	A C E	**E**	E G# B
Bb	Bb D F	**Em**	E G B
B	B D# F#	**F**	F A C
Bm	B D F#	**Fm**	F Ab C
C	C E G	**G**	G B D
Cm	C Eb G	**Gm**	G Bb D



Intro
- Sets the scene of the song.
- Builds up, catchy.

Verse
- Tells a story.
- Dynamics are quieter from the instruments to allow the voice to be heard.
- Different lyrics each time.

Chorus
- Very catchy (sing along).
- Repeats throughout the song (the same each time).
- Loudest part of the song.

Solo
- Lead instrument usually guitar plays a melody (based on the vocal melody).
- No vocals.

bridge
- New musical idea that you will probably only hear once, usually after the second chorus.

Pre-Chorus
- A section that links two sections together (usually verse-chorus-solo).

Fade out
- A song gradually gets quieter while repeating the chorus.

Outro
- Section on the end of the song that completes the chorus.

Physical Education

Sports	Key Skills	Components of Fitness
Invasion Netball Handball Basketball Football Rugby Hockey	 Passing, Shooting, Dribbling, Tackling, Catching, Throwing, Kicking 	**Balance** – the ability to maintain centre of mass over a base of support. There are two types of balance: **static** balance and **dynamic** balance. A gymnast uses static balance when performing a headstand and dynamic balance when performing a cartwheel. **Coordination** – the smooth flow of movement needed to perform a motor task efficiently and accurately. **Reaction Time** – the time taken for a sports performer to respond to a stimulus and the initiation of their response. **Agility** – the ability of a sports performer to quickly and precisely move or change direction without losing balance or time. **Power** – the product of strength and speed. Expressed as the work done over a unit of time. **Muscular Endurance** – the ability of the muscular system to work efficiently, where a muscle can continue contracting over a period of time against a light to moderate fixed resistance load. **Muscular Strength** – the maximum force (in kg or N) that can be generated by a muscle or muscle group. **Aerobic Endurance** – the ability of the cardiorespiratory system to work efficiently, supplying nutrients and oxygen to working muscles during sustained physical activity. **Flexibility** – having an adequate range of motion in all joints of the body; the ability to move a joint fluidly through its complete range of movement. **Speed** – distance divided by the time taken. Speed is measured in metres per second (m/s). The faster an athlete runs over a given distance, the greater their speed.
Artistic Gymnastics Trampolining	 Balancing, Travel, Vaulting, Landing, Rotation 	
Striking and Fielding Stoolball Rounders Cricket Softball Tennis	 Striking, Hitting, Catching, Throwing, Stopping 	
Athletics Track events Field events	 Sprinting, Jumping, Throwing, Pacing 	
Swimming Strokes Life Saving	 Body, Legs, Arms, Breathing, Timing 	

STRETCH AND CHALLENGE

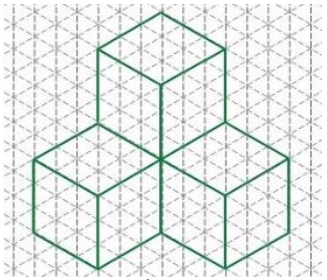
Leadership within PE lessons:

- Are you able to combine and perform a range of skills fluently?
- Are you able to demonstrate these skills to your peers successfully?
- Are you able to accurately evaluate the effectiveness of your own and others' performances?
- How can you use your experience in a specific sport to coach someone else safely and correctly?
- Can you confidently lead and motivate others in small groups/teams?
- Can you demonstrate resilience (R6), determination (R5), confidence, teamwork, respect, independence (R8), enthusiasm and creativity (R7)?

