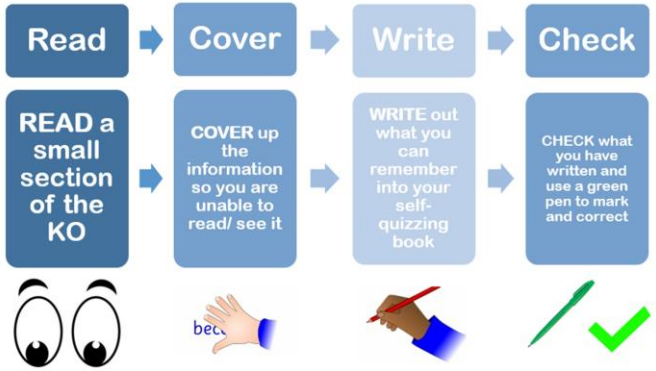
Year 8
Knowledge Organiser: Cycle 3

Name: _____

Tutor group: _____



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

Using Your Knowledge Organiser for Revision

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.

- 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

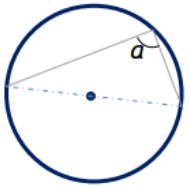
Using Your Knowledge Organiser for Revision

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. a %) 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, lastly, 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**.

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

Dan is very organised and (connective) **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

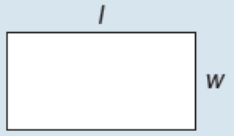
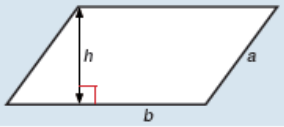
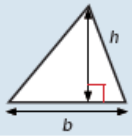
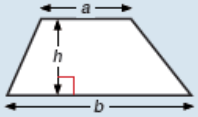
Triangles
Equilateral
Right-angle
Isosceles
Scalene

Keywords

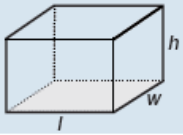
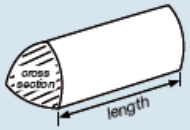
Circle
Polygon
Interior angles
Exterior angles
Acute angle
Right angle
Obtuse angle
Reflex angle
Vertically opposite angles
Corresponding angles
Alternate angles
Co-interior angles
Pythagoras
Trigonometry
Parallel
Perpendicular

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

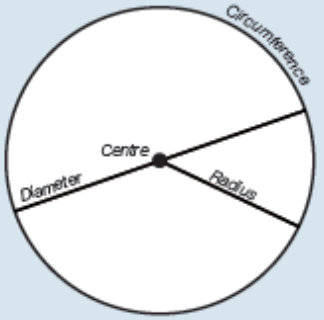
$$\text{density} = \frac{\text{mass}}{\text{volume}}$$

Circles

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

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

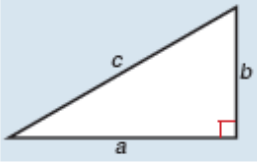
Area of a circle = $\pi \times$ radius squared $A = \pi r^2$



Pythagoras

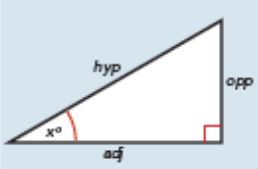
Pythagoras' Theorem

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

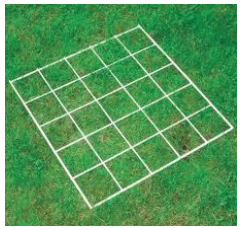
1. How Science Works Keywords

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 to measure to the nearest cm.

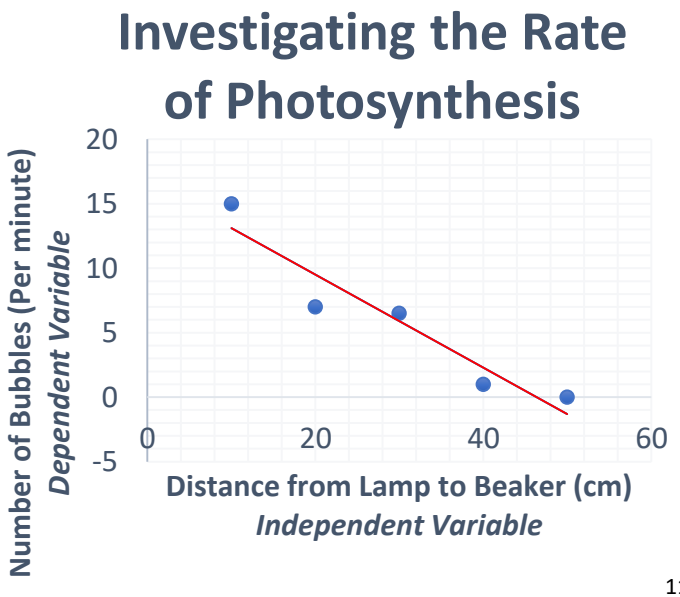
Measuring tape – used in sampling alongside the quadrat. Placed onto the ground to make a transect line to measure against.

