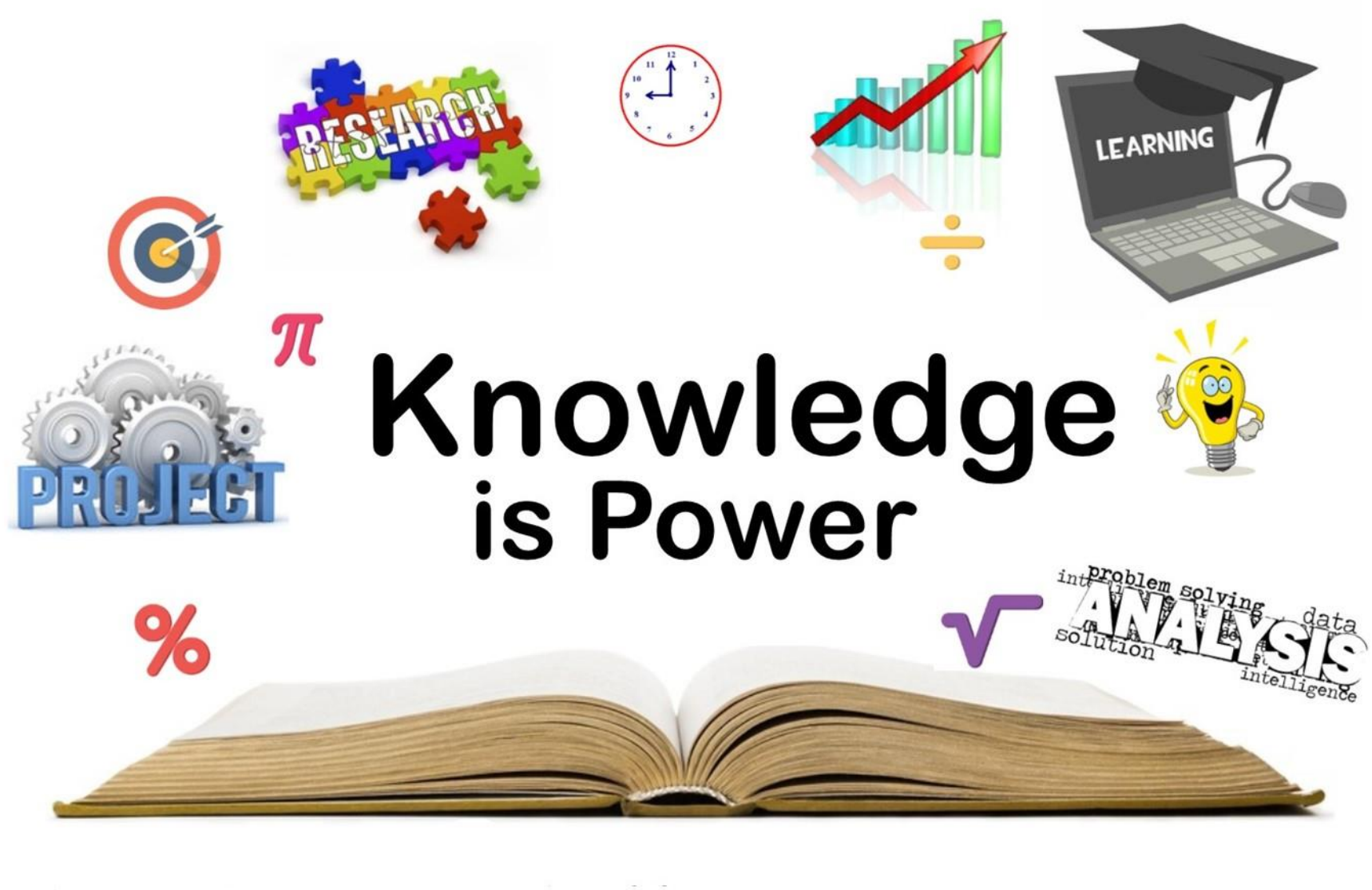
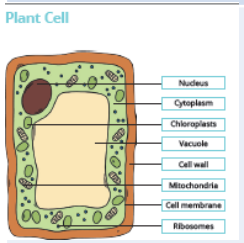
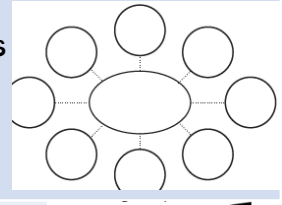
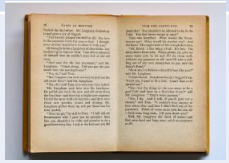


Year 8 Knowledge Organiser - Spring 1

Just reading through your books or a knowledge organiser is not always an effective way to revise. Instead, you should do something with the information. Choose an example of the revision methods on the pages or see if you can come up with another method.

The knowledge is evolutionary not revolutionary. Approximately half the knowledge is new and half helps you revise. Many of the activities are changing. We hope you enjoy them.

Y8 – in SKL we will be encouraging you to begin to look longer term as 'what makes a successful life?' – both educationally and as a person. You will also look at different kinds of relationships and why some people are intolerant of others, exploring your own views of various topics such as homophobia.

Idea	Explanation
Make some flash cards or PowerPoint slides. Make top trumps. 	Write down key words, quotation, questions or equations on one side of a card. On the other side, write the definition or answer. Use them to test yourself.
 Make a poster.	Turn your notes into posters with lots of colour and illustrations. Summarising the key information in a different way is an effective way of learning and your brain will remember the colours more easily. Do the title last!
Draw spider diagrams, or for the adventurous mind maps. 	Write the topic/keyword in the centre of your page. Add everything you know in subtopics. Then explore each subtopic in turn adding more ideas. Colour/pictures help you recall.
Write a song or a rap. 	Are there songs that stick your head. Change the lyrics to the information you want to learn. If you record and listen back it will be a more fun way of revising.
 Plan a lesson	If you teach something to someone else the chance of recalling it is really high. This has been found to be the most effective way of learning something for the long term.
Write a story or comic strip. 	Take the keywords or facts that you need to learn and turn them into a story or a cartoon. The sillier the story the more likely you are to remember it.
Write a quiz. Design a game. 	Playing is how we learn as young children and it is a very powerful way of learning throughout life. If we enjoy the game it helps us remember.

Year 8 Spring Term Knowledge Organiser

C	C	C	C
F	F	C	C
G	F	C	C

Can you work out the letters of the chords if we started on D, G or A? Use the numbers we've covered in class and a keyboard diagram to help you!

Blues Music 1880 - 1920

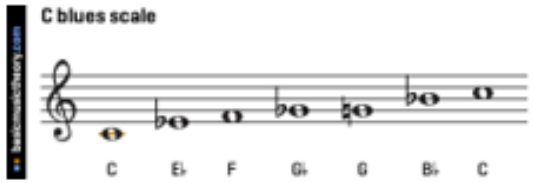
- ✓ Usually in a 4/4 time signature
- ✓ Played at a slow tempo
- ✓ Swung rhythms – this means quavers are uneven and almost have a triplet-like sound
- ✓ Structure is usually set out as an AAB format
- ✓ Lyrics are sad and full of raw emotion
- ✓ Uses the 12-bar blues chord structure

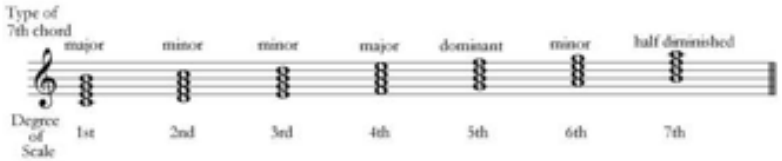
Types of Jazz

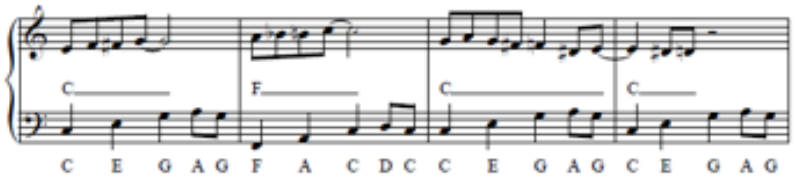
Bebop
Smooth
Cool
Swing
Big Band
Latin
Electric
Free
Gypsy
Rock

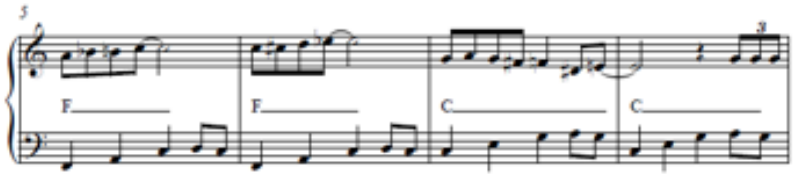
Jazz Music 1920 - 1940

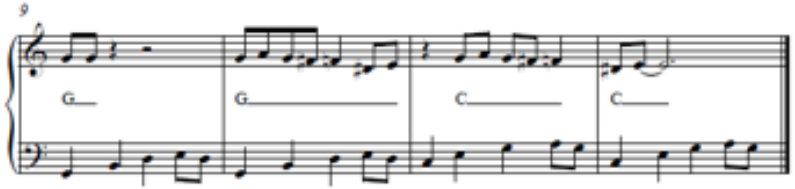
- ✓ Improvisation – making a tune up on the spot
- ✓ Syncopation – playing or stressing the off-beat
- ✓ Irregular time signatures
- ✓ Blues notes from the blues scale & seventh chords
- ✓ Swing rhythms
- ✓ Popular instruments include the drums, saxophone, trumpet, clarinet, double bass, trombones
- ✓ Scat singing – a style of singing that uses a made-up language to emphasise rhythms and imitate instruments







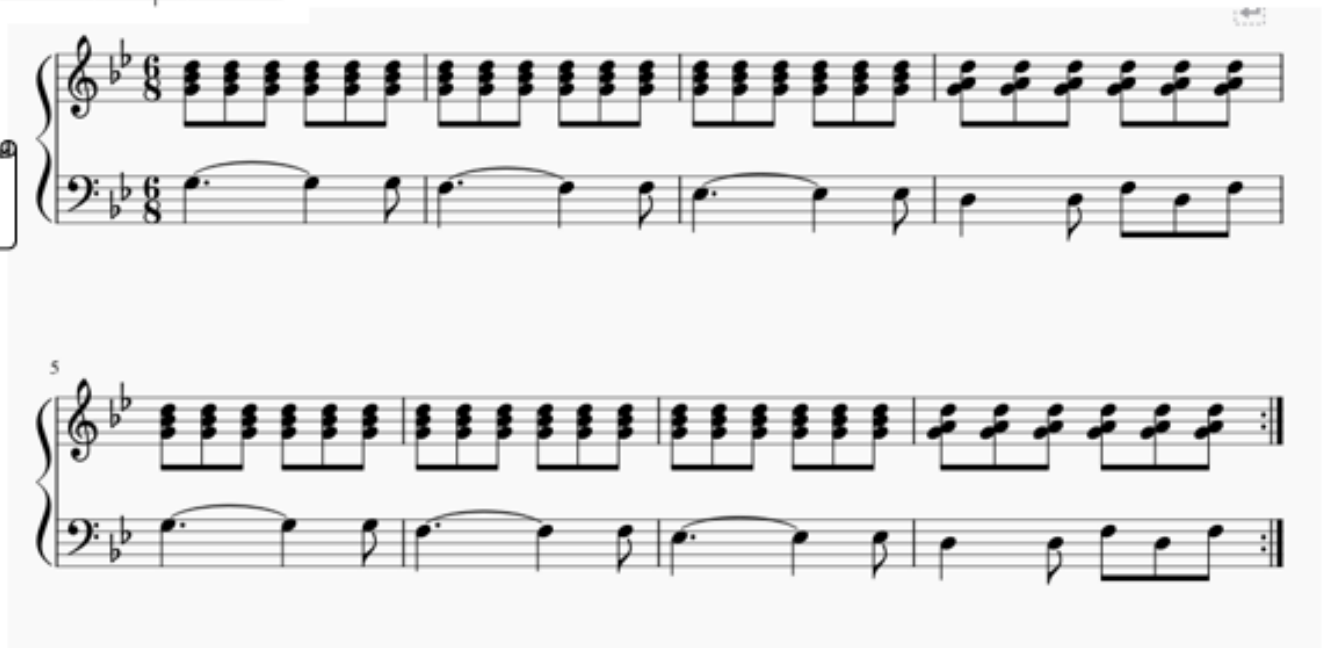




Monk's Blues

These are the songs we will have looked at during the spring term. Have a good at writing in the correct pitches for both the treble AND bass clefs. Then, have a go at playing them at home, either on a keyboard if you have one or on a digital one like this - https://www.onlinepianist.com/virtual-piano

Feelin' Good



Starter activity: What do you already know?

We will be reading an article from the BBC called "Footballers have 'worryingly poor' teeth."

Discuss the following questions.

- What things can you do to look after your teeth?
- Have you had a tooth ache before? What happened/ what did you do?
- What things can you do before performing a physical activity to help prevent injury?

PRE-READING STRATEGIES

Stand up if you agree with the statement.

Sit down if you disagree.

Footballers have 'worryingly poor' teeth

By James Gallagher
Health editor, BBC News website

3 November 2015

Professional footballers have worryingly poor teeth that could be affecting their performance on the pitch, say dentists.

1. On average, footballers have better teeth and dental health than the general population.
2. You only need to go to the dentist when you have a tooth ache. Regular check-ups aren't important.
3. Dental health is an important part of your overall health.
4. A tooth ache can affect how well a footballer plays.
5. Football teams should employ dentists as part of their medical team.
6. Dental problems can make other injuries (i.e. a pulled muscle in your leg) worse.
7. Sports/ health drinks often contain lots of sugar and are bad for your teeth.

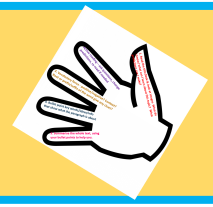
Let's read

- Ask questions, make connections, discuss, re-read, decide on key ideas

Click on the link!

https://www.bbc.co.uk/news/health-34699583

VOCABULARY FOCUS



Some words change their meaning depending on the context in which we use them.