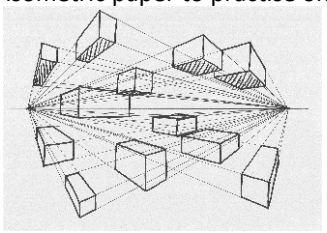
Product Design – Materials, Drawing and Evaluation

Material Knowledge

Material	Description	Example	Use	Advantages	Disadvantages
Hardwood	Broad leaved trees that drop the leaves in winter. Tend to be harder wearing with no need for treatment if used outside.. Slow growing so the grain is closer together making it tougher but heavier. Balsa is soft and light though.	Oak, mahogany, balsa, beech	Outside furniture, good quality child's toys. Boats. Balsa – model aircraft	Stronger, hard wearing, can be used outside	Expensive. Take a long time to replace so damaging to habitats. Harder to work with
Softwood	Trees with needles that stay on in winter.	Pine family (like Christmas trees)	Cheap construction, toys, doors	Cheap, easy to work with	Not good outside without protection, mostly weaker
Man made board	Board manufactured for wood for a specific purpose	MDF (medium density fibreboard), plywood	Lots, building, furniture	Any size or function you want. Predictable properties. Can be cheap	Sometime not attractive
Thermoset Plastic	Made from oil that will run out. Plastic that cannot be re-melted due to rigid cross links	Glass reinforced plastic. Epoxy resin	Boats, fishing rods, glue	Resists heat, strong	Brittle and cannot be recycled
Thermoform plastic	Mostly made from oil that will run out. Can be re-melted and recycled into something else	PET – drinks bottles HDPE – milk bottles	Lots!	Easy to mould, lots of different properties	Often cannot be recycled due to being mixed with other plastic or contaminated with labels or food or metal.
Elastomer	Spring like molecule structure allows flexibility	Rubber, elastic	Lots! Rubber Bands, clothes, seals	Flexible	Hardens with age

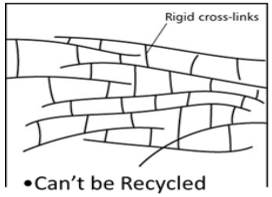


Isometric drawing: Used for practising drawing in 3D for design ideas. Ask for isometric paper to practise on!



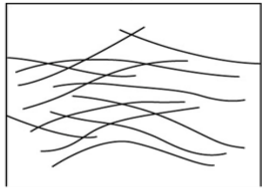
Perspective drawing: Often used architecture. All lines that are not vertical go back to vanishing points.

Thermosets



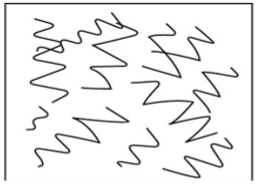
- Can't be Recycled
- Resist heat
- Rigid Cross links

Thermoplastics



- Easily moulded into shape
- Can be recycled
- Can be reheated and remoulded

Elastomers



- Good elasticity
- Can be thermosetting or thermoforming plastic

Literacy – Be Able to Write an Evaluation

- What skills have you learnt during this project?
- What skills have you developed (improved)?
- What aspects (parts) of your project do you think have gone well?
- What aspects of your project do you think have gone badly?
- Compare your finished project to your final design drawing, what changed did you make and why?
- If you were given a chance to re do the project, what would you do differently?

Pillar Drill

We use this for drilling vertical holes in material. Almost always you will clamp your work down first. Wear glasses, use the guard and know how to turn it off in an emergency. Do not use if you are unsure – ask!

Batch Production

To save time we can do more than one thing at once. In Food Tech, this may be baking a whole load of bread or cakes at the same time. What advantage to you see here?

When making your lorries we could:

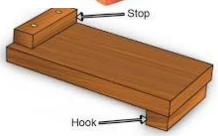
- Use the line bender to bend more than one plastic cab at once.
- Get all the cutting tools out and cut as many wood cuts as possible while the tools are out.
- Line all the wheels and countersink the holes one after the other.
- Drill all the axle holes at the same time.

Product Design – Tools

Tenon Saw For cutting straight vertical cuts. The depth of the cut is restricted by the brass spine. You must stretch the index finger out when using this saw to steady it and get a more accurate cut. Start cutting on a corner, drawing back several times. Use a bench hook

Fret Saw For cutting **curved** lines in **thin** material with a thin blade. Always keep your fingers clear. Make sure the guard is intact. Cut slowly. Use the clamp to stop wood rattling about. The manual equivalent is a **coping saw** – you can turn the blade around by unscrewing the handle then tightening up again.

Bench Hook and Clamp Use the bench hook to help cut wood with accuracy. Top tip - always cut all the way through your work into the bench hook to avoid splintering the back of your work. Use a clamp for shorter pieces of wood



Squares: 45 degree and 90 degree Take care of these – your work accuracy depends on them being accurate! You must keep the stock (wooden bit) tight against your work and your pencil must be sharp!