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 – Web Design / HTML

Start Tag	End Tag	HTML Example	Resulting Text
		Defines bold text.	Defines **bold** text.
		Defines italicized text.	Defines *italicized* text.
<u>	</u>	Defines <u>underlined</u> text.	Defines underlined text.
_		Defines subscripted text (i.e. O₂)	Defines subscripted text (i.e. O_2)
[	]	Defines superscripted text (i.e. E=mc²)	Defines superscripted text (i.e. $E = mc^2$)
 		Defines a New line	Defines a New line
		Change the font color Note: The # provided is the RGB number for the desired font color.	Change the font color
  	 	Bullet point list - Item1 - Item2 - Item3 Note: The tags indicate a bullet point list, and each list item is identified by the - tags.	Bullet point list: • Item1 • Item2 • Item3

Homework Checklist

1	Homework	Collect the pictures you need for your website and store them in your One Drive
2	Homework – Idea Badges	Junior Web Designer, Making Websites, Graphic Design
3	Keywords from KO	You could also use Quizlet.com to practice
4	Extension work	https://www.ictlounge.com/html/year_8/webdesign_main.htm

Performance (Drama and Dance)

Drama Skills, Techniques and Keywords

1	**Improvisation:** Acting and drama that is not pre-planned but is made up on the spot.
2	**Stage Combat:** Carefully planned stage fighting and movement that shows conflict. It is very carefully done to ensure the actors are safe (but looks real)!
3	**Transitions:** Movements or actions linking and joining up different scenes together.
4	**Prologue:** Some plays have a bit of text/script at the start that is a bit like a blurb of a book. It aims to set the scene and hook/engage the audience in.
5	**Epilogue:** Some plays have a bit of script at the end of the play that summarises the plot or events.

Drama Skills and Techniques

1	**Levels:** Having performers at different levels on the stage, e.g. standing, sitting or on the floor to show power dynamics between characters, e.g. high status characters on a high level and less powerful low status characters on a lower level.
2	**Proxemics/spatial relationships:** How close or how far away characters are from each other on stage to show their relationship.

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 the 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!!!!

Time Expressions / Connectives

Ce matin,	This morning,
Hier,	Yesterday,
Quand j'étais petit(e),	When I was younger,
Le matin,	In the morning
Pendant les vacances,	During the holidays,
À neuf heures	At 9 o'clock
Après l'école,	After school,
À l'avenir,	In the future
ensuite	Then,
Après ça,	After that,
D'abord	First,

Opinions

Bon pour la santé	Good for your health
Une bonne idée	A good idea
malsain	unhealthy
J'ai horreur de…	I can't stand
Je te donne un conseil,	I'll give you some advice,
Je suis d'accord (avec)	I agree (with)
Je ne suis pas d'accord	I don't agree
J'ai faim	I'm hungry
J'ai soif	I'm thirsty
J'y suis accro	I'm addicted to that/ them
J'y suis allergique	I'm allergic to that/them

Verb Phrase (past tense)

Je me suis lèvé(e)…	I got up…
Je me suis réveillé(e)…	I woke up…
je me suis habillé(e)….	I got dressed…
Je faisais…	I used to do…
Je jouais…	I used to play…
C'était…	It was…

Verb Phrase (present tense)

Je bois…	I drink…
Je ne mange pas…	I don't eat…
Je joue…	I play…
Je ne fais jamais…	I never do…
Il faut…	You must…
On doit…	You should…
On peut…	You can…
C'est…	It's…

Verb Phrase (future tense)

Je vais (faire)…	I'm going to (do)…
On va …	We are going to…
On ne va pas…	We are not going to…
Je vais boire…	I'm going to drink…
Il sera….	It will be…

Nouns (food and drink)

De la viande	(some/any) meat
De la glace	(some/any) ice cream
Du poulet	(some/any) chicken
Du poisson	(some/any) fish
Du fromage	(some/any) cheese
Du lait	(some/any) milk
Du coca	(some/any) cola
Des gâteaux	(some/any) cakes

Verb Phrase (with an infinitive)

Manger sain	Eat healthily
Boire (plus) de l'eau	Drink (more) water
Être sportif / ve	Be sporty
(Faire) de l'exercice	(Do) some exercise
Manger (moins) de la nourriture grasse	Eat (less) fatty food
Manger beaucoup du sucre	Eat lots of sugar
Manger cinq fruits ou légumes par jour	Eat your five a day.
Manger un petit déjeuner équilibré	Eat a nutritious breakfast
Rester en forme	Stay fit and healthy

Nouns (sports)

De la musculation	weightlifting
De la natation	swimming
De la danse classique	ballet
De la planche à voile	windsurfing
De la voile	sailing
De la pêche	fishing
Au tennis de table	table tennis

CORE QUESTIONS

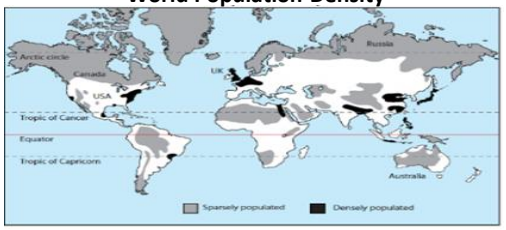
1) Qu'est-ce que tu as fais hier?	What did you do yesterday?
2) Qu'est-ce qu'on peut faire pour avoir une vie saine ?	What can you do to stay healthy?
3) Es-tu en forme?	Are you healthy?
4) Qu'est-ce que tu vas faire pour rester en forme?	What are you going to do to stay healthy?