Read the sentences below and look at the blue words in bold. What do they mean in these sentences?

1. “Professional footballers have worryingly poor teeth that could be affecting their **performance** on the pitch.”
2. “Previous research has shown “**striking**” levels of bad teeth in athletes.
3. “These are individuals who otherwise **invest** so much in themselves.”

VOCABULARY FOCUS

PiXL Unlock

Read It

Cavity

Define It

A decayed part of a tooth.

Digging Deeper:

In this context we are talking about teeth cavities, however the word can be used in other contexts to mean any empty space within a solid object. For example a hole in a tree or a rock could be described as a cavity if it is a hollowed out space.

Draw It

Use It

You should go to a dentist to treat a cavity.

Link It

Hole, chamber, hollow, pocket, space, socket

Deconstruct It

From the latin word 'cavus' which means hollow.

Related terms in the article:

Tooth decay– rot of the tooth

Dental erosion (see next slide)

Abscess– a build up of pus caused by infection

Oral health– relating to the mouth

Dental health– relating to the teeth

VOCABULARY FOCUS

PiXL Unlock

Read It

Erosion

Define It

The gradual destruction of something.

Draw It

Use It

Nearly four out of ten of the players had active tooth decay and dental erosion, in which the tooth structure is worn away by acid.

Link It

Wear away, abrasion, dissolving, crumbling, weathering, grinding down

Deconstruct It

From the latin word 'erodere' which means to wear or gnaw away.

Digging Deeper:

Erosion can be used in different topics and subjects. For example in geography you might look at how rocks and cliffs are eroded by water and wind. In English or History you might talk about the erosion on an idea (i.e. an idea that was once widely held, but that has diminished over time.)

VOCABULARY FOCUS

PiXL Unlock

Read It

Nutrition

Define It

The process of providing or obtaining the food necessary for health and growth.

Draw It

Use It

There is a direct link between nutrition and health.

Link It

Nourishment, nutrients, sustenance, food

Deconstruct It

From the latin word 'nuteire' which means to feed or noursih

Digging Deeper:

The human body converts the food consumed into energy in order to function and stay alive. The nutrients in food each provide a different amount of energy to the body.

POST READING: HAVE YOU CHANGED YOUR MIND?

Stand up if you agree with the statement.

Sit down if you disagree.

Footballers have 'worryingly poor' teeth

By James Gallagher
Health editor, BBC News website

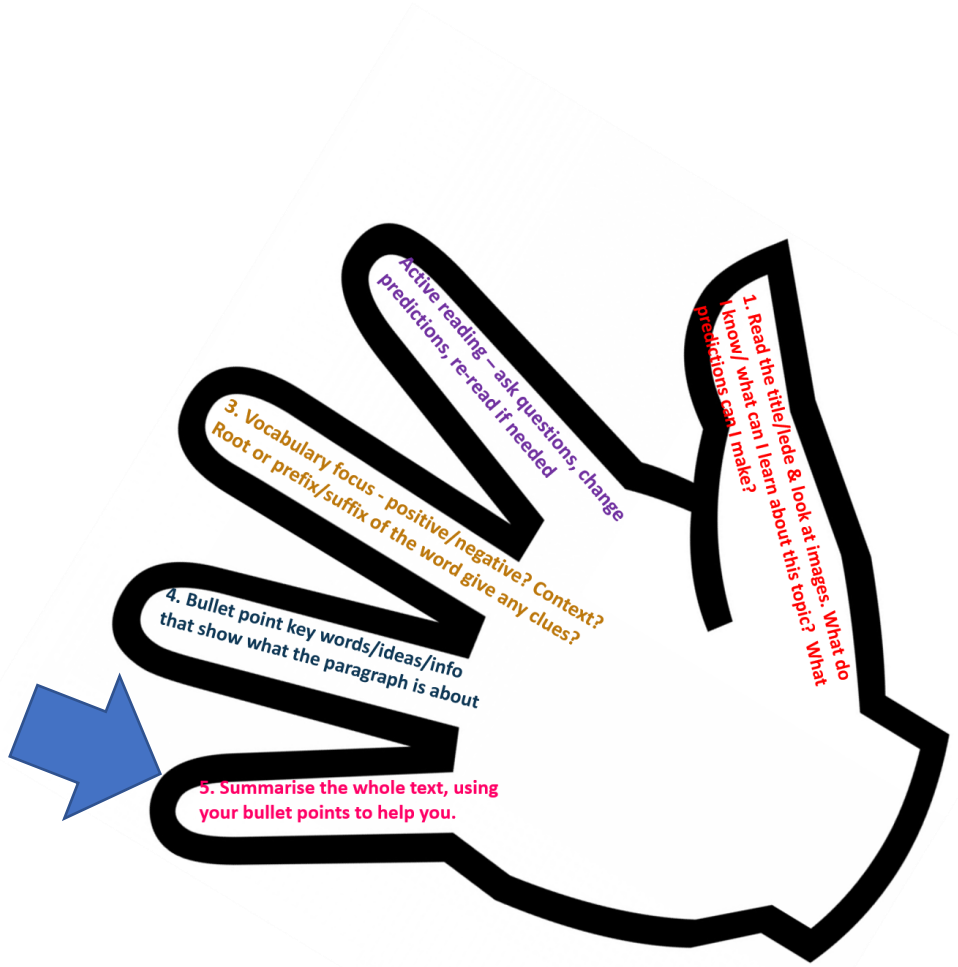
3 November 2015

Professional footballers have worryingly poor teeth that could be affecting their performance on the pitch, say dentists.

1. On average, footballers have better teeth and dental health than the general population.
2. You only need to go to the dentist when you have a tooth ache. Regular check-ups aren't important.
3. Dental health is an important part of your overall health.
4. A tooth ache can affect how well a footballer plays.
5. Football teams should employ dentists as part of their medical team.
6. Dental problems can make other injuries (i.e. a pulled muscle in your leg) worse.
7. Sports/ health drinks often contain lots of sugar and are bad for your teeth.

AFTER READING- APPLYING AND SUMMARISING KNOWLEDGE

- Write down 5 key things you have learnt from this article.



QUIZ- Answer the following questions. Write your answers in full sentences.

1. How do the teeth of footballers compare to the general population?

2. Why were the researchers surprised by what they found?

3. What severe affect can poor dental health have on players?

4. Name two other ways players might be affected by their dental health?

5. Why are footballers and athletes more at risk of poor dental health? Name two factors the article suggests.

6. What are football clubs doing to improve the dental health of players?

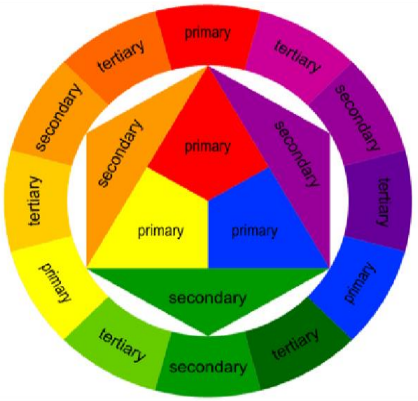
7. How do footballers teeth compare to other athletes?

1

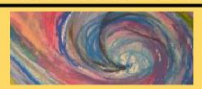
Media	The substance that an artist use to make art
Materials	The same as media but can also refer to the basis of the art work eg, canvas, paper, clay
Techniques	The method used to complete the art work, can be generic such as painting or more focus such as blending
Processes	The method used to create artwork that usually follows a range of steps rather than just one skill

3

Colour Theory	
Primary= RED, YELLOW, BLUE	Complimentary; Colours opposite on the colour wheel
Secondary= Primary+Primary	Harmonious; Colours next to each other on the wheel
Tertiary= Secondary+Primary	Monochromatic; shades, tones & tints of one colour
Shades – add black	Hue – the pigment
Tint – add white	Warm; RED, ORANGE YELLOW. Cold; BLUE, GREEN, PURPLE



2

Pencil		The basic tool for drawing, can be used for linear work or for shading
Biro		Drawings can be completed in biro and shaded using hatching or cross hatching
Pastel (chalk/oil)		Oil and chalk pastels can be used to blend colours smoothly, chalk pastels give a lighter effect
Coloured pencil		Coloured pencil can be layered to blend colours, some are water soluble
Acrylic paint		A thick heavy paint that can be used smoothly or to create texture
Watercolour		A solid or liquid paint that is to be used watered down and layered
Gouache		A pure pigment paint that can be used like watercolours or more thickly for an opaque effect
Pressprint		A polystyrene sheet that can be drawn into to print white lines – can be used as more than 1 layer
Monoprint		Where ink is transferred onto paper by drawing over a prepared surface
Collograph		A printing plate constructed of collaged materials
Card construction		Sculptures created by building up layers of card or fitting together
Wire		Thick or thin wire manipulated to create 2d or 3d forms
Clay		A soft substance used for sculpting, when fired can be glazed to create shiny colourful surfaces
Batik		A fabric technique using hot wax to resist coloured inks
Silk painting		Fabric inks painted onto silk, Gutta can be used as an outliner to prevent colours mixing

Art Key Stage 3

1

Methods of Recording

Observational drawing	Drawing from looking at images or objects
First hand observation	Drawing directly from looking at objects in front of you
Second hand observation	Drawing from looking at images of objects
Photographs	Using a camera or smartphone to record images will class as first hand observation
Sketches	Basic sketches and doodles can act as a starting point for development

Stages of Drawing

Basic shapes → Accurate shapes → Detail → Shade

2

Tonal shade

Produce a range of tones by varying the pressure and layering – consider using softer pencils for darker shades

Alternative shade techniques

3

Annotation

Describes writing notes, using images and explaining your thoughts to show the development of your work.

Step 1 - Describe
What is this an image of?
What have you done here?
What was this stage of the project for?

Step 2 - Explain
How was this work made?
How did you produce particular effects? How did you decide on the composition?

Step 3 - Reflect
Why did you use these specific methods? Why do particular parts work better than others?
Why might you do things differently next time?

Art Key Stage 3

1

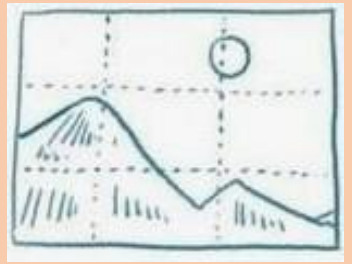
Formal Elements of Art

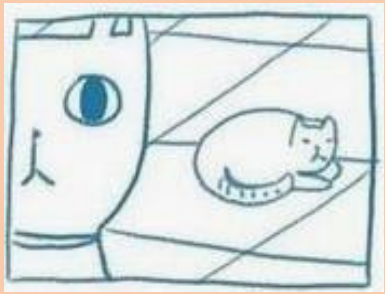
LINE	the path left by a moving point, e.g. a pencil or a brush dipped in paint. It can take many forms. e.g. horizontal, diagonal or curved.
TONE	means the lightness or darkness of something. This could be a shade or how dark or light a colour appears
TEXTURE	the surface quality of something, the way something feels or looks like it feels. There are two types : Actual and Visual
SHAPE	an area enclosed by a line. It could be just an outline or it could be shaded in.
PATTERN	a design that is created by repeating lines, shapes, tones or colours. can be manmade, like a design on fabric, or natural, such as the markings on animal fur.
COLOUR	There are 2 types including Primary and Secondary . By mixing any two Primary together we get a Secondary

2

Composition Layouts

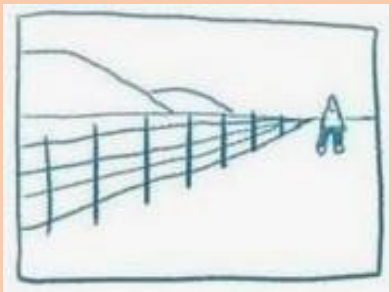
Rule of thirds – Place focal objects at 1/3 or 2/3 of the image horizontally or vertically. Not in the middle





Balance elements. If there is an emphasis on one side balance it out with smaller objects on the other

Simplify and fill. Enlarge or crop the image to fill the space



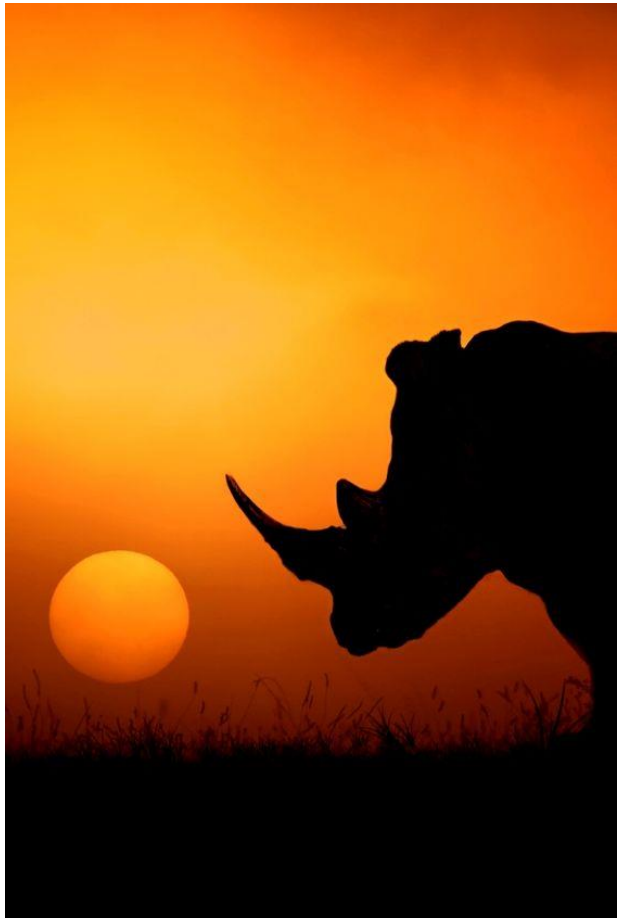
Use lines. Lines will draw the viewer in, they don't have to be straight, consider S or C

3

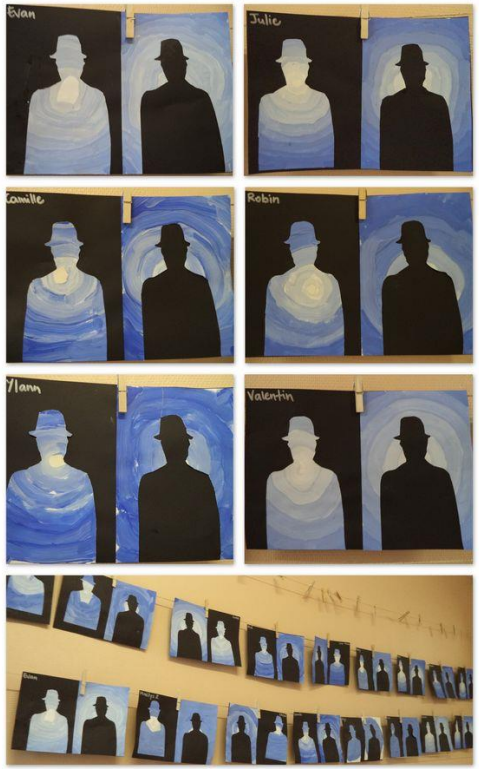
A Rough	A Visual/ Maquette	Final Piece
A basic sketch of a final idea	A small image or model created in selected materials	An image or sculpture pulling all preparatory work together

Art Key Stage 3

Silhouette Landscapes
Year 8



After Christmas year 8 begin to look at silhouettes and how dramatic they can be in Art work. We start with background landscapes and then use ink on top to create a strong Sense of foreground vs background.