Bevel Edge Chisel For removing wood. Always chisel away from yourself. Use only for cutting wood – they must be razor sharp! Bevel edge facing down .

Vernier Measuring with accuracy. Accurate to 0.01 of a mm. Do not forget to zero it first! You will use this to check the sizes of drills and your work

Steel Rule Measuring with accuracy up to 1/2 mm depending on your eyes! It starts at zero on the end, unlike a ruler that has material on the end first. Make sure that you look at the measurements from above to get an accurate reading. You also need a sharp pencil!

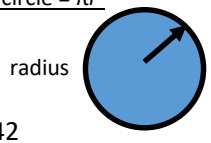
Wood Plane For shaving slithers of wood off your work. The aim is to take a shaving cut that is complete and lasts the whole length of your work. Always rest it on its side so you don't blunt the blade or damage my desk. Usually we use a wood plane along the grain.

Year 8 Product Design Knowledge Organiser – Maths

Area: the two-dimensional space taken up by something
Measured in: a size appropriate to the problem - either cm^2 or m^2 for larger problems.
Area of a rectangle = width × length

Examples: rectangle area
1) If the width of a piece of fabric is 10 cm and its length is 15 cm, what is its area in cm^2?
2) Width = 12 cm, length = 32 cm, what is the area?
3) Width = 3 m, length = 8 m, what is the area in m^2

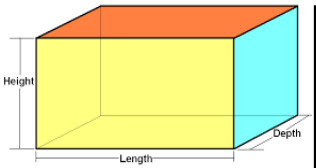
Area of a circle = πr^2



$\pi = 3.142$
The radius is half the diameter

Examples: circle area
1) If the radius of a piece of metal is 5 cm, what is its area in cm^2?
2) Radius is 3 cm, what is the area?
3) Radius = 9.5 cm, what is the area?
4) Diameter = 12 cm, what is the radius?

Volume: the space taken up by something
Measured in: a size appropriate to the problem - either cm^3 or m^3 for larger problems
Volume of a cuboid = depth × length × height
Applications – this could be useful to work out the volume of a material and therefore its cost – or the amount of paint or other liquid used if we use litres or ml instead of cm or metres



Examples: cuboid volume. *Work out the volumes below*
1) The depth of a piece of wood is 3 cm and its length is 4 cm, and the height 6 cm
2) depth = 18 cm, length = 36 cm, height 19 cm
3) depth = 3 m, length = 8 m, height = 5 m
4) Length 42 cm, depth = 19 cm, height 2 cm

Average or Mean is adding up all the data you have and dividing by the number of sets of data you have.
Example: you want to know the average head size so you can design a hat that would fit an average person.

P1 head size 420 mm P3 head size 520 mm **The Average = $\frac{420 + 480 + 520 + 360}{4}$ = 445**
P2 head size 480 mm P4 head size 360 mm

For you to do
1). What is the average bottle volume size? 140 ml, 210 ml, 183 ml, 189 ml, 112 ml, 439 ml
2). What is the mean shoe size? 10, 6, 9, 8, 15

Answers:
Rectangle area: 1) 150 cm^2. 2) 384 cm^2. 3) 24 m^2
Circle area: 1) 78.57 cm^2. 2) 28.2 cm^2. 3) 283.6 cm^2. 4) 452.4 cm^2
Cuboid volume: 1) 72 cm^3. 2) 12 312 cm^3. 3) 120 m^3. 4) 1596 cm^3
Average: 1) 212. 2) 9.6