Geography – Population

Population Distribution:

Population density – The number of people per km sq.
Sparsely Populated – A small population, few people, per km sq. (Canada)
Densely populated – A high population, lots of people, per km sq. (Western Europe)
The world's population is **not evenly distributed**.
Population density is influenced by both human and physical factors.

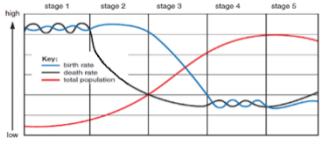
World Population Density



Densely populated (positive factors)
- Fertile soil
- Flat land
- Good transport links
- Jobs available

Sparsely populated (negative factors)
- Too hot or cold
- Steep slopes
- Poor transport links
- Little investment

Demographic Transition Model (DTM)

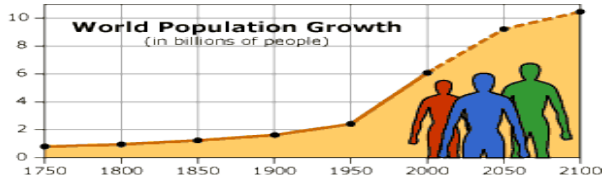


Stage	Birth rate	Death rate	Explanation	Example
1	High	High	Country is very poor, small populations	Rainforest tribes
2	High	Falls	Medicines, hygiene improves Rapid population growth	Uganda

World Impact of Migration on the HOST Country (where the migrants GO)

PULL FACTORS People move to the **USA** from Mexico because:
population has exploded since **1950** and will peak by **2100**.
Mostly in **developing countries**.
Birth rates are greater than **death rates** causing a **natural increase** in population.
Birth rates – number of births per 1000.
Death rates – number of deaths per 1000.
Infant mortality – the number of babies that die before their first birthday per 1000.
The **population explosion** is causing **overpopulation** in certain countries (**too many people** in a **country** for the resources there)
It can have serious consequences:
- **lack of food** so starvation
- **lack of clean water** so diseases like cholera from dirty water
- **pressure on housing** leading to more shanty settlements etc.

Developing countries have HIGH birth rates	Developing countries have LOW birth rates
- Children needed for farming	- Women have careers and marry later
- No sex education or contraception	- Sex education, contraception available
- Girls get married young	- Women have careers so children later
- High infant mortality rate	- Low infant mortality
- Large families have a higher status	- Babies are expensive



Migration – is the movement of people, to live, from one place to another.
International migration – is when people move from **one country** (the **source**) to **another country** (the **host**).
People migrate due to **push** and **pull factors**:
Push factor: something **NEGATIVE** in your country that makes you leave:
- **lack of medical care** meaning illnesses go untreated.
- **no clean running water** leading to diseases.
- **low wages** so people have little money for food and medicines.
- **poor schools** leading to poor education and little chance of a job.

Pull factor: something POSITIVE that **attracts people** to another country:
- **excellent medical services**, so people know illnesses and diseases can be treated, improving life expectancy.

Impact of migration on the HOST country (where the migrants GO)

PULL FACTORS People move to the **USA** from Mexico because:
- Jobs available and higher wages (6 times as much)
- Better health care and better schools (literacy rate is 99%)

Positive impacts:
- Workers are hardworking = **more profit** for businesses who employ them.
- **Workers pay tax** this improves schools and hospitals.
- **New cultures.** There are now Mexican restaurants.

Negatives:
- There CAN be conflict between migrants and locals as some Mexicans can't speak English well.
- Can lead to overcrowding and pressure on services like schools etc.

Impact of migration on the SOURCE country (where migrants come from)

PUSH FACTORS People move FROM **Mexico** to the USA because of:
- Poor wages and high unemployment 6%
- High crime rate (Murder rate 14 per 100,000)
- Poor health care and schools (literacy rate 86%)

Positive impacts:
- Money sent back home, improving quality of life for locals. $16 billion/yr.
- **More jobs available now people have left**
- **Migrants return with new skills**

Negative impacts:
- Gender imbalance as men migrate leaving many women behind.
- Working age people migrate **reducing the available workforce.**
- **'Brain drain'** as skilled workers leave the country.

The UK's Ageing Population

This means there are **more elderly dependents** than ever before.
Why?
- **Better health care** (illnesses treated with some success).
- **Better diet** (fewer heart attacks/diseases).
- **Fitness** (elderly are looking after themselves better, e.g. gym).

Consequences

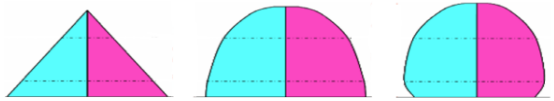
Negatives:
- **Two-thirds of hospital beds** are currently taken by those >65, this increases **waiting times** and puts pressure on the NHS.
- **State pension**, which uses **tax payer's money** to support, again leaving less for schools and hospitals.
- **Housing pressure,** as houses are not passed on to the next generation, meaning **house prices increase.**

Positives:
- **Many elderly people have disposable cash** as they have paid off their mortgage. Spend more in shops/restaurants creating jobs.
- **Industries such as seaside resorts** stay **busy** for more of the year, keeping people employed meaning more local tax revenue.
- **The elderly often look after grandchildren**, so parents do not have to pay **expensive childcare costs,** so parents have more disposable cash.