Vocabulary to learn

Sarcasm
Rhetorical
Statement
Perspective
Perceptive
Innumerable
Cunning
Explicit

Structure analysis - methods:

- Zoom in/out
- Repetition of an image/idea
- Links and connections between paragraphs
- Shifts:
  - inside to outside (and vice versa)
  - focus
  - time
  - topic
  - setting/place
  - mood/atmosphere
  - description to dialogue (and vice versa)

Language analysis Checklist:

- Link to task
- Relevant quote
- Meaning of quote
- Method named
- Effects explained
- Word zoomed in on
- Meaning of word
- Implied meanings
- Aim higher: layers of meaning

Evaluate

weigh up, form a judgement

This question asks you to **evaluate** the **extent** to which you agree with a given statement about a text.

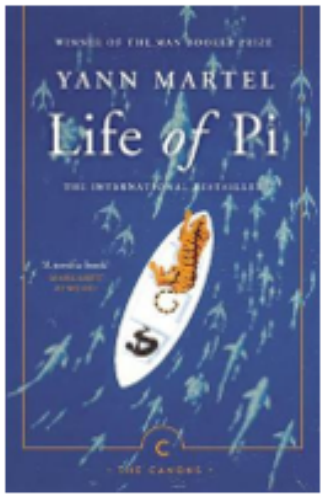
how much

You will need to consider:

- The impressions (**opinions**) you have of the text in relation to the statement
- The methods the writer has used to create these impressions
- How the particular methods create these impressions

Words/phrases
Linguistic devices
Structural features
Sentence forms

Suggested reading



Sentence Form	Definition	Example
Fragment sentence	An incomplete idea.	*Rolling thunder.*
Simple sentence	Contains one complete idea in an independent clause.	*The lightning flashed.*
Compound sentence	Contains two independent clauses linked by a conjunction or a semi-colon.	*The lightning flashed **and** the rain fell.* *The lightning flashed; the rain fell.*
Complex sentence	Contains an independent clause and at least one dependent clause.	*Despite the thunder and lightning, there was no rain.*

Literary devices and word class

- Metaphor – a literal comparison – *she was a monster*
- Personification – human qualities – *the grass danced in the wind*
- Simile – as/like/as if – *he was like a man possessed*
- Onomatopoeia – the sound words – *bang, pop, sizzle*
- Alliteration – same starting sounds - *really rather raucous*
- Lists – to emphasise many reasons
- Verbs – doing words
- Adjectives – describing words
- Nouns – objects or abstract things e.g. love
- Adverbs – describe doing words e.g. wrote **neatly**
- connotations of words – associations – night-time = mystery

Year 8 - algebraic techniques...**Brackets, Equations & Inequalities**

Form expressions

For unknown variables, a letter is normally used in its place

More than – ADD

Less than/ difference – SUBTRACT

e.g. 4 more than t → t + 4

8 less than k → k - 8

Only similar terms can be grouped together

e.g. Find the perimeter of this shape (Perimeter = length around outside of shape)

t + 2t + 1 + t + 2t + 1 → 6t + 2

Directed numbers

+ + → +

- - → +

+ - → -

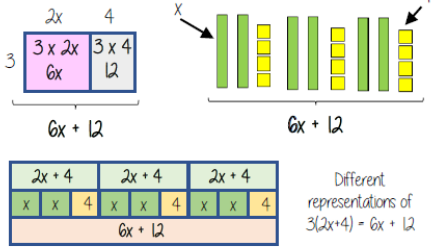
- + → -

e.g. a = -5 and b = 2

$a^2 = a \times a = -5 \times -5 = 25$

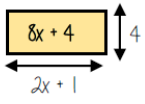
b + a = 2 + - 5 = -3

Multiply single brackets 3 (2x + 4)



Different representations of 3(2x+4) = 6x + 12

Factorise into a single bracket 8x + 4



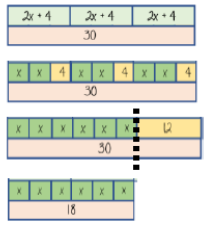
Try and make this the **highest common factor**

The two values **multiply** together (also the area) of the rectangle

8x + 4 ≡ 4 (2x + 1)

Note:
8x + 4 ≡ 2(4x + 2)
This is factorised but the HCF has not been used

Solve equations with brackets 3 (2x + 4) = 30



3 (2x + 4) = 30

Expand the brackets

6x + 12 = 30

-12 -12

6x = 18

÷ 6 ÷ 6

x = 3

Substitute to check your answer. This could be negative or a fraction or decimal

Simple Inequalities

< less than

≤ Less than or equal to

> More than

≥ More than or equal to

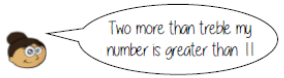
x < 10
Say this out loud
"x is a value less than 10"

10 > x
Say this out loud
"10 is more than the value"

Note:
x<10 and 10>x represent the same values

x + 2 ≤ 20
"my value + 2 is less than or equal to 20"
x ≤ 18
The biggest the value can be is 18

Form and solve inequalities



Find the possible range of values

Form

x → x3 → +2 → 11

3x + 2 > 11

Solve

x ← -3 ← -2 ← 11

x > 3

Check

This would suggest any value bigger than 3 satisfies the statement

3 x 3 + 2 = 11 ✓ 10 x 3 + 2 = 32 ✓

Algebraic constructs

Expression
A sentence with a minimum of two numbers and one maths operation

Equation
A statement that two things are equal

Term
A single number or variable

Identity
An equation where both sides have variables that cause the same answer includes ≡

Formula
A rule written with all mathematical symbols
e.g. area of a rectangle A = b x h

What do I need to be able to do?

By the end of this unit you should be able to:

- Form Expressions
- Expand and factorise single brackets
- Form and solve equations
- Solve equations with brackets
- Represent inequalities
- Form and solve inequalities

Keywords

Simplify: grouping and combining similar terms
Substitute: replace a variable with a numerical value
Equivalent: something of equal value
Coefficient: a number used to multiply a variable
Product: multiply terms
Highest Common Factor (HCF): the biggest factor (or number that multiples to give a term)
Inequality: an inequality compares who values showing if one is greater than, less than or equal to another

Year 8 - algebraic techniques…**Sequences**

Linear and Non Linear Sequences

Linear Sequences – increase by addition or subtraction and the same amount each time

Non-linear Sequences – do not increase by a constant amount – quadratic, geometric and Fibonacci

- Do not plot as straight lines when modelled graphically
- The differences between terms can be found by addition, subtraction, multiplication or division

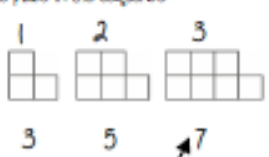
Fibonacci Sequence – look out for this type of sequence

0 1 1 2 3 5 8 …

Each term is the sum of the previous two terms

Sequence in a table and graphically

Position: the place in the sequence



"The term in position 3 has 7 squares"

3 5 7

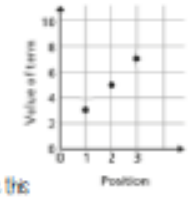
Term: the number or variable (the number of squares in each image)

In a table

Position	1	2	3
Term	3	5	7

+2 +2

Graphically



Because the terms increase by the same addition each time this is linear – as seen in the graph

Sequences from algebraic rules

This is substitution!

$3n + 7$ — This will be linear - note the single power of n. The values increase at a constant rate

$3n^2 + 7$ — This is not linear as there is a power for n

$2n - 5$ → Substitute the number of the term you are looking for in place of 'n'

e.g.
1st term = 2 (1) – 5 = -3
2nd term = 2 (2) – 5 = -1
100th term = 2 (100) – 5 = 195

Checking for a term in a sequence

Form an equation

Is 201 in the sequence $3n - 4$?

$3n - 4 = 201$ ← Term to check

Algebraic rule

Solving this will find the position of the term in the sequence. ONLY an integer solution can be in the sequence.

Complex algebraic rules

Misconceptions and comparisons

$2n^2$ — 2 times whatever n squared is

$(2n)^2$ — 2 times n then square the answer

e.g.
1st term = $2 \times 1^2 = 2$
2nd term = $2 \times 2^2 = 8$
100th term = $2 \times 100^2 = 20000$

e.g.
1st term = $(2 \times 1)^2 = 4$
2nd term = $(2 \times 2)^2 = 16$
100th term = $(2 \times 100)^2 = 40000$

$n(n + 5)$ ←

e.g.
1st term = 1 (1 + 5) = 6
2nd term = 2 (2 + 5) = 14
100th term = 100 (100 + 5) = 10500

You don't need to expand the expression

H Finding the algebraic rule

This is the 4 times table → 4, 8, 12, 16, 20….

$4n$

7, 11, 15, 19, 22 ← This has the same constant difference – but is 3 more than the original sequence

$4n + 3$

This is the constant difference between the terms in the sequence

$4n + 3$

This is the comparison (difference) between the original and new sequence

What do I need to be able to do?

By the end of this unit you should be able to:

- Generate a sequence from term to term or position to term rules
- Recognise arithmetic sequences and find the nth term
- Recognise geometric sequences and other sequences that arise

Keywords

Sequence: items or numbers put in a pre-decided order
Term: a single number or variable
Position: the place something is located
Linear: the difference between terms increases or decreases (+ or -) by a constant value each time
Non-linear: the difference between terms increases or decreases in different amounts, or by x or ÷
Difference: the gap between two terms
Arithmetic: a sequence where the difference between the terms is constant
Geometric: a sequence where each term is found by multiplying the previous one by a fixed non zero number

Year 8 - algebraic techniques…**Indices**

Addition/ Subtraction with indices

Coefficient, Power

$5x^2 + 4x^4$

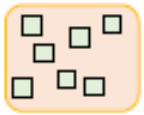
Term Term

Expression

Each square represents x^2 and each cube represents x^4

Only similar terms can be simplified If they have different powers, they are unlike terms

$5x^2 + 2x^2 \rightarrow 7x^2$



$5x^2 + 6x^4 - 3x^2 + x^4 \rightarrow 2x^2 + 7x^4$

Multiply expressions with indices

$4b \times 3a$
$= 4 \times b \times 3 \times a$
$= 4 \times 3 \times b \times a$
$= 12ab$

$5t \times 9t$
$= 5 \times t \times 9 \times t$
$= 5 \times 9 \times t \times t$
$= 45t^2$

$2b^4 \times 3b^2$
$= 2 \times b \times b \times b \times b \times 3 \times b \times b$
$= 2 \times 3 \times b \times b \times b \times b \times b \times b$
$= 6b^6$

There are often misconceptions with this calculation but break down the powers

Addition/ Subtraction laws for indices

$3^5 \times 3^2 = (3 \times 3 \times 3 \times 3 \times 3) \times (3 \times 3) \rightarrow 3^7$

The base number is all the same so the terms can be simplified

Addition law for indices

$a^m \times a^n = a^{m+n}$

$3^5 \div 3^2 \rightarrow 3^3$

$\frac{3 \times 3 \times 3 \times \cancel{3} \times \cancel{3}}{\cancel{3} \times \cancel{3}} \rightarrow \frac{3^3}{3^0} \rightarrow \frac{3^3}{1}$

Subtraction law for indices

$a^m \div a^n = a^{m-n}$

Divide expressions with indices

$\frac{24}{36} \rightarrow \frac{\cancel{2} \times \cancel{2} \times 2 \times \cancel{3}}{\cancel{2} \times \cancel{3} \times 2 \times \cancel{3}} \rightarrow \frac{2}{3}$

$\frac{5a^3b^2}{15ab^6} \rightarrow \frac{\cancel{5} \times \cancel{a} \times a \times a \times \cancel{b} \times \cancel{b}}{3 \times \cancel{5} \times \cancel{a} \times \cancel{b} \times \cancel{b} \times b \times b \times b \times b} \rightarrow \frac{a^2}{3b^4}$

Cross cancelling factors shows cancels the expression

$\frac{23a^7y^2}{5db^6}$ This expression cannot be divided (cancelled down) because there are no common factors or similar terms

What do I need to be able to do?