Religious Education – Islamic Beliefs and Practices

Keyword	Definition
Hijrah	Departure or exit. Muslims often use this term to refer to emigration of Muhammad* from Makkah to Yathrib.
Madinah	The city that Muhammad* emigrated to. Madinah means 'the city of the messenger'.
Makkah	The city where the Prophet Muhammad* was born.
Monotheist	A person who believes in one God.
Prophet	Inspired teacher or proclaimed of God.
Qur'an	The Qur'an is the Islamic holy book. Muslims believe that the words of the Qur'an are the words of Allah. Before the Qur'an can be touched, wudu must be performed; this is ceremonial washing.
Revelation	Allah revealed his nature to people.
Shi'a Muslims	Shi'a Muslims believe that Muhammad* was the last prophet, the Qur'an was the word of God and that there is one single God. However, they also believed that after Muhammad*'s death, Muhammad*'s cousin, Ali should have been the successor.
Submission	Complete obedience to God.
Sunni Muslims	Sunni Muslims believe that Muhammad* was the last prophet, the Qur'an was the word of God and that there is one single God. However, they also believed that after Muhammad*'s death, Abu Bakr should have been the successor.
Tawhid	Absolute oneness.
Ummah	The single community of Muslims.
Yathrib	The city that Muhammad* emigrated to, which on Muhammad*'s arrival changed its name to Madinah.

Prophets	Explanation
Adam	This prophet was the first of human race. He is thought to be the first prophet by Muslims. He was also the first man whom Almighty Allah had created from the elements of clay. Allah taught this prophet the names of all things.
Ibrahim (Abraham)	This prophet was born into to a polytheistic family. He rejected polytheism and believe in one God. He was instructed to build the Kab'ah in Makkah that was the first place where one God was worshipped without idols. His faith was also tested by Allah as he was told to sacrifice his son. But eventually Allah told him not to.
Musa (Moses)	This prophet was born a Jew but brought up by Pharaoh's daughter. He killed an Egyptian and fled to Madyan where Allah called him to lead the slaves out of slavery in Egypt and into Allah's promised land. He was given the word of God in the Tawrut (Torah) but the people often rejected and distorted his message.
Isa (Jesus)	This prophet was the son of Maryum. He was conceived by power of God. Jewish authorities wanted to crucify Him but God would not allow it to happen. Muslims believe that this prophet did not die but was taken up by Allah to heaven. Muslim tradition asserts that he will return before the end of the world and gather all true Muslims together.
***Muhammad**	Muhammad was born in 570CE and when his parents died, he was young so he was bought up by his uncle. Muhammad went to work for a lady called Khadijah as a market trader when he was old enough. = He eventually married her. He was not happy with the world around him and often went to pray in a cave. One day an angel appeared to him in the cave and suddenly, he could read and the angel gave him the first words of the Qur'an. He came out from the cave and told everyone about Allah and how they were meant to live. It took Muhammad a long time to establish Islam. He fought many battles and people tried to assassinate him.

CHALLENGE

Go to the links below and extend your knowledge on Muslim beliefs and practices.

- http://www.bbc.co.uk/religion/religions/islam/
- https://www.bbc.com/bitesize/topics/zdprkqt

Religious Education – Islamic Beliefs and Practices

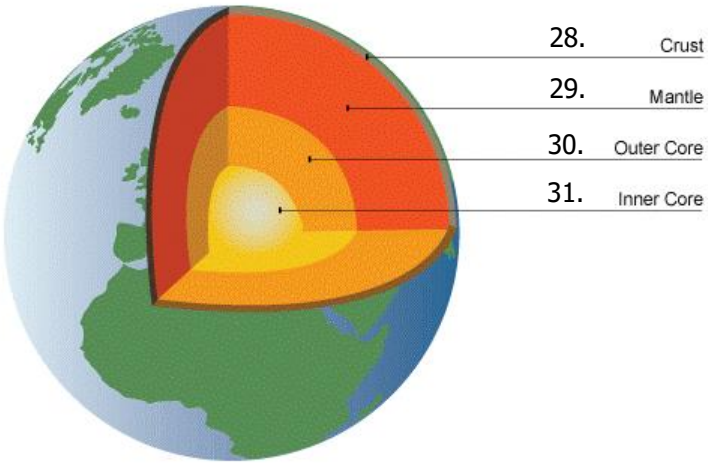
Beliefs	Explanation
The Six Articles of Faith	The Six Articles of Faith are the six main beliefs held by Muslims today: 1. Belief in one God 2. Belief in angels 3. Beliefs in holy texts 4. Belief in prophets 5. Belief in judgement day 6. Belief in God's authority
The Night of Power	• Muhammad* was born in 570CE. • His parents died when he was young so he was bought up by his uncle. • Muhammad* went to work for a lady called Khadijah as a market trader when he was old enough. He eventually married her. • He was not happy with the world around him and often went to pray in a cave. • One day an angel appeared to him in the cave and suddenly he could read. The angel gave him the first words of the Qur'an. • He came out of the cave and told everyone about Allah and how they were meant to live. • It took Muhammad* a long time to establish Islam. He fought many battles and people tried to assassinate him.
Why is Muhammad* so important to Muslims today?	• Muhammad* could not read but an angel visited him when he was praying in a cave. The angel said that he was Allah's messenger. These words became the first words of the Quran. • Makkah is where Muhammad* set up the first Muslim community and it is now a very important town, where all Muslims try to visit it at least once in their lifetime. • He is often regarded as the founder of Islam. He was the last prophet to be sent by Allah.