Population structure means the number of people in **each age range** and broken into **gender**. Shown on population pyramids.
There are 3 groups on a population pyramid:
- **Economically Active** – 16–65 age group, working age and can provide taxes
- **Young Dependents –** 0–15 age group, do not work and do not pay taxes
- **Elderly dependents** – 65+, retired, so do not work and do not pay taxes.

Features of population pyramids:

Developing countries | Developed countries



Wide base = high birth rate
Narrow top, short = low life expectancy
Pyramid
Stage 2 of DTM

Narrow base = low birth
Wider top, taller = longer life
Stage 4 of DTM

Life expectancy – The **average age** you are expected to live to in a **particular country.**

LEARN VOCAB — German — BUILD SENTENCES

Time Expressions / Connectives

heute Morgen	This morning,
Gestern	Yesterday,
Als ich junger war,	When I was younger,
Vormittags	In the morning
Während der Ferien	During the holidays,
um 9 Uhr	At 9 o'clock
Dientags	On Tuesdays,
nach der Schule	After school,
in der Zukunft	In the future
dann	Then,
danach	After that,
zuerst	First,

Opinions

gut für die Gesundheit	Good for your health
eine gute Idee	A good idea
ungesund	unhealthy
Ich kann… nicht leiden	I can't stand
das Stimmt!	that's correct
genau!	exactly! (I agree)
Spinnst du?	are you mad?
Ich habe Hunger	I'm hungry
Ich habe Durst	I'm thirsty
Ich bin süchtig nach	I'm addicted to ….
Ich bin allergisch gegen	I'm allergic to …

Verb Phrase (past tense)

Ich bin… aufgestanden	I got up…
Ich bin… aufgewacht	I woke up…
Ich habe mich angezogen	I got dressed…
Ich habe …gemacht	I did
Ich habe… gespielt	I played

Verb Phrase (present tense)

Ich trinke	I drink…
Ich esse	I eat
Ich spiele	I play…
Ich mache	I do
Man muss….. + infin	You must…
Man soll ….. + infin	You should…
Man kann …. + infin	You can…
Es ist….	It's…

Verb Phrase (future tense)

Ich werde….. + infin	I'm going to…..
er/sie wird…….+infin	he/she is going to…
wir/sie werden + infin	we/they are going to
Was wirst du machen	What will you do?

Nouns (food and drink)

Fleisch	meat
Eis	ice cream
Hähnchen	chicken
Fisch	fish
Käse	cheese
Milch	milk
Cola	cola
Kuchen	cake

Verb Phrase (with an infinitive)

gesund essen	eat healthily
mehr Wasser trinken	drink (more) water
sportlich sein	be sporty
trainieren	train / work out
Sport treiben	do sport
viel Zucker essen	eat lots of sugar
Gemüse und Obst essen	eat veg and fruit
ein gesundes Frühstück essen	eat a nutritious breakfast
fit bleiben	stay fit and healthy

Nouns (sports)

Klettern	climbing
Schwimmen	swimming
Tanzen	dancing
Windsurfen	windsurfing
Segeln	sailing
Angeln	fishing
Tischtennis	table tennis

Core Questions

1) was hast du gestern gemacht?	What did you do yesterday?
2) Was machst du, um gesund zu bleiben?	What can you do to stay healthy?
3) bist du fit / bist du gesund?	Are you healthy?
4) Was wirst du machen, um gesund zu bleiben?	What are you going to do to stay healthy?

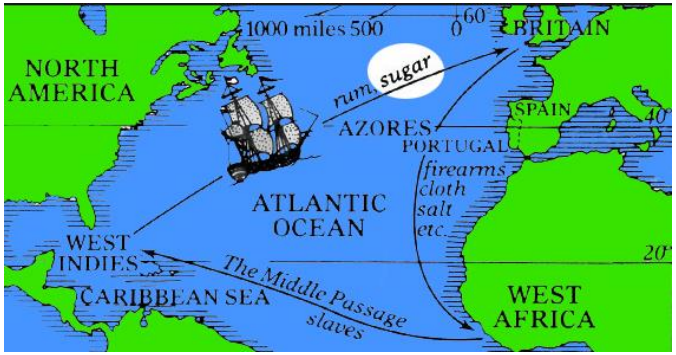
History – Transatlantic Slavery

Keywords	
Slave Trade Triangle	A three part trading journey. 1. European ships took cloth, guns, iron pots, swords to Africa and exchanged them for African slaves. 2. Ships loaded with slaves crossed the Atlantic to America were they were sold. 3. Ships loaded with sugar, cotton, tobacco returned to Europe.
Dysentery	A nasty form of diarrhea killed many Africans on the journey.
Middle passage	The journey of slaves on ships from Africa to America. Took 8–12 weeks. One in four died on the way.
Transatlantic	Going across the Atlantic ocean.
Abolitionist	Someone who campaigned to end the slave trade
Plantation	A large estate on which crops such as coffee, sugar and tobacco were grown.
Shackles	Iron chains used to fasten the legs or hands of a slave or prisoner.
Branding	To mark a person or animal with a hot iron to show ownership.
Cargo	Goods carried for trade.
Slave	A person who is the property of another and is forced to obey them.