By the end of this unit you should be able to:

- Add/ Subtract expressions with indices
- Multiply expressions with indices
- Divide expressions with indices
- Know the addition law for indices
- Know the subtraction law for indices

Keywords

Base: The number that gets multiplied by a power
Power: The exponent – or the number that tells you how many times to use the number in multiplication
Exponent: The power – or the number that tells you how many times to use the number in multiplication
Indices: The power or the exponent
Coefficient: The number used to multiply a variable
Simplify: To reduce a power to its lowest term
Product: Multiply

Year 8 History: The Industrial Revolution

Key words	
Industrial revolution	A time of great change in Britain between 1750 to 1900
Population	The number of people living in a particular place
Invention	Something new which is created, can be an object or an idea
Economy	The system of how money is used within a particular country
Agriculture	The process of producing food, and fibres by farming of certain plants or raising animals
Urbanisation	The increase in the proportion of people living in towns and cities
Sanitation	The system that disposes of human waste
Mass production	The production of many products in one go e.g. textiles
Industry	The process of making products by using machines and factories

From 1750 Britain went through a process of change:

- Agriculture – New tools, fertilizers and harvesting techniques were introduced, resulting in increased productivity and agricultural prosperity.
- Industry – Factories sprung up all over the country creating more efficient ways to produce goods such as wool, cotton and coal. The increase in factories brought thousands of new jobs.
- Transport and communications – Thomas Telford built roads and canals in the 1700s and George Stephenson and Isambard Kingdom Brunel oversaw the 'Railway Mania' of the 1800s. There had previously been no very fast way of transporting goods and people around the country.
- Technology – There were many scientific discoveries and technological inventions that changed society and industry. Changes to sanitation and medical treatment such as the work of John Snow and Edward Jenner improved people's quality of life.

KEY INVENTIONS: The Steam Engine, Water Frame, Spinning Jenny and Locomotive

Factory working conditions

Long working hours: normal shifts were usually 12–14 hours a day, with extra time required during busy periods

Low wages: a typical wage for male workers was about 15 shillings (75p) a week, but women and children were paid much less, with children three shillings (15p). For this reason, employers preferred to employ women and children

Cruel discipline: Frequent "strapping" (hitting with a leather strap). Other punishments included nailing children's ears to the table, and dowsing them in water butts to keep them awake

Accidents: forcing children to crawl into dangerous, unguarded machinery led to many accidents and deaths

Health: The air was full of dust, which led to chest and lung diseases and loud noise made by machines damaged hearing.

Living conditions

Overcrowding: There were not enough houses in the cities

Disease: Typhus, typhoid, tuberculosis and cholera. low standard housing and poor-quality water supplies all helped spread disease.

Waste disposal: gutters were filled with litter. Human waste was discharged directly into sewers, into rivers

Poor quality housing: Built very close together so there was little light or fresh air inside. Houses did not have running water and people found it difficult to keep clean

Lack of fresh water: People could get water from streams, wells and stand pipes, but this water was often polluted

Factory owners such as Robert Owen argued improving conditions for workers would bring better profits. This influenced parliament to pass Factory Acts but many workers still lacked protection and a political voice

Year 8 History: Slavery

Key words	
Slavery	A relationship where one person has absolute power over another. They control their life, freedom and wealth
Trade Triangle	The name of the system for trading slaves across the world
Middle Passageway	The names used to describe the journey from Africa to America for slaves, it took up to 2 months
Plantation	A large farm that slaves worked on to produce cotton, tobacco and sugar
Abolition	Is the act of putting an end to something by law e.g. slavery.
The Slavery Abolition Act 1833	The Act passed in Britain that abolished slavery.

Who benefitted from the slave trade?

Plantation Owners – Grew 'cash' crops of sugar, tobacco, coffee, spices and cotton for sale back in Europe

African Tribal Leaders – Captured slaves through war between rivals over land. They would then trade their captures for weaponry and gunpowder to increase their power in their native land

British Business Men – Areas such as Liverpool and Bristol where the ships were built and goods imported got extremely rich

African Slaves – Some slaves worked in the plantation owner's house as butlers, cooks or housemaids. They were able to learn new skills, such as cooking and cleaning. They were often dressed in finer clothing and given a better diet than those that worked in the fields

During the 19th century Britain saw its empire grow significantly. It was regarded as a great source of wealth and status for Britain, however this came at a terrible human cost in the Transatlantic Slave Trade.

Slaves were traded across the world. Ships were loaded in England with goods such as guns, cloth and salt. This was taken to Africa and traded for slaves. The ships then went on a 2-month journey known as the Middle Passageway to the Caribbean. Here the slaves were sold to work in the cotton plantations and farms. The ship was then loaded with sugar and cotton, to be taken back to England to be sold for huge profits.

Slaves suffered through terrible conditions and many died during the journey. They were packed into the ship tightly and laid down for most of the journey. They were severely punished should they disobey orders. Slaves were chained up for the entire journey; diseases spread quickly. Many threw themselves overboard.

Why was Slavery abolished?	Abraham Lincoln was against slavery. It was abolished on the 31st January 1865 but this did lead to a civil war in the USA	Economics: Sugar plantations closed as cheap sugar could be bought from Brazil and Cuba
Slave rebellions such as Nat Turner's Revolt	Key Individuals: Granville Sharp and Thomas Clarkson fought freedom cases in court. Olaudah Equiano sold his story. Press and publicity influenced attitudes against slavery	Religion – Christian groups, such as the Quakers, thought that slavery was a sin. William Wilberforce used his position as MP to campaign for change

Components of *Physical* Fitness

Aerobic Endurance – The ability of the cardiorespiratory system to work efficiently, supplying nutrients and oxygen to working muscles during sustained physical activity.

Muscular Endurance – The ability of the muscular system to work efficiently, where a muscle can continue contracting continuously against a light to moderate fixed resistance load.

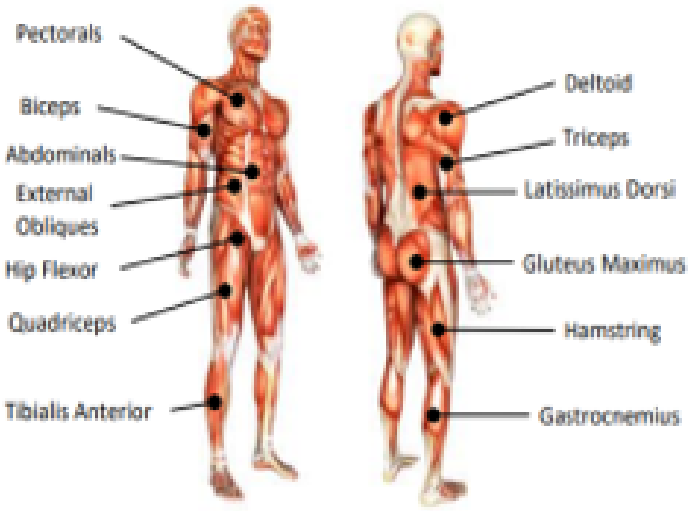
Speed – The ability to cover a distance quickly. There are 3 types of speed (Accelerative speed, Pure speed and Speed Endurance. This is calculated by Distance travelled divided by the time taken.

Muscular Strength – The maximum force, measured in kilograms (Kg) or newtons (N) that can be generated by a muscle or group of muscles.

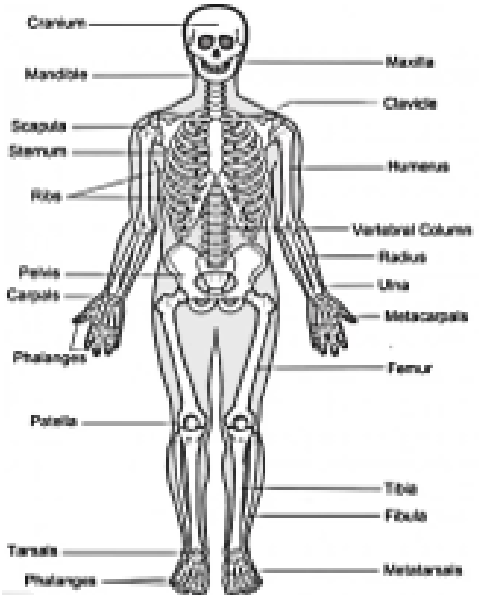
Flexibility – The adequate range of motion in all joints of the body and the ability to move a joint fluidly through its complete range of movement.

Body Composition – The ratio of fat to fat-free muscle mass. Sporting success is a combination of body composition and athletic ability.
https://www.youtube.com/watch?v=KycE8YJeaEI

Structure of the Muscular system



Structure of the Skeletal system



Components of *Skill-related* Fitness

Agility – The ability of a sports performer to quickly and precisely move or change direction without losing balance or time

Balance – The ability to maintain your centre of mass over a base of support. There are two forms of balance (static which is maintaining balance in a stationary position and Dynamic which is maintaining balance while in motion)

Co-ordination – The ability of the body to work together to move smoothly and accurately

Power - The ability to use strength and speed. It is the work done in a unit of time and is calculated in the following way Power- = Force (Kg) x Distance (m) / time (mins or seconds)

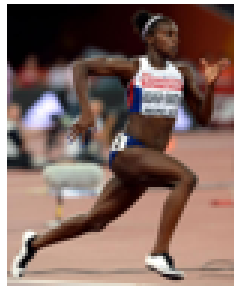
Reaction time – The time taken for a sports performer to respond to a stimulus, for example, the time taken for a sprinter to react to the starter gun.

https://www.youtube.com/watch?v=nJleyUBesI8

DID YOU KNOW…?

The recommended safe heart rate for an individual during exercise is called your **Maximum Heart Rate (HR max)**. To estimate your HR max you need the following formula: **MAXIMUM HEART RATE = 220 – Your AGE**. For example, if you are 20 Years old your HR max would be 220 - 20 = 200 beats per minute (bpm)

It is important to understand that different sports and sports performers require different aspects of fitness. Many sports need the same types of physical and skill related fitness, however some a unique and require specific components.



Dina Asher-Smith is a British and World Champion sprinter. She needs to have **speed, power and reaction time** to cover as much distance as possible, respond to the starter's pistol and move powerfully out of the blocks to get a good start. It is also important for sprinters to have excellent **muscular strength and muscular endurance**

Harry Kane will require similar components of fitness in order to be successful. **Speed and agility** will be essential to move quickly into position avoid defenders when he has possession of the ball. He will also need a very high-level of **aerobic endurance and muscular endurance.**

Can you think of other sports performers who would require different components of fitness?

Warming up and cooling down

Components of a warm up:

- Pulse raiser
- Stretches
- Skill related

5 reasons why we must warm-up

1.) Increases the temperature of the muscles, tendons and ligaments, which reduces the chances of injury.
2.) Increases heart rate and body temperature safely, which reduces chances of injury.
3.) Increases flexibility, which aids flexibility.
4.) Mentally prepares you for exercise, which can help improve performance.
5.) Increases oxygen delivery to the working muscles, which supports performance

6 reasons why we must cool down

1.) Gradually returns body temperature, breathing and heart rate back to their resting rate.
2.) To mentally unwind.
3.) To remove lactic acid, helping to prevent DOMS (Delayed Onset Muscle Soreness)
4.) To remove carbon dioxide and waste products.
5.) Improves flexibility.
6.) Avoids blood from gathering in muscles (pooling), which can cause dizziness

https://www.nhs.uk/live-well/exercise/how-to-warm-up-before-exercising/
https://www.nhs.uk/live-well/exercise/how-to-stretch-after-exercising/

Some key terminologies to learn and remember

Aerobic Endurance	**Muscular Endurance**	**Muscular Strength**	**Speed**	**Flexibility**	**Body Composition**
Pulse Raiser	**Stretches**	**Skill related**	**Gastrocnemius**	**Hamstring**	**Quadriceps**
Gluteus Maximus	**Pectorals**	**Biceps**	**Triceps**	**Pectorals**	**Oblique**
Tibia	**Fibula**	**Humerus**	**Femur**	**Radius**	**Ulna**
Scapula	**Clavicle**	**Vertebral Column**	**Cranium**	**Ribs**	**Sternum**
Agility	**Power**	**Balance**	**Co-ordination**	**Reaction Time**	**Maximum Heart Rate**

Principles of training

F – **Frequency – How often you train**

I – **Intensity – How hard you train**

T – **Time – How long you train**

T – **Type – How specific your training should be**

Think back to a sport you have played and consider the training you would need to complete in order to perform to your best. The FITT principle ensures you are working at a level that will challenge you. If you are not working hard enough, your body will not adapt and your fitness will not improve.

An example of the FITT principle in action….

Katarina Johnson-Thompson is a Team GB athlete and competes in the Heptathlon. Katarina has begun circuit training to improve her fitness to be able to compete in her seven different events. After 2 weeks, she feels her sessions should last longer. **Which principle is this focusing on?**

After one month, Katarina increases the number of sessions she takes part in. **The amount of sessions over a period of time is known as what?**

Katarina is now benefiting from her circuit training but is now looking to add more variation to her sessions. **Which principle would she be using if she wanted to change the training programme?**

One year before the next Olympic games, Katarina needs to step up her training programme. **Name the component of the FITT principle she would use to increase the difficulty of the training.**

Exercise intensity: The Borg scale (RPE – Rating of Perceived Exertion)

RPE	Intensity
6	No exertion
7	
8	
9	
10	
11	Light exertion
12	
13	Somewhat hard
14	
15	Hard (Heavy)
16	
17	Very Hard
18	
19	
20	Maximal Exertion

This scale measures how hard performers think they are working. It can also be used to measure Heart Rate and training zones.

(RPE x 10 = Heart Rate)

Additional Principles of training

S – **Specificity**

P – **Progressive Overload**

A – **Adaptability**

R – **Reversibility**

V – **Variation**

I – **Individual Needs**

R&R – **Rest and Recovery**

Methods of training

Circuit training – This involves a number of different activities that can be sport-specific or tailored to help improve certain levels of fitness.

Continuous training – This is training at a steady pace, moderate intensity to develop aerobic endurance. At least 30 minutes of steady running is an example of continuous training.

Fartlek training – This is a form of continuous training but the intensity is changed by running at different speeds over different terrains.