Practices	Explanation
The Five Pillars	These are five rules or principles that a Sunni Muslim must follow. The Five Pillars of Islam help a Sunni Muslim to worship Allah and guide his daily life. 1. Shahadah – the statement of faith. This is said at birth, death and prayer. "There is no God but God (Allah), and Muhammad* is his messenger." 2. Salah – prayer. Sunni Muslims pray five times a day either at home or in a mosque. Before they pray they must perform wudu (a washing ritual). 3. Zakah – Muslims believe that all wealth belongs to God and therefore it should be shared out fairly and equally. They give 2.5% of their savings to charity each year. 4. Sawm – fasting. Muslims fast during the month of Ramadan because they believe that it teaches them to have patience and not to just give up when things become difficult. 5. Hajj – pilgrimage. All Muslims are expected to make the pilgrimage to Makkah at least once during their lifetime. It lasts five days and there are lots of different rituals they must perform during this time.
Ramadan	During Ramadan, Muslims celebrate the time when the verses of the Qur'an were revealed to the Prophet Muhammad*. Ramadan is a time of worship and contemplation. A time to strengthen family and community ties. Eid-ul-Fitr (Id-ul-Fitr)- The festival for the first day after Ramadan. This marks the breaking of the fast for Muslims at the end of Ramadan. Lasting three days, it is a time for family and friends to get together, for celebrating with good food and presents for children and giving to charity.
Islamic Relief	Islamic Relief Worldwide is an international humanitarian organisation that provides development programs and humanitarian relief around the globe, regardless of race, political affiliation, gender or belief. Islamic Relief believe that together we will inspire and enable people to respond rapidly to disasters and fight poverty through our Islamic values, expertise and global reach.

Science – 8CM Earth Materials Chemistry

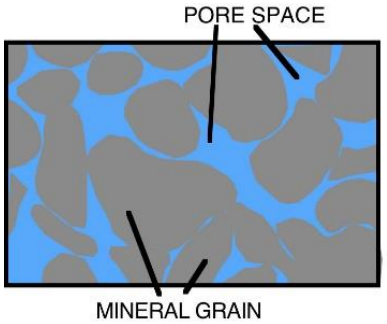
Section 1: Rock Properties		Which rocks are these features common in?		
Keyword	Meaning and example	Sedimentary rocks	Metamorphic rocks	Igneous rocks
1. Rock	A substance made of **minerals**	ALL	ALL	ALL
2. Porosity	Holes within a rock, such as pumice	Y		
3. Permeability	The ability of water to flow through a porous rock	Y		Only pumice
4. Texture	i.e. crumbly (sandstone), brittle (slate)	Y		
5. Density	i.e. high density (granite), low density (pumice)	LOW	MEDIUM	HIGH
6. Layers	Sediment grains are deposited in layers	Y		
7. Layers of Crystals	When a rock experiences heat & pressure		Y	
8. Small Crystals	Formed by extrusive magma, cooled fast			Y
9. Large Crystals	Formed by intrusive magma, cooled slow			Y