Useful links

https://www.bbc.com/bitesize/guides/zy7fr82/revision/2

http://www.liverpoolmuseums.org.uk/ism/slavery/triangle.aspx



Why was slavery abolished?	
The work of individuals.	Granville Sharp used the law courts to try and give slaves their freedom. William Wilberforce campaigned against the slave trade. The first time he introduced the idea he lost the debate by 163 votes to 88 but he never gave up. Thomas Clarkson collected evidence against slavery. He spread his message all over the country by publishing posters, pamphlets and making public speeches. Hannah More was a member of the Abolition Society. She wrote poems and books about the horrors of the slave trade, and convinced many of the need to ban it.
Economics	Sugar plantations were closing as cheap sugar could be bought from Brazil and Cuba. People argued that slaves would work harder if they were freed and paid.
Religion	Christian groups, such as the Quakers, thought that slavery was a sin against God and religion.
Organisations	The Society for the Abolition of the Slave Trade was set up in 1787.

Maths

hegartymaths
http://www.hegartymaths.com

Cycle 3

Averages and Range

Median	The middle value when the values are in numerical order If there are an even number of pieces of data, then the median will be the **midpoint** of the two middle pieces of data.	1, 2, 2, 3, 3, 3, 5, 7, 9 The median is 3 2, 3, 5, 7, 9,10 Midpoint of 5 and 7 = 6
Mode	The most frequent piece of unique data. You can have more than one mode.	1, 2, 2, 3, 3, 3, 5, 7, 9 The mode is 3
Mean	Sum of data ÷ total pieces of data:	(5 + 3 + 9 + 1 + 3 + 2 + 7 + 2 + 3) ÷ 9 = 3.9 (to 1dp)
Range	(Not actually an average!) The difference between the biggest and smallest piece of data	9 – 1 = 8

Area

Circle	$Area = \pi r^2$
Semi circle	Half of a circle. So, $Area = \frac{\pi r^2}{2}$
Trapezium	Where a and b are parallel sides and h is perpendicular height $Area = \frac{1}{2}(a+b)h$
Compound shapes	Split the shape up, calculate each area and add them together for the total area

Diameter = 2 × radius

Two-Way Tables and Venn Diagrams

Two way tables are used to compare 2 types of information for 1 population. This two way table shows us what subjects a group of pupils prefer, as well as their gender:

Complete missing gaps by using the total cells.

	English	Maths	Sci	Total
Girls	20	13		50
Boys	18		13	46
Total	38		30	96

Tip: look for rows / columns with only one missing value first e.g. Girls Sci = 50 – 20 – 13 = 17

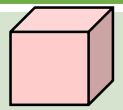
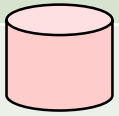
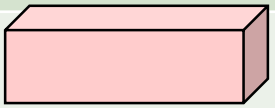
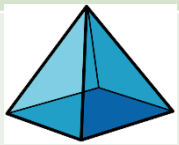
Key Vocabulary

Area	The size of a surface
Pi (π)	A mathematical constant. The ratio of a circle's circumference to its diameter. It is often rounded to 3.14
Radius	A straight line from the centre of a circle to its circumference
Diameter	A straight line from one point on the circumference to a different point on the circumference that passes through the centre of the circle
Qualitative Data	Descriptive information
Quantitative Data	Numerical information (numbers!)
Discrete Data	Can only take certain values
Continuous Data	Can take any value within a certain range
Average	A single number representative of a set of values – often used to refer to the mean.

Hey diddle diddle,
The median's the middle,
You add and divide for the mean.
The mode is the one, that you see the most,
And the range is the difference between.
YEAH!

Maths

3D Visualisation

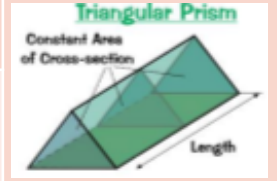
Cube		- 6 faces - 12 edges - 8 vertices
Cylinder		- 3 faces - 2 edges - 0 vertices
Triangular-based pyramid		- 4 faces - 6 edges - 4 vertices
Cuboid		- 6 faces - 12 edges - 8 vertices
Cone		- 2 faces - 1 edge - 1 vertex
Square-based pyramid		- 5 faces - 8 edges - 5 vertices
Sphere		- 1 face - 0 edges - 0 vertices

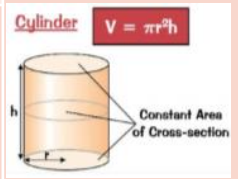
Key Vocabulary

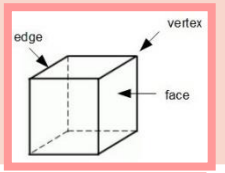
Volume	Also called capacity. The amount of three-dimensional space something takes up.
Face	A flat surface of a 3D shape (can be curved)
Edge	A line segment where 2 faces meet
Vertex	A point where 2 or more edges meet
Vertices	Plural of vertex
Prism	A solid (3D) object that is the same shape (has the same cross-section) all the way through.