Interval training – This method requires periods of exercise followed by rest and recovery periods.

Plyometric training – This training develops sport-specific explosive power and strength.

Flexibility training – The method to develop flexibility at a joint. This is conduction using stretching. The three stretching categories are Static, Ballistic and Proprioceptive Neuromuscular Facilitation (PNF)

Speed training – Speed training can take many forms and can be sport specific. The three types of sprints are Acceleration, Interval and Hollow sprints.

Weight training – Weight training is a form of interval training and involves using reps and sets of reps.

Things to consider

Think about the methods of training and consider which sporting activities would require each method. Consider, football, badminton, rugby, netball, gymnastics and athletics. **When would you require each method of training?**

Now consider the principles of training. **Can you explain how one of the methods of training could use the FITT or additional principles of training?**

Your turn

Attempt to answer the following questions to help you understand.

1. Why is variation important in training for a sporting activity?
2. Give three examples of the circuit training sessions you could include to improve your muscular endurance
3. Which type of Olympic athlete is most likely to use continuous training?
4. Why would a 100m sprinter feel like they are at maximal exertion on the RPE scale?
5. Can you name 2 advantages and disadvantages of interval training?
6. What method of training would be best suited to a footballer and why?
7. Give an example of how a weight lifter could increase the intensity of their training.
8. How long would you need to exercise for to be taking part in continuous training?
9. Can you find at least one difference between hollow and acceleration sprints?
10. You are planning to train for a 10k fun run. Plan a training programme which includes methods of training and the FITT principle.

Can you challenge yourself to complete the beginner's push-up challenge?

Simply complete the amount of push-ups for each day, until you complete the challenge.

What did you feel when completing the challenge?

How has your muscular strength improved?

Some key terminologies to learn and remember

Frequency	**Intensity**	**Time**	**Type**	**Continuous training**	**Interval training**
Speed training	**Fartlek training**	**Weight training**	**Circuit training**	**Plyometric training**	**Specificity**
Progressive Overload	**Adaptation**	**Individual needs**	**Rest and Recovery**	**Reversibility**	**Variation**

Extension activities

Consider joining a club or team with in the Open Academy.
Join a club or team outside of the Open Academy and tell your teacher of your experiences.
Watch online clips of sporting skills and games for the sports you take part in at the Open Academy.
Create posters or informational material to promote your favourite sport and fitness activities.

German

Module 1: Ich liebe Ferien! (I love holidays!)

Here is the vocabulary you will need for Stimmt 2, Module 1.
Remember to listen to the German by copying and pasting the blue codes next to the speaker icons here. The full address is: https://www.activeteachonline.com/view

Früher und heute • Then and today	
Die Stadt ist/war ...	*The town is/was ...*
alt/modern	*old/modern*
klein/groß	*small/big*
schön/industriell	*beautiful/industrial*
historisch/touristisch	*historic/touristy*
laut/ruhig	*noisy/quiet*
Die Stadt hat/hatte ...	*The town has/had ...*
Es gibt/gab ...	*There is/was ...*
einen Strand	*a beach*
einen Marktplatz	*a town square*
einen Olympiapark	*an Olympic park*
einen Hafen	*a harbour*
eine Arena	*an arena*
eine Skatehalle	*a skate hall*
ein Einkaufszentrum	*a shopping centre*
ein Stadion	*a stadium*

vS9GME3o

In this Module you will learn how to:

- compare places in the past and now
- talk about what you did on holiday
- talk about how you travelled
- talk about the weather
- talk about holidays
- talk about problems on holiday

www.textivate.com
Username: openacademy
Password: surname123
Go to 'my resourses' to find your work.

Keep practising your German vocabulary on www.quizlet.com
• *Either*:
click on this link: https://quizlet.com/_8ievl8?x=1qqt&i=25q2il
• *Or*:
use your class link to go directly to your Quizlet class.

German

Was hast du gemacht?
• What did you do?

Ich habe viele Sachen gemacht.	*I did a lot of things.*
Ich habe/Wir haben ...	*I/We ...*
Musik gehört.	*listened to music.*
Volleyball gespielt.	*played volleyball.*
einen Bootsausflug gemacht.	*did a boat trip.*
viele Souvenirs gekauft.	*bought lots of souvenirs.*
viel Fisch gegessen.	*ate lots of fish.*
die Kirche gesehen.	*saw the church.*
ein Buch gelesen.	*read a book.*
Ich bin zu Hause geblieben.	*I stayed at home.*

swsCWRjP

Wohin bist du gefahren?
• Where did you travel to?

Ich bin ... gefahren.	*I travelled ...*
nach Deutschland	*to Germany*
nach Wien	*to Vienna*

n1lsGCzo

Wie bist du gefahren?
• How did you travel?

Ich bin ... gefahren.	*I travelled ...*
mit dem Auto	*by car*
mit dem Reisebus	*by coach*
mit dem Schiff	*by boat*
Ich bin geflogen.	*I flew.*
Ich bin zu Fuß gegangen.	*I walked.*

5IS5rvQ0

VEUcyfzI

Wo hast du gewohnt?
• Where did you stay?

Ich habe ... gewohnt.	*I stayed ...*
in einem Hotel	*in a hotel*
in einem Ferienhaus	*in a holiday house*
in einem Wohnwagen	*in a caravan*
in einer Jugendherberge	*in a youth hostel*
auf einem Campingplatz	*on a campsite*
bei Freunden	*with friends*

8CjrAPVZ

Mit wem bist du gefahren?
• Who did you travel with?

Ich bin ... gefahren.	*I travelled ...*
mit meiner Familie	*with my family*
mit Freunden	*with friends*

German

Was hast du noch gemacht?
• What else did you do?

Ich bin ... gegangen.	*I went ...*
an den Strand	*to the beach*
in die Stadt	*into town*
windsurfen	*windsurfing*
kitesurfen	*kite surfing*
schwimmen	*swimming*
Ich bin ... gefahren.	*I went ...*
Wakeboard	*wakeboarding*
Snowboard	*snowboarding*
Ski	*skiing*
Banane	*banana boating*
Ich habe Snowtubing gemacht.	*I went snowtubing.*
Ich habe Eistennis gespielt.	*I played ice tennis.*

swsCWRjP

Wie ist/war das Wetter?
• How is/was the weather?

Es ist/war ...	*It is/was ...*
sonnig	*sunny*
kalt	*cold*
heiß	*hot*
wolkig	*cloudy*
windig	*windy*
neblig	*foggy*
Es regnet.	*It is raining./It rains.*
Es schneit.	*It is snowing./It snows.*
Es donnert und blitzt.	*There is thunder and lightning.*

7TNSg1fL

Oft benutzte Wörter
• High-frequency words

nur	*only*
dort	*there*
zu	*too*
nicht	*not*
gar nicht	*not at all*
sehr	*very*
ungefähr	*approximately*
viel	*a lot*
viele	*lots, many*

nbPzaz9A

Wann war das? • When was that?

in den Ferien	*in the holidays*
im Sommer/Winter	*in summer/winter*
letzten Sommer/Winter	*last summer/winter*
heute	*today*
gestern	*yesterday*
früher	*then, previously*

Strategie 1

Partnerarbeit

Two heads are often better than one when it comes to learning vocabulary. Working with someone else helps you to concentrate for longer and makes learning fun. Here are some activities to try with a partner:

- Play word association. Your partner says a word from Chapter 1 and you say a word that is related to it in some way. Be prepared to justify your thinking!
  - ● *Winter*
  - ■ *Es schneit.*
- Play hangman or pictionary with the words from these ***Wörter*** pages.
- Beginnings and endings. Your partner says a word and your next word must start with the final letter of his/her word. Make the longest words you can!
  - ● *war*
  - ■ *ruhig*
- Syllables. Say the first syllable of a word with two or more syllables. Your partner has to finish the word. Make the longest chain of words you can!
  - ● *win ...*
  - ■ *... dig*
- Tandem testing. Take a section of words from these ***Wörter*** pages and test your partner. Begin by testing German into English and then say the English and ask for the German.

Look at page 132 to remind yourself of the five ***Strategien*** you learned in *Stimmt! 1*.

Read the Strategy Box for ideas on learning German vocabulary.

F8C6R2wT

Strategien

Strategie 1

How do you know if you really know a word? Ask yourself:

1 Do I know what it means when I see it?
2 Can I pronounce it?
3 Can I spell it correctly?
4 Can I use it in a sentence?

Look, Say, Cover, Write, Check

Use these five steps to learn the meaning, pronunciation and spelling of new words.

1 Look carefully at the word. Close your eyes and try to picture the word in your mind. This uses your visual memory.
2 Say the word out loud to yourself. This uses your auditory memory.
3 Cover the word – say it and 'see' the word in your mind.
4 Write the word out from memory.
5 Check your word against the original. Did you get it right? Combining seeing, listening and doing strategies makes memorising more effective.

Extra: If you find these steps easy, try to create sentences with the new words you learn.

Strategie 2

Cognates

You can use your knowledge of English to help you work out the meanings of German words. Cognates are words that look the same or similar in German and English, and they often mean the same too (but not always!). However, watch out for pronunciation because they usually sound slightly different. Here are some examples of cognates and near-cognates: *Hotel, Arena, Tourismus.*

Compound words

Long words can be difficult to remember, but they are usually made up of shorter ones, so it helps to break down these compound words into more manageable chunks – for example: *Liebes/komödie* (love/comedy = romantic comedy).

Strategie 3

Oft benutzte Wörter

High-frequency words, for example *gern, sehr, wenig*, are words that come up again and again, no matter what you are talking about. All of the *Wörter* pages have a list of these words, but there are many more.

Strategie 4

Memory room

To help you remember vocabulary, try associating it with places in a room, such as your bedroom. In your mind, place the words you want to remember in different parts of the room. For example, to learn breakfast items, you might put *Eier* by your computer, *Milch* on top of the wardrobe, etc. Then you look round the room and say *Eier* when you get to the computer and so on.

Mnemonics

If the spelling of a particular word just doesn't seem to stick, you could invent a mnemonic – a rhyme or saying that sticks easily in your mind. For example:

Snow
Can
Hurt
Noses
Even
If
Tiny

Strategie 5

Using your key phonics words

You learned the key sounds of German in *Stimmt! 1* (see page 133). One good strategy for remembering new words is to group them together with others with the same sound-spelling pattern. For example:

***J**ugendherberge* ➜ ***J**o-**J**o*
*W**o**hn**w**agen* ➜ ***W**ild**w**assersport*

Look back at the *Wörter* pages and add to your lists.

German key sounds

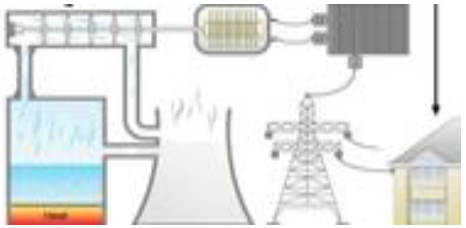
Sieh dir das Video auf ActiveTeach an. Hör zu und mach mit. (1–16)
Watch the video on ActiveTeach. Listen and join in.

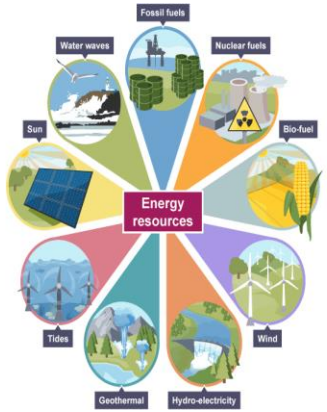
Click on the links below to revise the sounds

ejJebkAW

NsDIUwgJ

Energy resources/Minister for energy





Power station	*Generates electricity*	Fuel burnt releasing thermal energy	Water boils into steam	Steam turns turbine	Turbine turns generator	Generator induces voltage
National Grid	*Transports electricity across UK*	Power station	Step-up transformer	Pylons	Step-down transformer	House, factory

National Grid

Energy resource	*How it works*	Uses	Positive	Negative
Fossil Fuels (coal, oil and gas)	*Burnt to release thermal energy used to turn water into steam to turn turbines*	Generating electricity, heating and transport	Provides most of the UK energy. Large reserves. Cheap to extract. Used in transport, heating and making electricity. Easy to transport.	Non-renewable. Burning coal and oil releases sulfur dioxide. When mixed with rain makes acid rain. Acid rain damages building and kills plants. Burning fossil fuels releases carbon dioxide which contributes to global warming. Serious environmental damage if oil spilt.
Nuclear	*Nuclear fission process*	Generating electricity	No greenhouse gases produced. Lots of energy produced from small amounts of fuel.	Non-renewable. Dangers of radioactive materials being released into air or water. Nuclear sites need high levels of security. Start up costs and decommission costs very expensive. Toxic waste needs careful storing.
Biofuel	*Plant matter burnt to release thermal energy*	Transport and generating electricity	Renewable. As plants grow, they remove carbon dioxide. They are 'carbon neutral'.	Large areas of land needed to grow fuel crops. Habitats destroyed and food not grown. Emits carbon dioxide when burnt thus adding to greenhouse gases and global warming.
Tides	*Every day tides rise and fall, so generation of electricity can be predicted*	Generating electricity	Renewable. Predictable due to consistency of tides. No greenhouse gases produced.	Expensive to set up. A dam like structure is built across an estuary, altering habitats and causing problems for ships and boats.
Waves	*Up and down motion turns turbines*	Generating electricity	Renewable. No waste products.	Can be unreliable depends on wave output as large waves can stop the pistons working.
Hydroelectric	*Falling water spins a turbine*	Generating electricity	Renewable. No waste products.	Habitats destroyed when dam is built.
Wind	*Movement causes turbine to spin which turns a generator*	Generating electricity	Renewable. No waste products.	Unreliable – wind varies. Visual and noise pollution. Dangerous to migrating birds.
Solar	*Directly heats objects in solar panels or sunlight captured in photovoltaic cells*	Generating electricity and some heating	Renewable. No waste products.	Making and installing solar panels expensive. Unreliable due to light intensity.
Geothermal	*Hot rocks under the ground heats water to produce steam to turn turbine*	Generating electricity and heating	Renewable. Clean. No greenhouse gases produced.	Limited to a small number of countries. Geothermal power stations can cause earthquake tremors.