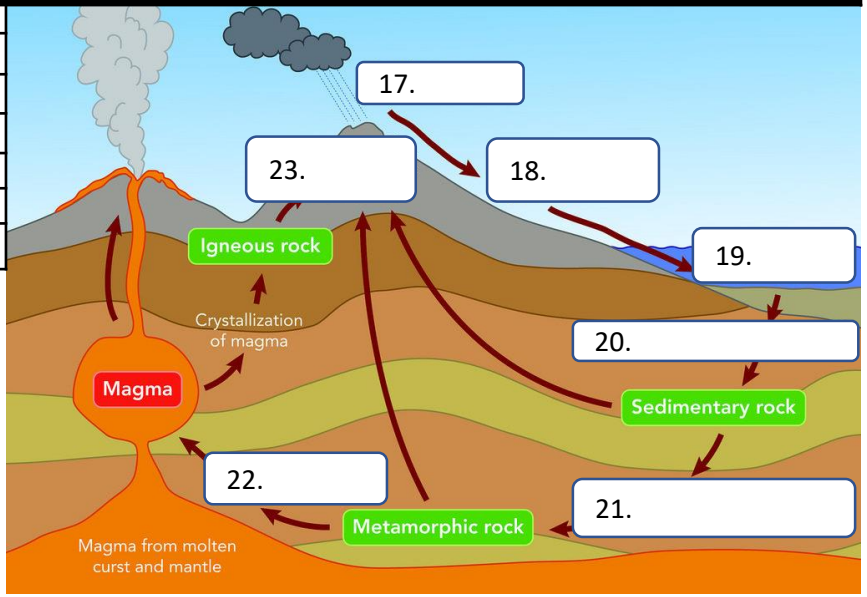
Section 2: Weathering and Erosion	
Keyword	How the process works:
10. Weathering	The act of weather conditions breaking down rocks, either by **physical, biological** or **chemical** weathering
11. Erosion	The gradual destruction by wind, water, or other natural agents.
12. Freeze-Thaw	Hot-cold climates (i.e. desert): water enters rock, freezes, expands then melts. This repeats until a rock breaks
13. Onion Skin	Hot-cold climates (i.e. desert): rock surface expands during hot days, contracts during colder night until outer 'layers' break off
14. Abrasion	The **removal of** rock **edges** by friction/movement
15. Transportation	Rocks can be moved by **water, wind** and **ice**
16. Deposition	Rocks are dropped off after being transported



Section 3: The Rock Cycle

17.	**Weathering and erosion**
18.	**Transportation and deposition**
19.	Sedimentation
20.	Compaction and cementation
21.	High temperature and high pressure
22.	Melting
23.	Uplift to surface

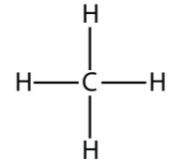
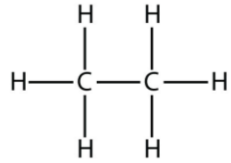
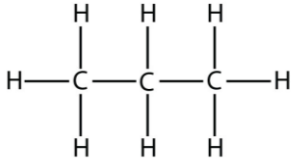
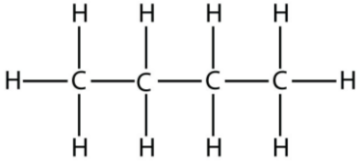




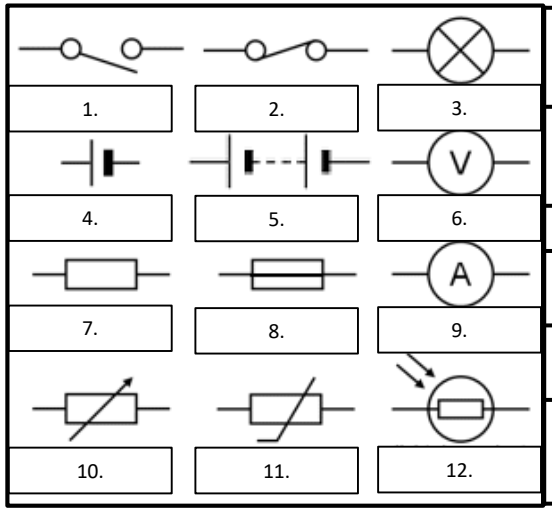
Section 5: Structure of the Earth	
Layer	Composition
27. Atmosphere	79% nitrogen, 20% oxygen and 1% other
28. Crust	thin, rocky, outer layer
29. Mantle	molten rock
30. Outer Core	liquid nickel and iron
31. Inner Core	solid iron