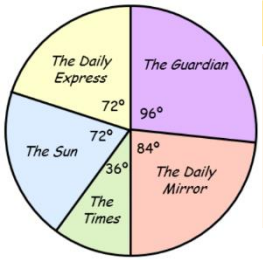
Volume

Cuboid	$Volume = base \times width \times height$
Cube	$Volume = base \times width \times height$ In a cube all edges are of equal length so you can cube your side length.
Any prism	$Volume = area\ of\ cross-section \times length$ e.g. a triangular prism has a cross-section of a triangle. So, the volume of a triangular prism is: $Volume = area\ of\ triangle \times length$
Cylinder	$Volume = \pi r^2 h$ The cross-section of a cylinder is a circle, so the volume is the area of a circle multiplied by the length of the cylinder.









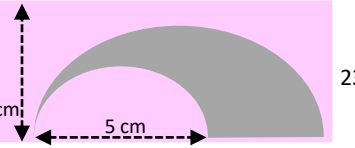
Pie Charts

To draw a pie chart, we need to know the angle we have to draw for each category. We need to divide the total frequency by **360º** (the number of degrees in a circle; for example, for 30 people, 360 ÷ 30 = **12º**. To work out each category's associated angle we then multiple 12 by each frequency.

Stretch and Challenge

The area of a circle is 3 times the area of a square with an area 144 cm².
Calculate the diameter of the circle.

Calculate the shaded area:



Music

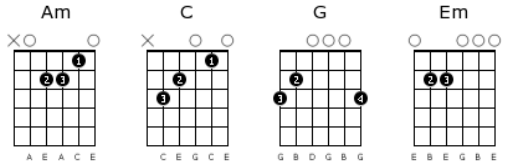
Keywords

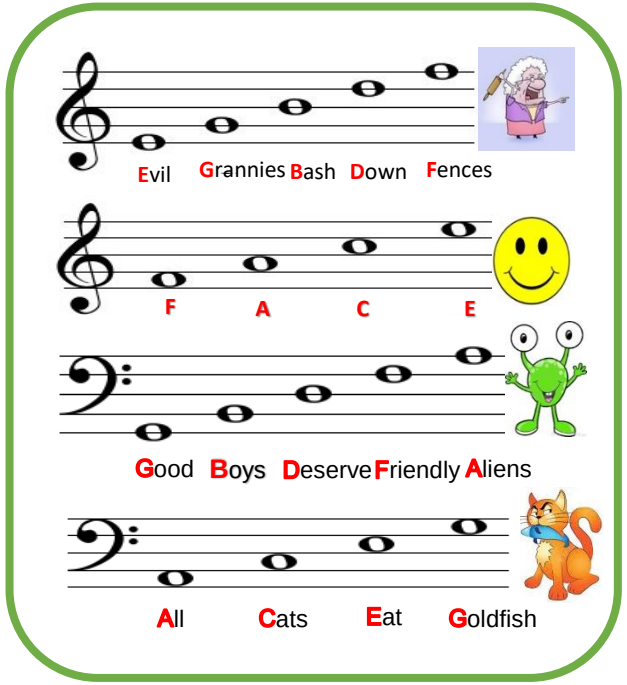
Dynamics	Symbol	Definition
Fortissimo	*ff*	Very Loud
Forte	*f*	Loud
Mezzoforte	*mf*	Moderately loud
Mezzopiano	*mp*	Moderately quiet
Piano	*p*	Quiet
Pianissimo	*pp*	Very quiet
Crescendo	<	Becoming gradually louder
Decrescendo	>	Becoming gradually quieter

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

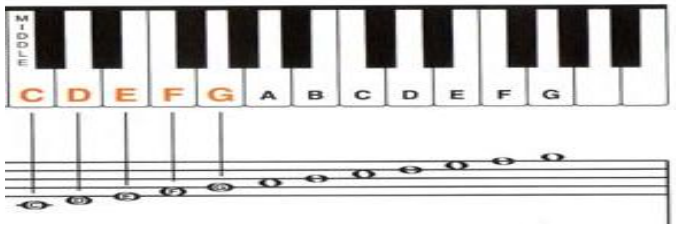
Stretch and Challenge

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

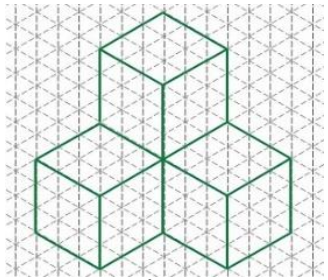
Leadership within PE lessons:

- 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)?

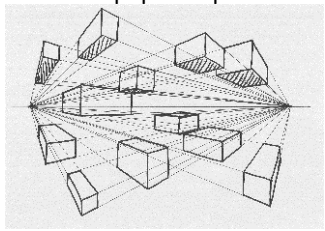
Product Design – Materials, Drawing and Evaluation

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

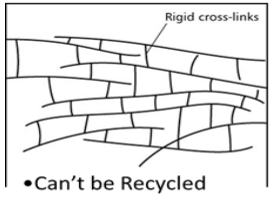


Isometric drawing: Used for practising drawing in 3D for design ideas. Ask for isometric paper to practise on!



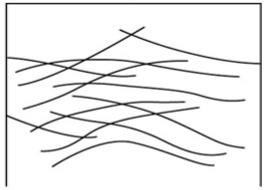
Perspective drawing: Often used architecture. All lines that are not vertical go back to vanishing points.