Non-renewable energy resource	*These will run out. It is a finite reserve. It cannot be replenished.*	e.g. Fossil fuels (coal, oil and gas) and nuclear fuels.
Renewable energy resource	*These will never run out. It is an infinite reserve. It can be replenished.*	e.g. Solar, Tides, Waves, Wind, Geothermal, Biomass, Hydroelectric

Energy demand is increasing as population increases.

Fossil fuel reserves are running out.

ACIDS AND ALKALIS

Key Terms	Definitions
Acid	A substance which forms H^+ ions.
Alkali	A soluble base that contains OH^- ions
Base	A substance that will neutralise an acid
The pH scale	A scale which measures how acidic a substance is
Indicator	A chemical which will change colour depending on the acidity of the substance

Safety

When handling acids and alkalis in the lab we need to take many **safety precautions** for example wearing goggles.

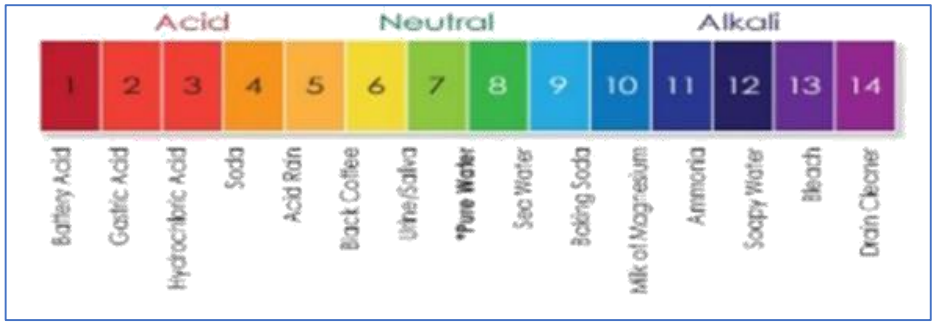
If an acid is dilute (lots of water has been added) it will be irritant and cause redness or blistering of the skin.
If an acid is concentrated it will destroy skin cells.

Alkalis

Alkalis, are a family of chemicals that have a soapy feel, they are also corrosive, examples of these are toothpaste, soap and oven cleaner.
Alkalis contain OH^- ions.
Alkalis **are bases** that dissolve in water.
Therefore not all bases are alkalis. See the example below. Copper oxide is a base but not an alkali. Sodium hydroxide is a base and an alkali.

Indicators

Indicators are chemicals that show whether a substance is an **acid or an alkali**
There are many examples of indicators for example **litmus paper and universal indicator**
There are also natural indicators like **red cabbage**



THE pH Scale

The pH scale measures how **strong an acid or alkali is**
The pH scale runs from 0–14
The pH scale measures the **concentration of H^+ ions**, the lower the number the higher the concentration.
Acids have a pH between 0 and 6, pH 1–3 are strong acids, 4–6 are weak acids
Alkalis have a pH between 8 and 14, 8–10 weak alkalis, 11–14 strong alkalis
Anything with a **pH of 7 is neutral**, for example water

Acids

Acids are a family of chemicals, examples are lemon juice, vinegar and **C**oca **C**ola. There is also acid in our stomach.
Acids contain H^+ ions.
Strong acids like hydrochloric acid are very corrosive this means they destroy skin cells and cause burns
Weak acids like vinegar are safe to eat but are still irritant to sensitive parts of the body.

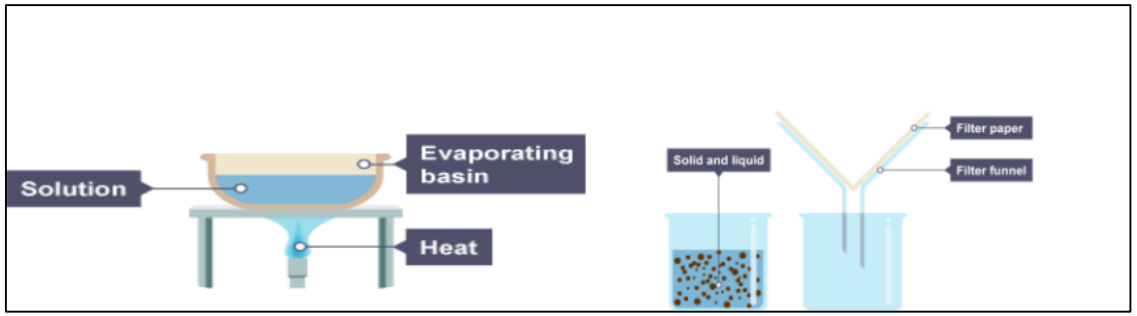
The pH Scale

The pH scale measures how **strong an acid or alkali is**
The pH scale runs from 0–14
The pH scale measures the **concentration of H^+ ions**, the lower the number the higher the concentration.
Acids have a pH between 0 and 6, pH 1–3 are strong acids, 4–6 are weak acids
Alkalis have a pH between 8 and 14, 8–10 weak alkalis, 11–14 strong alkalis
Anything with a **pH of 7 is neutral**, for example water

ACIDS AND ALKALIS

Neutralisation

When an acid reacts with an alkali a **neutralisation reaction occurs, this means what you make has a pH of 7.**
When a neutralisation reaction happens the **products are a salt and water. (See below for how to name a salt)**
There are many examples of neutralisation reactions, for example a wasp sting is alkali so we add vinegar (an acid) to it to neutralise it.
Farmers also spread alkalis onto fields to **neutralise the acid in the soil.**
Another example is indigestion when there is to much acid in our stomach, we neutralise this with alkali tablets

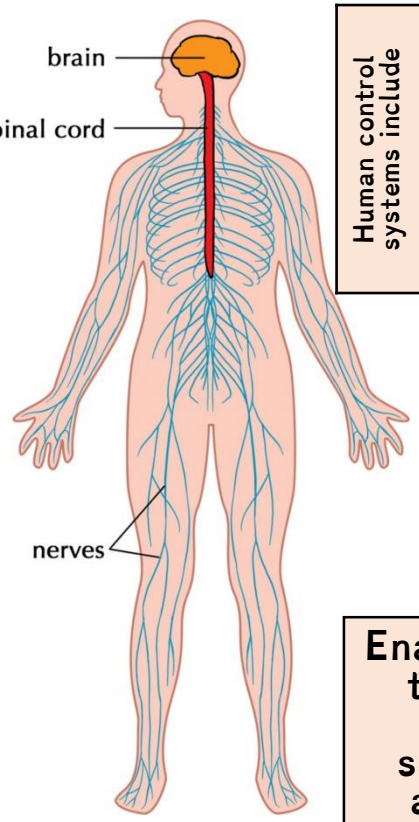


Salts

There are two types of salt that could be made in a neutralisation reaction, soluble or insoluble salt
Insoluble salts can be separated using filtration
Soluble salts dissolve in water and can be separated using evaporation

		Example
Acid and Alkali	Acid +Alkali ⇒ Salt + Water	Sodium Hydroxide + Sulphuric Acid ⇒ Sodium Sulphate + Water
Acid and Metal Carbonate	Acid + Metal Carbonate ⇒ Salt + Water +Carbon Dioxide	Hydrochloric acid + Magnesium Carbonate ⇒ Magnesium Chloride + Carbon Dioxide + Water
Acid and metal Oxide	Acid + Metal Oxide ⇒ Salt +Water	Sulphuric acid +Calcium Oxide ⇒ Calcium Sulphate + Water

DON'T JUMP (THE HUMAN NERVOUS SYSTEM)

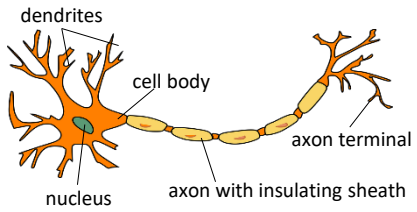


Human control systems include		
	Cells called receptors	Detect stimuli (changes in environment).
	Coordination centres	e.g. brain, spinal cord and pancreas that receive information from receptors.
	Effectors	Muscles or glands, which bring about responses to restore optimum levels.

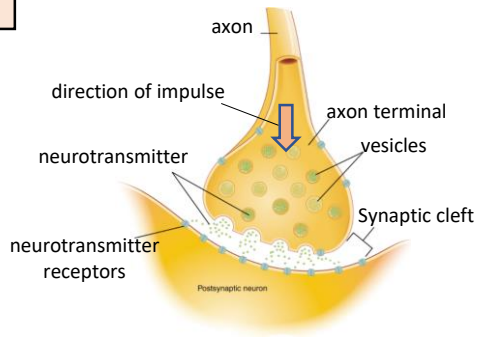
The human nervous system

Enables humans to react to their surroundings and to co-ordinate their behaviour

Typical motor neurone

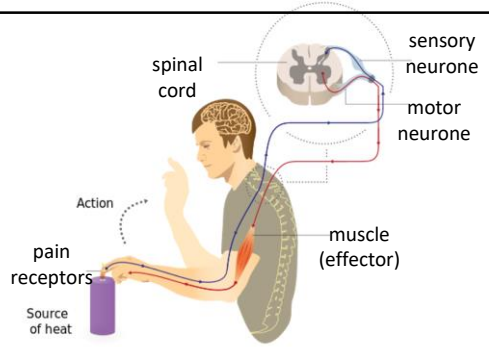


Synapse (gap where two neurones meet).



Reflex arc		
	Receptor	Detect stimuli.
	Sensory neurone	Long axon carries impulse from receptor to spinal cord.
	Synapse	Gap where neurones meet. Chemical message using neurotransmitter.
	Relay neurone	Allows impulses to travel between sensory and motor neurones in the spinal cord.
	Motor neurone	Long axon carries impulse from receptor to effector.
	Effector	Muscle or gland that carries out response.

Reflex actions are automatic and rapid; they do not involve the conscious part of the brain and can protect humans from harm.



Information from receptors passes along cells (neurones) as electrical impulses to the central nervous system (CNS)

The CNS is the brain and the spinal cord.

Coordinates the response of effectors; muscles contracting or glands secreting hormones

Stimulus	Lights switch on
Receptor	Cells in retina
Coordinator	CNS
Effector	Muscles connected to iris
Response	Pupils get smaller

Knowledge Organiser: Year 8 January – June Design and make an automaton

Automata

An automaton generally refers to a moving, mechanical device, usually constructed to look like a human or animal figure. Automatons are built to give the illusion of acting as if by their own power, despite comprising only of mechanical systems. Sometimes referred to as Mechanical Toys or Kinetic Art, they are marvellous small machines that utilize most of the mechanical processes which can be found in almost every modern machine employing cams, gears, ratchets and cranks.

Mechanisms

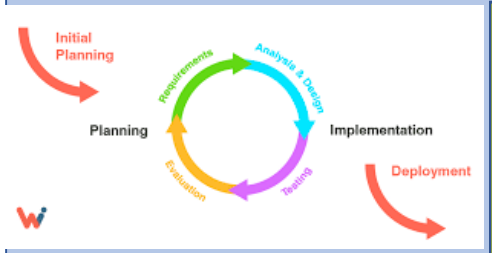
Mechanical devices all have an input motion, which transforms into force to make an output motion. The four types of motion are:

Linear **rotary** **reciprocating** **oscillating**

Designers and makers are often influenced by past or current designers and art movements They can start with a design context which leads to a design brief. The context is explored and a design brief is written. The designer needs to carry out research to help them to design and make a successful product.

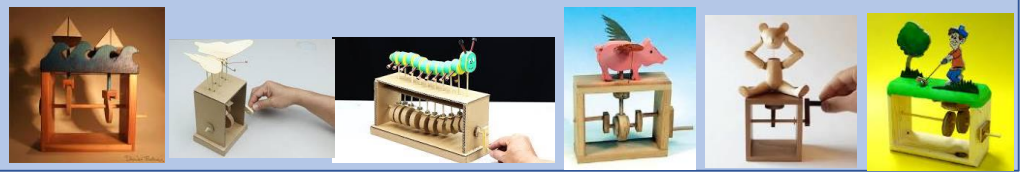
The Iterative Design Process

This is the process of prototyping, testing and refining your product, acting on feedback from your primary users and stakeholders.



Questions to think about when designing and making?
Who is going to use it? When and where will it be used?
What material(s) could I use to make it? How can I make it so that it is as environmentally friendly as possible? What impact will it have on the users life? Can it be recycled easily? How long will it last?

These are examples of mechanical toys.



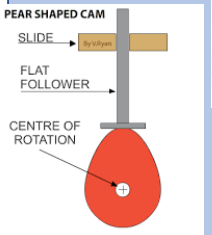
Pine and MDF

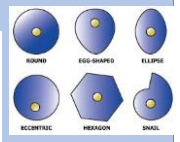
Wood comes in 3 categories: soft wood, hard wood and manufactured wood. They have different properties and are used for many things.

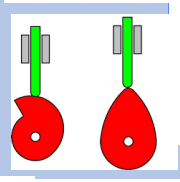
Measuring, marking out and cutting wood and plastic

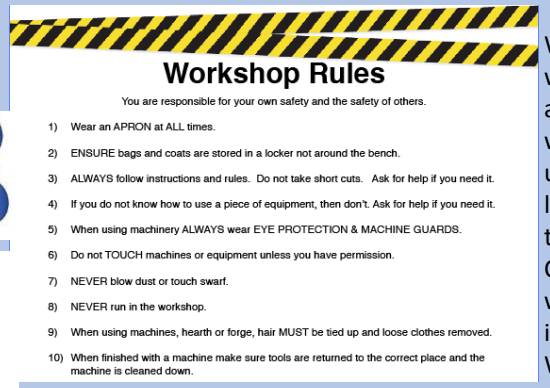
- Use a ruler to measure accurately, use a set square to mark accurate angles, a ruler to draw a straight line and use a tenon saw, coping saw or fret saw to cut wood. Use a junior hacksaw to cut acrylic.
- MEASURE TWICE – CUT ONCE! Why do we say this in D&T?
- Use wood PVA glue to join wood. Use epoxy resin to join wood to plastic.