Section 4: Rock Types	
24. Sedimentary rocks	Layers of sediment are deposited, pressure forces the water out of the voids between grains, cementing the rock and making it hard. **LAYERS FORM, CAN CONTAIN FOSSILS**
25. Metamorphic rocks	Rocks are buried by later layers. The rocks at the bottom are subjected to **HEAT** and **PRESSURE.** Minerals are forced out forming crystals. **LAYERS DISTORED, CRYSTALS MAY APPEAR,**
26. Igneous rocks	Molten rock (lava = above ground, magma = below ground) cools and hardens, forming crystals. Usually producing very hard and dense rocks. **NO FOSSILS, SMALL or LARGE CRYSTALS**

6. Carbon Compounds as Fuels and Feedstock	
Hydrocarbon	A chemical made of only carbon and hydrogen
Crude oil	A mixture of hydrocarbons found in rock
Alkanes	Saturated hydrocarbons (without double bond)

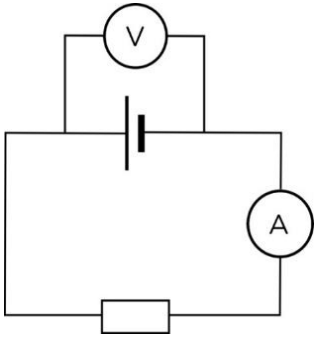
7. Alkanes		
General formula	C_nH_{2n+2}	
Name	Molecular formula	Displayed formula
Methane	CH_4	
Ethane	C_2H_6	
Propane	C_3H_8	
Butane	C_4H_{10}	

Science – 8PE Electricity and Magnetism



1	Open switch	7	Resistor
2	Closed switch	8	Fuse
3	Bulb	9	Ammeter
4	Cell	10	Variable Resistor
5	Battery	11	Thermistor
6	Voltmeter	12	Light Dependent Resistor

	Series	Parallel
Components	connected on one loop	connected by separate loops
Current	same everywhere on circuit	shared evenly between loops
Voltage	Shared between components	Same everywhere



Property	Unit	Unit Symbol
Voltage or Potential Difference (V or p.d)	Volts	V
Current (I)	Amps (Amperes)	A
Resistance (R)	Ohms	Ω

4 Keywords

Poles	The ends of the magnets (South/North)
Charge	Positive or negative (+ / -)

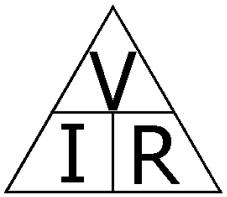
Magnetic field lines:
Lines with arrows that move from North to South.

Electromagnet:
A magnetic field caused by current flowing through a conductor.

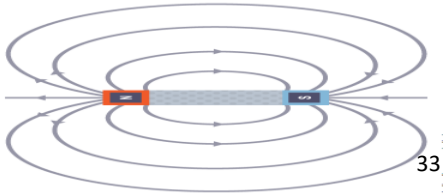
To increase the strength of an electromagnet you can do the following:
1. Increase the turns of the coil
2. Increase the current
3. Use a soft iron core

Similarities between magnets and charges:

Poles/Charges	**Like/same**	**repel** each other
	Opposites	**attract** each other



Conductor: allows charge to flow through it. Does not hold charge, e.g. ALL metals and graphite.
Insulator: does not allow current to flow. Holds charge, e.g. wood, plastic, glass, rubber.



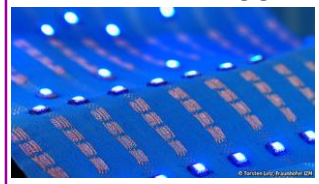
Textiles

Keywords

Interpret	Inspiration
Applique	Reverse applique
Embroidery	Stencilling
Quilting	Layering and fraying
Label	Annotate
Design	Target Market

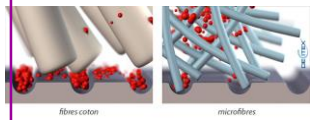
Health and safety rules:
- Long hair must be tied back.
- **NO** food or drink in the workshop.
- **One** person using a machine.

Technical textiles are materials and products made for their technical and performance properties rather than their aesthetic (appearance) characteristics. They have a function or purpose rather than looking good.



A **conductive textile** is a fabric that can conduct electricity with metal strands woven into the construction of the textile.

A **fire resistant material** is one that is designed to resist burning and withstand heat.