Thermosets



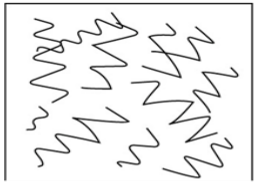
- Can't be Recycled
- Resist heat
- Rigid Cross links

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 .

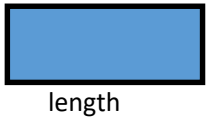
Vernier Measuring with accuracy. Accurate to 0.01 of a mm. Do not forget to zero it first! You will use this to check the sizes of drills and your work

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.

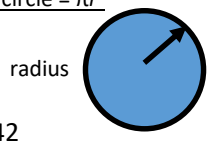
Year 8 Product Design Knowledge Organiser – Maths

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

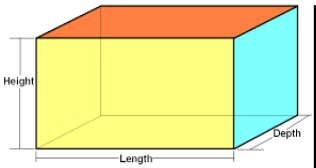
Area of a circle = πr^2



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?

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

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 – Islamophobia

Keyword	Definition
Tolerance	Accepting all people regardless of any difference.
Islamophobia	Stereotyping, prejudice and discrimination against Muslims.
Freedom of expression	Having the right to speak freely.
Extremism	Holding extreme views and acting on these.
ISIS	Islamic state of Iraq and Syria, the name of an extremist group based in the middle East.
Hate speech	Speech that threatens, offends or insults groups based on race, sexual orientation or other traits.
Free speech	The right to express opinions without censorship or restraint.
Islam	A peaceful religion, which Muslims follow and believe in one God.
Hijab	General term for modest dress code. It also refers to a scarf that covers the hair.
Niqab	Veil that covers the face, showing only the eyes.
Burka	Full face and body covering.
Terrorism	The unlawful use of violence and intimidation, especially against civilians, in the pursuit of political aims.
Discrimination	the unjust or prejudicial treatment of different categories of people, especially on the grounds of race, age or sex.
'Sunset segregation'	It is where people are tolerant in the work place but fail to be accepting and tolerant in society.

Problems related to Islamophobia	Explanation
What are the causes of Islamophobia?	Lack of education Lack of understanding or empathy Stereotypes, especially in the media
How can Islamophobia be tackled?	Education in schools, media showing true portrayals of Muslims, interfaith dialogue, talk to actual Muslims, fight together against extremism.
What are the causes of extremism?	Social research has found that extremism tends to thrive in communities that feel marginalised or socially excluded. A high concentration of people from the same socio-economic background, race and religion means views that are considered extreme are less likely to be diluted, addressed and as a result removed.
Why do people think that terrorists are only from Islam?	Some extremists have caused people to be fearful of others. In more recent times, these extremist groups have referred to themselves as Islamic and as a consequence, the media has stereotyped these individuals to be examples of Islam, rather than identifying that these individuals were just bad people.
The four pillars of David Cameron's counter Islamophobia strategy	1. Confronting the ideology Helping individuals understand that it is unfair to generalise negative stereotypes about Muslims. 2. Tackling violent and non-violent hate crime Condemn violent hate crime towards the Muslim community. 3. Encourage the Muslim community Allow the Muslim community to have a platform that shares their views and opinions. 4. Encourage community cohesion Encourage communities to come together and celebrate diversity and culture.

CHALLENGE

Go to the links below and extend your knowledge on Islamophobia

- https://www.youtube.com/watch?v=y4R0oxQGZMI

Religious Education – Ultimate Questions

Keyword	Definition
Moral questions	A question where you need to decide what is the right or wrong thing to do.
Ultimate questions	A question where there is no definite answer. Some people may believe it to be true and others might believe it is not.
Theist	A person who believes in God.
Agnostic	A person who believe that it is not possible to know whether God exists or not.
Atheist	A person who does not believe in the existence of God is possible.
Miracle	A miracle is something that seems to break a law of science and makes you think that only God or something supernatural could have done it.
Religious experience	A religious experience (sometimes known as a spiritual experience, sacred experience, or mystical experience) is a subjective experience that is interpreted within a religious framework.
Afterlife	Life after death.

Examples of ultimate questions
Does God exist?
What is the meaning of my life?
What happens when I die?
Do aliens exist?

CHALLENGE

Go to the links below and extend your knowledge on ultimate questions:

- https://philosophy.hku.hk/think/phil/101q.php
- https://www.theguardian.com/childrens-books-site/2016/feb/14/philosophical-questions-children-should-ask-bernadette-russell