You will be using cams and gears to add the movement to your toy

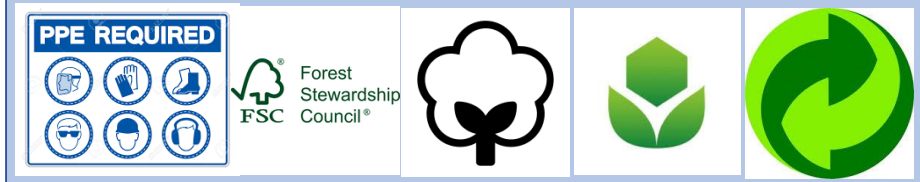








When you are in the Academy workshop it is so important you are safe. We will show you what tools to use and how to use them safely. You must listen to and respond first time to all instructions.
Can you think of any more workshop rules? Why is it so important to follow these?
What does COSHH stand for and why is it important in D&T?



What PPE did you wear in the Academy workshop and why?
Can you name and explain the logos on the left?

Health and Safety

Micro-organisms

Micro-organisms are tiny forms of life. They can only be seen under a microscope and are sometimes called microbes.
They spoil food and make it unsafe to eat because they contaminate it with their waste products, their physical presence and the toxins they produce.

What micro-organisms can spoil food and make it unsafe to eat?

There are three groups of micro-organisms that you need to know about that spoil food and cause food poisoning. These are..

- Bacteria
- Moulds
- Yeasts

Micro organisms need 5 conditions to grow and multiply:

1. A warm temperature
2. Plenty of moisture (water)
3. Plenty of food
4. The right PH level (not too acidic or alkaline
5. Enough time (bacteria split every 10-20 minutes)

High risk foods

- High risk food have ideal conditions for bacteria
- High risk foods are ready to eat foods that could grow harmful bacteria
- They are moist and high in protein which is food for bacteria.
- High risk foods have a short shelf life – you can't keep them for long or the bacteria might multiply to dangerous levels.

Examples of high risk foods:

Cooked meat, fish and poultry, dairy products (eggs, cheese etc.), gravies, stocks and sauces, shellfish, cooked rice.

Example exam questions:

What five conditions to bacteria need to grow and multiply? (5 marks)
What is a high risk food? (5 marks)

Storing food safely

Cooking (75°C)	The danger zone (5°C-63°C)
• Cooking food above 75°C kills bacteria • Re-heat food properly, only once. Reheat food so 75°C for at least 3 minutes • Check the food is 75°C with a temperature probe	• Bacteria can grow and multiply quickly between 5°C to 63°C. • This is called the danger zone • The optimum temperature for bacterial growth is 37°C
Chilling (0°C – 5°C)	**Freezing (-18°C)**
• Keeping food between 0°C and 5°C slows down the growth of bacteria • This extends the shelf life of food • Chilling food doesn't change the properties much – food looks and tastes the same	• Freezing food below -18°C stops bacteria growing – they become dormant • Freezing generally extends shelf life and the nutrients aren't lost • It doesn't kill the bacteria though. They become active again once the food defrosts.

Preparing self for cooking

- Tie hair back to prevent hair and dandruff falling in food
- Take off coats and blazers
- Wear an apron to prevent bacteria transferring from our clothes to our food
- Wash hands with hot soapy water to kill bacteria

Preparing the room for cooking

- Sanitise all work surfaces
- Check equipment is clean and dry
- Tuck all stools in as they can be a trip hazard
- Put all high risk foods in the fridge to slow bacteria growth

Wash your hands after:

- Coughing
- Sneezing
- Tying shoe laces
- Going to the toilet
- Touching hair or face

Nutrition

Nutrients

Macro nutrients – needed in large quantities in the diet. The three macro nutrients are: PROTEIN, CARHOHYDRATES, FAT
Micro nutrients – needed in small quantities in the diet. The two micro nutrients are: VITAMINS, MINERALS

Protein

Proteins are made up of amino acids, often referred to as the 'building blocks' of the body. Non-essential amino acids can be made by the body, how ever, essential amino acids cant be made by the body and we must get from the food we eat.
High biological Value (HBV) proteins contain all the essential amino acids we need and generally come from animal sources. Low biological value (LBV) proteins are missing one of more essential amino acids and generally come from plant sources.

Food sources

HBV - beef, pork, lamb, poultry (chicken, turkey, duck), fish, cheese, butter milk
LBV – beans, chickpeas, lentils, peas, nuts, seeds, found in smaller amounts in some vegetables such as spinach and broccoli.

Function

Needed for growth from childhood to adulthood and the growth of nails, hair and muscle mass, repair of muscles, tissues and organs after illness or injury and to make enzymes for digestion and antibodies to stop us getting ill.

Example exam questions:
What are the two types of fat? (2 marks)
Explain the difference between a HBV and LBV protein (6 marks)

Carbohydrates

There are two types of carbohydrates, complex and simple. They are also known as starchy (complex) and sugary (simple).

Food sources

Starchy – bread, rice, pasta, potatoes, bagels, oats, flour, cereal and some vegetables.
Simple – fruit, some vegetables, chocolate, sweets, biscuits, cakes

Function

Starchy/complex carbohydrates are digested slowly and provide long term energy.
Sugary/simple carbohydrates are digested slowly and provide short term energy

Fat

There are two types of fat, saturated and non saturated.
Saturated fats are classed as 'unhealthy fats', they are solid at room temperature and are generally animal based.
Unsaturated fats are classed as 'healthier fats' and are liquid or soft at room temperature and come from plant based sources.

Food sources

Animal –beef, chicken skin, processed meat (sausages, salami, pepperoni), bacon, butter, cheese, full fat milk
Plant – vegetable oils (sunflower, olive, rapeseed), avocado, nuts, seeds

Function

Keeps us warm (provides insulation), secondary source of energy, protects vital organs and bones.

Dietary related health problems

Too much sugar can cause:

1. Weight gain (which can lead to obesity)
2. Tooth decay
3. Diabetes (your body cannot produce enough/any insulin to regulate your blood sugar levels)

Too much salt can cause:

1. High blood pressure (this can increase your risk of heart disease and a stroke).

Too much saturated fat can cause:

1. Weight gain (which can lead to obesity)
2. High cholesterol (this narrows arteries making it harder for the blood to travel around, putting you at risk of heart disease).

The Eatwell guide

The Eatwell guide

The Eatwell guide is a government guide designed to show you the proportions of different foods groups you should eat over a day or more.

Tips on making healthy choices from the eatwell guide:

Fruit and vegetables: eat 5 portions of fruit and vegetables a day, this should make up 1/3 of your plate a day, fresh, frozen, canned, dried and fruit juice/smoothies all count, don't exceed 150ml of fruit juice/smoothie a day as it can cause tooth decay, try snacking on fruit over high sugar and fat foods,

Potatoes, bread, rice, pasta and other starchy carbohydrates: choose non-sugary cereals, leave the skin on potatoes, choose wholemeal options of foods such as bread, rice and pasta.

Oils and spreads: choose unsaturated fats such as vegetable oils and margarine over butter, use in small amounts.

Dairy and alternatives: choose lower fat options such as skimmed milk and low fat and salt cheese, choose low sugar yogurts and add fruit as a natural sweetener.

Beans, pulses, fish, eggs, meat and other proteins: eat more beans and pulses as they are high in fibre and fill you up for longer, cut the visible fat off meat, choose lower fat meat options, eat 2 portions of fish a week.

Water: drink 2-3 litres of water a day, choose lower sugar option drinks.

8 Guidelines for Healthy Eating

1. Base your meals on starchy carbohydrates	• This should make up 1/3 of your diet • Chose high fibre, whole grain options e.g. pasta, rice • Try to include one starchy food with each meal	5. Eat less salt – no more than 6g a day for adults	• Eating too much salt can raise blood pressure, this puts you at high risk of heart disease or a stroke • Most of the salt you eat is already in food, check the labels to help you choose low salt options
2. Eat lots of fruit and vegetables	• Try adding a banana to cereal or swap crisps for fruit • Always serve main meals with two vegetables • Beans and pulses can count as 1 of your 5 portions	6. Get active and be a healthy weight	• Regular exercise can reduce your risk of getting serious health conditions • Aim for 150 minutes of exercise a week
3. Eat more fish – including one portion of oily fish	• Fish is a source of protein and vitamins and minerals • It contains omega 3 (good for eyes, skin, brain heart) • Oily fish includes: salmon, herring, mackerel, sardines	7. Don't get thirsty	• 6-8 cups a day, 2-3 litres • Avoid sugary and fizzy drinks as they're bad for teeth • Remember fruit juice and smoothies is also high in sugar
4. Cut down on saturated fat and sugar	• All types of fat are high in energy and should be eaten in small amounts • Excess sugar can cause weight gain and tooth decay	8. Don't skip breakfast	• Kick starts you for the day • choose healthy low fat, sugar and salt and high fibre • Choose low sugar cereals and granola

Seasonal Produce and Air Miles

Seasonal produce

Seasonality of **food** refers to the times of year when the harvest or the flavour of a given type **food** is at its peak. This is usually the time when the item is the cheapest and the freshest on the market.
The **food's** peak harvest time usually coincides with when its flavour is at its best.

Advantages of local, seasonal foods foods

- Often cheaper as it is not imported and there is a larger quantity of the food available
- Fresher as it has taken less time to travel and less storage time.
- High in nutrients – fruit and vegetables lose nutrients over time after being picked. With less travel and storage time, they lose less nutrients.
- Tastes better as it is fresher and higher in nutrients.

Disadvantages of local, seasonal foods

- There is a smaller range of foods available
- Not importing foods means not supporting farmers in developing countries.

Examples of UK grown produce

Autumn	Winter	Spring	Summer
Apples Mushrooms Beetroot Pears Potatoes Pumpkin Garlic	Cauliflower Sprouts Suedes Sweet potato Broccoli Oranges Cabbage	Strawberry Carrot Lettuce Leeks Asparagus Peas Spring onion	Cucumber Aubergine Tomato Raspberry Courgette Onion Corn on the cob

Food miles

- If we're not eating fresh, seasonal food grown in the UK, the food has travelled from abroad to reach us.
- Food miles are clocked up by the fresh fruit and vegetables arriving by plane from across the globe.
- Then the fruit gets loaded in to lorries and driven across various parts of the country to supermarkets
- Then once on a shelf the products are then bought by people who then drive it back home.

Food miles are the measure of the distance a food travels from field to plate. This travel adds substantially to the Carbon Dioxide emissions that are contributing to climate change. The amount of food being flown into the UK doubled in the 1990s and is predicted to rise further each year. Consumers are also directly responsible for increased food miles. We now travel further for our shopping and use the car more often to do it.

Advantages of importing foods

- A wide range of foods are available in our shops all year round e.g. strawberries at Christmas.
- Less energy is used growing certain crops in poorer countries as there is no need for heating glasshouses etc. (less damage to the environment)

Disadvantages of importing foods

- Its harder to monitor food production standard and conditions for workers in countries far away.
- Taxes on imported foods means farmers in developing countries don't always receive a fair price for their foods.
- Food that has travelled a long distance is less fresh by the time it reaches the shelves
- People do not buy local produce as much so local UK farmers don't make as much money
- Increased road traffic as more food is being transported around the holiday
- There is increased used of fuel for the road transport plus the carbon dioxide emissions related
- The amount of food flown into the UK increases each year which means the UK is not self-sufficient
- Pressure to expand food production has led to the destruction of environments in some poorer countries
- Over 60% of household waste is a result of food packaging
- Fresh spinach looses over 90% of its vitamin C in the first 24 hours of harvest

Examples of imported foods

Pineapple, mango, tomatoes, celery, potatoes, bananas, nuts, sugar, chicken, lamb, beef, fish, oil, cocoa beans, grapes, tea, coffee, rice, soya bean, herbs, spices, olives, capers, avocado, cauliflower, broccoli

Food Packaging

Food packaging
Food is packaged to protect the product during transport and whilst sitting on shelves.

Why is food labelling important?
Symbols on packaging show important information to customers.

Giving farmers a fair price for their products.	Forest Stewardship Council – helping effectively manage forests.	Suitable for home freezing.	Eggs have been produced to the highest standards of food safety.	Vegetarian approved – free from animal products.
This product can be recycled.	A British organisation that promotes and regulates food quality.	Tidy man – do not litter.	Food which abides by the Islamic law. The Islamic way of slaughtering is cutting the throat and draining the blood.	An ethical food label – helping farm animals have a good life.

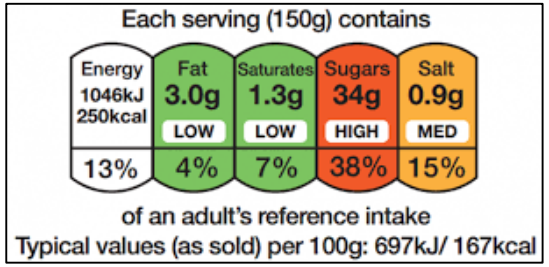
Example exam questions:
Seasonal produce and air miles
What are the advantage of buying locally produced, seasonal produce? (6 marks)
Explain the disadvantages of buying imported foods. (10 marks)
Explain the term 'air miles' (3 marks)
Explain the term 'seasonal produce' (3 marks)
How might a restaurant use the fact they only use

Food packaging
Compare the two dishes and explain which dish is a healthier choice. Use the traffic light system to help you with your answer (6 marks).
Why is it important to include a vegetarian symbol on food packaging of vegetarian products? (2 marks)

Reference intake

You'll see reference intakes referred to on food labels. They show you the maximum amount of calories and nutrients you should eat in a day. Most packaging has a colour coded label on the front to help you make healthy choices.