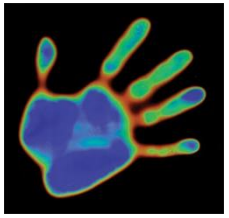


Microfibres are 60 to 100 times finer than a human hair. They are used for clothing for outdoor and active sportswear.

Kevlar® is extremely strong, **lightweight**, corrosion and heat resistant. It is often used in combination with other materials, forming composites

Smart materials are reactive materials. Their properties can be changed by exposure to stimuli, such as electric and magnetic fields, stress, moisture and temperature. They react to environmental conditions.

Hydrochromic inks change colour according to the amount of water they detect.



Thermochromic colour change is effected by heat. The different colours can determine the temperatures much in the same way as a thermometer.

Photochromic inks Special pigments change colour when exposed to solar light and reverse back to clear when the light source is removed.

Phosphorescent pigments absorb light energy so that it can be released once it is dark. The energy is released as a glowing light effect.

Tie Dye

Reverse applique

Applique

Quilting

Stencilling

Layering and fraying

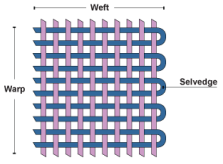
Felt

Fleece

Satin

Cotton

Fabric Production Methods



Woven

Non-Woven

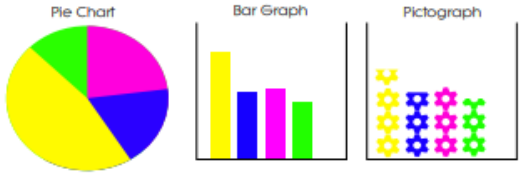
Knitted

Textiles and Maths

NUMERACY IN JAMBLED&T

KNOWLEDGE

Data Collection:
Start with a client interview or questionnaire to gain opinions. Now analyse data.

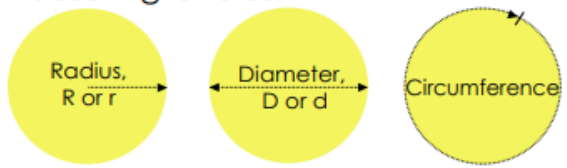


In D&T we are usually designing for others. It is vital to find out what our target market wants out of the product. Analyse these answers & show we have considered them in our designs. Use annotations to link designs to your customer.

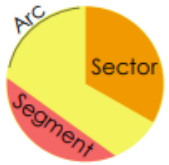
NUMERACY IN JAMBLED&T

DESIGN

Measuring Circles:



Parts of a circle:



Area of a circle:

$$\pi r^2$$

Key facts…

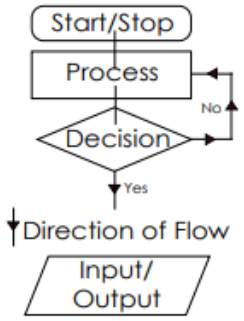
- Diameter, Ø = 2r
- Circumference, C = 2πr
- Pi or π is the ratio of a circle's circumference to its diameter
- $\frac{\text{Circumference}}{\text{Diameter}} = \pi = 3.14159$
- *Food for thought…* **3.14=ΨΙ.Ε**

NUMERACY IN JAMBLED&T

KNOWLEDGE

Flow Diagrams:

Key:



Flow Diagrams will help you to order a series of instructions and decisions in a task. These decisions are often your QA's (Quality Assurances).

MEASURES OF AVERAGES

This help you draw conclusions from data

The **mean** is the most common measure of average. To calculate the mean add the numbers together and divide the total by the amount of numbers:
Mean = sum of numbers ÷ amount of numbers

If you place a set of numbers in order, the **median** number is the middle one.

The **mode** is the value that occurs most often.

WRITING ABOUT YOUR DESIGN IDEAS

Being able to write about your own ideas and sources

Example: "I am really pleased with the storage unit that I have designed. **I like it because** it **reflects** the art deco era as shown in my research. Whilst **I think that** the 1st idea also portrays the art deco era **I feel that** the size of the product might be too big".

I think that	reflects	another idea would be to	next time	this particular idea
reminds me of	I like...because	makes me feel	it's almost as if	what I like about this idea is
portrays	signifies	gives the impression that		of all the ideas that I have drawn
suggests that	reinforces	it could be that		it satisfies the specification