Arguments proving God's existence	**Explanation**
Miracles	Miracles are defined to be an extraordinary events that do not fulfil scientific laws and is, therefore, connected to a divine. Religious people often associate miracles with the divine or God, as it is believed that only God is able to do the impossible, or it is a sign to try to persuade a person to believe in God. However, miracles often rely on the evidence of eye witnesses and personal experience, which could be questioned. For example, if a paralysed person 'feels' like God spoke to them whilst making them walk, it could be argued the healing and God are not connected, or are connected but only in the person's opinion. It could be argued that science might not be able to explain the miracle yet, but through research and analysis an explanation could be found. Religious people often say that God is all-loving (omnibenevolent), all powerful (omnipotent) and always there (omnipresent) but if this is true then why does he only choose to help some people? Is God picking and choosing who He helps? Why are there no miracles for people in developing countries or those hit with natural disasters? Or actually God does not exist, so he does not perform miracles, and miracles are just currently unexplained events that one day science will be able to explain.
Religious experiences	There are four main types of religious experiences: 1. Numinous: The feeling of the presence of something greater than yourself, often awe and wonder. 2. Conversion: The process of a person changing their beliefs. 3. Miracles: Extraordinary events that do not fulfil scientific laws. 4. Prayer: Communication with God.
Near death experiences	A near-death experience (NDE) is a personal psychological event that may occur to a person close to death. For example, seeing heaven, hell, or Jesus. It is usually an experience taking place on the brink of death and recounted by a person on recovery, typically an out-of-body experience or a vision of a tunnel of light.

Arguments disproving miracles proving God's existence
Miracles rely on the evidence of eye witnesses and person experience. This can be subjective and unreliable.
If God is all-loving (omnibenevolent), then why does he only choose to help some people?
The miracle does not directly link to God: might be impossible to explain but who said God caused the miracle!
Miracles are a contradiction of their definition. If miracles are breaking scientific laws and unable to happen, then are they actually miracles?
Maybe science might not be able to explain the miracle yet!

There is no new content taught in cycle 3 so the information needed can be found in your cycle 1 and 2 Knowledge Organisers.

The best ways to revise using your Knowledge Organisers are:

- Look / cover / write / check on all keywords.
- Cover the labels to a diagram and write out those the labels.
- Make flash cards with a question on one side and an answer on the other.
- Make a quiz and swap with your friend.

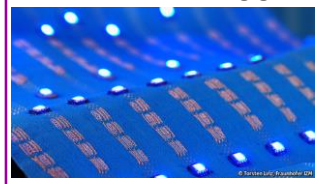
Textiles

Keywords

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

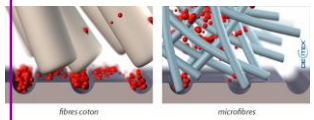
Health and safety rules:
- Long hair must be tied back.
- **NO** food or drink in the workshop.
- **One** person using a machine.

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.

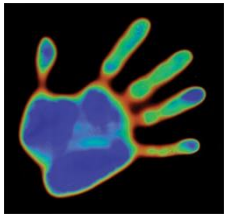


Microfibres are 60 to 100 times finer than a human hair. They are used for clothing for outdoor and active sportswear.

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.

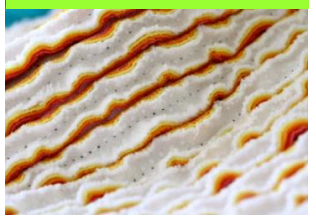
Tie Dye

Reverse applique

Applique

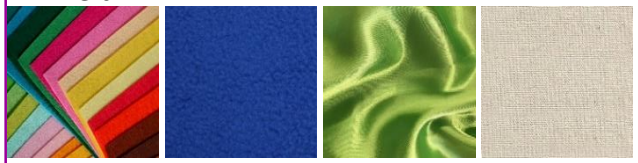
Quilting

Stencilling

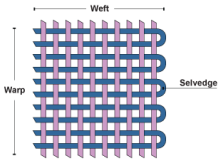


Layering and fraying

Felt Fleece Satin Cotton



Fabric Production Methods



Woven

Non-Woven

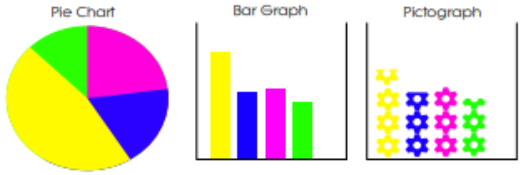
Knitted

Textiles and Maths

NUMERACY IN JAMBLED&T

KNOWLEDGE

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

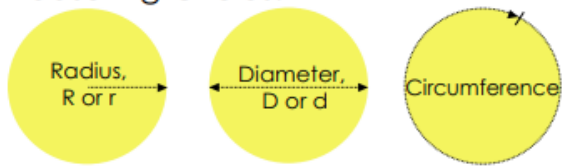


In D&T we are usually designing for others. It is vital to find out what our target market wants out of the product. Analyse these answers & show we have considered them in our designs. Use annotations to link designs to your customer.

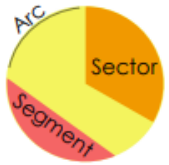
NUMERACY IN JAMBLED&T

DESIGN

Measuring Circles:



Parts of a circle:



Area of a circle:

$$\pi r^2$$

Key facts…

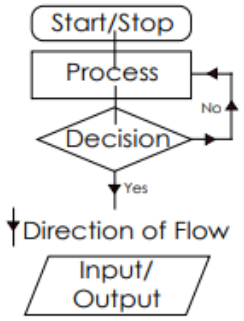
- Diameter, Ø = 2r
- Circumference, C = 2πr
- Pi or π is the ratio of a circle's circumference to its diameter
- $\frac{\text{Circumference}}{\text{Diameter}} = \pi = 3.14159$
- *Food for thought…* **3.14=ΨΙ.Ε**

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