Reference in take amounts:
Kcal (calories) – 2000
Total Fat -70g
Saturated fat – 20g
Sugar – 90g
Salt – less that 6g



Red means HIGH in that nutrient
Amber means MEDIUM in that nutrient
Green means LOW in that nutrient

Reference intakes are not meant to be targets. They just give you a rough idea of how much energy you should be eating each day, and how much fat, sugar, salt and so on.
The percentages represent how much of your reference intake is in the product, e.g. the product has 3.0g of FAT in it, that is 4% of 70g of fat.

Banana pancakes

Ingredients (makes 5)
1 banana mashed with a fork
1 egg
70g self-raising flour
1tbsp light brown sugar
OR chocolate chips
60ml milk
25g melted butter

Equipment
Frying pan
Jug
Bowl
Spoon
Spatula
Fork

Skills
Weighing
Mixing
Whisking
Melting
frying

Method

1. Combine all ingredients together

2. Cook until brown on both sides in some melted butter.

Apple Crumble

Ingredients

100g Flour
50g sugar
50g margarine
1 cooking apple or two small apples

Equipment

Chopping board
Knife
peeler
Bowl
wooden spoon
Scales
tinfoil container

Skills

Chopping
Peeling
Weighing
Rubbing in method

1. Peel and slice the apple and place in a oven proof dish

2. Put the margarine and flour into a mixing bowl.

3. Rub the margarine into the flour until it looks like breadcrumbs.

4. Add the sugar and stir well.

5. Pour the crumble mixture over the apple.

5. Bake for 20-25mins on Gas 5 / 180°C until the crumble is golden brown.

Tomato and basil quiche

Ingredients
100g plain flour
50g butter or margarine
2tbsp cold water
1 tomato
Handful of basil leaves
2 eggs
125ml semi-skimmed milk
50g cheese

Equipment
Bowl
Weighing scales
Spoon
Jug
Chopping board
knife

Skills
Weighing
measuring
Rubbing in method
Seasoning

1. Pre-heat the oven to 180°C. Rub the butter and flour together until it resembles bread crumbs.

2. Add the water gradually until the pastry comes together into a ball.

3. Roll out the pastry and line your dish.

4. Mix the eggs, milk, mixed herbs and seasoning in a jug.

5. Pour the egg mixture into the pastry shell.

6. Slice the tomatoes and cheese and lay over the top of the tart. Bake in the oven for 30 minutes.

Year 8 Knowledge Organiser: Natural Hazards

Topics covered

- ✓ Types of natural hazards
- ✓ The structure of the earth
- ✓ Tectonic plates
- ✓ Plate boundaries
- ✓ Earthquakes and volcanoes distribution
- ✓ Earthquake effects
- ✓ Earthquake management
- ✓ Volcano types
- ✓ Effects of volcanoes
- ✓ Managing volcanoes

Key Ideas:

1. I can describe types of natural hazards
2. I can describe the movement of tectonic plates
3. I can describe earthquakes and volcanoes effects
4. I can explain how the dangers of earthquakes and volcanoes can be managed

Skills

- ❑ To investigate earthquake frequency using **USGS** website
- ❑ To use mapping to identify earthquake and volcano distribution (spread)
- ❑ To read written accounts of earthquakes
- ❑ To classify earthquake effects
- ❑ To use **ICT/MS Office** to present to my class on an earthquake 'proof' design building

Places and Environments

- ❖ Edinburgh Castle
- ❖ Loch Ness
- ❖ Iceland
- ❖ San Andreas Fault
- ❖ Himalayas
- ❖ Ring of Fire
- ❖ Yellowstone NP

Key Terms Used in this Unit

- ❑ Geophysical hazards
- ❑ Atmospheric hazards
- ❑ Core/Mantle/Crust
- ❑ Destructive/ Constructive/ Conservative/Collision plate boundary
- ❑ Seismograph
- ❑ Richter Scale
- ❑ Mercalli Scale
- ❑ Aftershock
- ❑ Magma/Lava
- ❑ Pyroclastic Flow
- ❑ Composite volcano
- ❑ Shield volcano
- ❑ Volcanic Bomb
- ❑ Exclusion Zone
- ❑ Shock absorbers
- ❑ Liquefaction

Knowledge Organiser: Year 8 Spring Term 1 Part 1 Computational Thinking and Algorithms

Summary

An **algorithm** is a plan, a logical step-by-step process for solving a problem. Algorithms are normally written as a **flowchart** or in **pseudocode**. The key to any problem-solving task is to guide your thought process. The most useful thing to do is keep asking 'What if we did it this way?' Exploring different ways of solving a problem can help to find the best way to solve it. When designing an algorithm, consider if there is more than one way of solving the problem.

When designing an algorithm there are two main areas to look at:

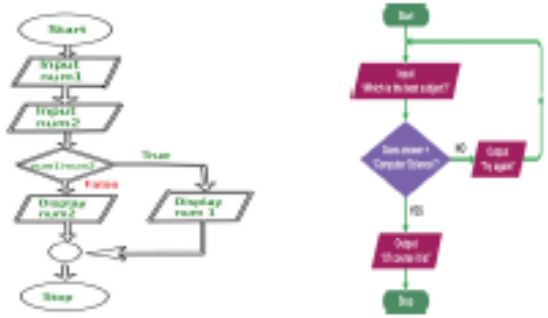
The big picture - What is the final goal?

The individual stages – What hurdles need to be overcome on the way to the goal?

Before an algorithm can be designed, it is important to check that the problem is completely understood. There are a number of basic things to know in order to really understand the problem:

What are the **inputs** into the problem?
What will be the **outputs** of the problem?
In what order do **instructions** need to be carried out? What decisions need to be made in the problem? Are any areas of the problem repeated?

Flowchart—Uses Images



Key Vocabulary

Abstraction	The process of separating and filtering out ideas and specific details that are not needed in order to concentrate on those that are needed.
Algorithm	A diagram that shows a process, made up of boxes representing steps, decision, inputs and outputs.
Decomposition	The breaking down of a system into smaller parts that are easier to understand, program and maintain
Pattern recognition	Finding similarities and patterns in order to solve complex problems more efficiently.
Program	Sequences of instructions for a computer
Programming	The process of writing computer software.

PseudoCode—uses structured Engliah

INPUT – indicates a user will be inputting something

OUTPUT – indicates that an output will appear on the screen

WHILE – a **loop** (**iteration** that has a **condition** at the beginning)

FOR – a counting loop (iteration)

REPEAT – UNTIL – a loop (iteration) that has a condition at the end#

IF – THEN – ELSE – a decision (**selection**) in which a choice is made

http://bit.ly/37bouhy

Year 8 RS: How does Creation narratives shape what it means to be human?

Key words	
Holy	Humans have the ability to make their own choices.
Sacred	Humans have the ability to know right from wrong and can choose right or wrong behaviour.
Sanctity of Life	Actions that are caused by man that lead to suffering.
Theory of Evolution	The idea that life developed by chance through a slow process of change.
Big Bang Theory	The belief that God is all powerful.
Creation	The belief about how the world was made.
Genesis	The belief that God is all present– he is everywhere,
Stewardship	Looking after something for someone else.
Environment	The natural world that supports us.

Creation stories for Sikhism and Buddhism are not included because they don't exist. Sikhs believe that the world was created by God, but don't have a story to explain how.

Buddhists generally do not see the point in trying to explain the origins of the world, preferring to deal with the here and now. They say that if you are shot by an arrow, you don't worry about where it came from, you just worry about getting it out.

In the in the religious stories, responsibility for the planet is given to human beings. This is called stewardship.

Christian beliefs on Creation

Christians believe that the world did not appear by random chance. Instead they believe that the universe was intelligently designed by God. The Bible teaches that the world was created in a planned and organised way and that each act of creation happened because God spoke it into being.

In the beginning there was darkness and nothingness and the earth was without shape or form, but then God spoke creation into being.

First, light appeared.

Then, God separated the water of the seas from the water in the atmosphere by creating the sky.

Next God commanded the ground to appear; separating the sea from the land. After this he created plants, vegetation and trees each with seeds within them, so that they could reproduce and grow.

Following this, lights were set in place in the universe so they could mark the passing of time; the days and seasons and years. These lights were called the sun, moon and stars.

After this, God created all water creatures and birds and he gave them the ability to increase and reproduce. In the final acts of creation, God made all land, animals and human beings. According to the Bible, God gave the task of caring for the planet and the role of being responsible for looking after creation to human beings. The Christian Creation story teaches that the world was made perfect and wonderful, but that the selfish and disobedient behaviour of people spoilt the world.

Hindu beliefs about Creation

Before time began there was no Earth, no heaven, no space, nothing. The waves of a vast, dark ocean lapped on the edge of this nothingness and a giant cobra floated on the waters. Lying asleep in the snake's coils was lord Vishnu. The snake kept him safe and he slept peacefully.

Slowly, a sound started, "om".

It grew louder and filled the emptiness. It throbbed with energy and drove the emptiness away. Lord Vishnu woke up and a magnificent lotus flower grew from his navel. Right in the middle of the flower sat Brahma. Lord Vishnu told Brahma to set to work and create a world.

Still sitting in the flower, Brahma calmed the wind, stilled the waves and brought peace. Brahma spilt the lotus flower making three different parts: the heavens, the earth and the sky. To start with the earth was bare so Brahma created grass, flowers, trees and plants. He let living things evolve so that the earth became full of animals, birds and fish.

Hindus have many ways of thinking about God. They say there is one God but use different names when he does different thing. When God creates he is called Brahma. When he looks after the creation he is called Vishnu. As lord Shiva he will destroy the universe.

Aboriginal beliefs about Creation

We have been told, as our fathers were before us, then there was land, but it was a bare, flat, barren plain. No animals ran there. No birds sang overhead. No trees or bushes grew. No sound of water could be heard. Nor was there any man or woman.

Baiame, or the Maker of Many Things as some call him, brought the Dreamtime ancestors from under the ground and over the seas. With them, life came to the barren, flat plain. Some of the Dreamtime ancestors looked like men or women. Others looked like the animals or creatures which descended from them. But often the Dreamtime ancestors could change their shape. So, the swordfish ancestor could look like a swordfish, or a man or woman.

As the Dreamtime ancestors wandered over the land, many adventures befell them. They met with other ancestors. Arguments often arose and the ancestors would set out on their travels again. They met strange creatures and fought battles. Each time something happened, the very shape of the land changed. Hills arose, plants grew. Where the Barramundi-fish ancestor swam, rivers appeared. When people, ancestors or animals did what they should not, the Rainbow Snake would rush down upon them. He would either drown them, making bays and river, or swallow them. Then he would spit out their bones to form rocks and hills. But the Rainbow Snake is not just vengeful. To some peoples the Rainbow Snake is Old Woman, who in the Dreamtime taught her children – humans – to talk and understand, to dig for food, and what to eat. And the sun, moon and stars? These also came to be in the Dreamtime. For one day Emu ancestor and Eagle ancestor were fighting. Eagle took one of Emu's eggs and threw it into the air. Soaring up, it burst into flames. Baiame fed the flame with wood. So, the sun was made, and is made anew each day with fresh wood. The Dreamtime ancestors taught their groups how to perform secret ceremonies. Then the ancestors sank back into the earth or rose into the sky, but remain ever present. But Dreamtime is not over. For when ceremonies are preformed, Dreamtime comes to who celebrate, and they learn to see this land as the Dreaming sees it – alive.

Going the extra mile activities.
Here are some great ideas to do with family to avoid boredom that go above and beyond during the next half term.

The Arts	DT	English and Drama	Humanities	PE	Maths	Science
Create a Christmas play for you and your friends to work on over the internet. Make it hilarious.	Research what different kinds of materials plumbers use. Why is copper used for some pipes and plastic for others? What sort of plastic is used?	Watch one of the briefings by the government. What makes a good information giving speech? How is it being delivered?	Create a detailed plan to make the world more economically equal when we are all back to normal. Share it with anyone you can get to listen.	Create a new lockdown Olympic Sport. With the cancellation of Tokyo, your sport needs a name, at least 3 rules and a list of equipment needed.	Explain what a square root is to someone really not mathematical.	Use equipment in your home to demonstrate the principle of moments.
Develop an observational humour stand up show. Watch how comedians tell a story. Think about their delivery and how they make it look like they have just had that thought. Try it.	Design a meme. One that is informative but also can make someone laugh.	Use one of the excellent library apps to listen to or read "Of Mice and Men." How can we be like Lenny?	In 1917 Russia had a great revolution. What would a great revolution look like in 2027? What would be the similarities and differences if Year 9 were in charge?	Get family members to play even by TEAMs or Zoom! Send it to the organisers of the Quarantine Olympics to include it in the next games!	Where can we find the Fibonacci sequence in nature? Do some research!	Help something grow.
Watch a performance by an artist you love – many are on Instagram or YouTube. Evaluate the difference between a live performance and a studio edit.	Make an interesting paper model. Do some origami research to find something fascinating to attempt.	Describe the American dream. How has this driven culture in the Western world? Have a discussion with as many adults as you can.	Why are we fascinated by crime? What makes Jack the Ripper such an interesting topic? Find out why if you can!	Create a diary of your physical activity each week. This could be a simple grid or list of activities.	Make some mathematical art using materials at home like packets and boxes.	Research the health issues regarding vaping. Vaping is new. Is there enough mature research to definitely describe how safe or otherwise it is?
Make a playlist that means something to you. Share it with friends and explain why it matters to you.	Invent a new recipe and test it. Evaluate it compared to commercial products.	Watch a film. Be a film critic. You are being interviewed to review the film on radio 4. What would you say?	How can we be greener as a society using technology? Create an infomercial advertising a product.	Think about what exercise or activity you completed, how long did you exercise for and how you felt during and after the activity.	Use your maths skills on page 49 to produce the report on page 35. This is the challenge from Mr Ford. How good can this be?	Find out how fans in ovens influence cooking times. What has this to do with convection?