

1 – Definitions

Line drawing: a drawing done using only lines, without blocks of shading.

Blind drawing: drawing without looking at your paper

Continuous line drawing: drawing in one single line without lifting your pen of the paper.

Texture: The way something feels to the touch. Texture is shown in drawing using mark-making.



2 – Kris Trappeniers

Kris Trappeniers is a stencil and paper cut artist from Belgium. His delicately cut paper templates that are complex and detailed, the twisting, curving line work creating amazing portraits.

His portraits show a network of connections to create a powerful and striking image, in what seems to be a single continuous line.



3 – Grid Method

The grid method involves drawing a grid over your reference photo, and then drawing an identical grid on your paper.

Then you copy the image on your paper, focusing on one square at a time, until the entire image has been copied.

Once you've finished, you simply rub out the grid lines, and complete your drawing, which will be now be in perfect proportions!



4 – Definitions

Tone: Tone describes how light or how dark something is. It is also called shading.

The parts of the object on which the light is strongest are called **highlights** and the darker areas are called **shadows**.

Proportions: The size relationships between different parts. For instance the height compared to the width.

5 – Mark Powell

Mark Powell is a British artist that was born in Yorkshire. He is best know for his intricate biro portraits done on vintage envelopes and papers.

He says: "I choose a biro because it is the most simple and readily available tool. I want to show how easy it is to have the chance to create. I want it to inspire people to give it a go without the need to spend money on arts and crafts."



6 – Adrian Brandon

Adrian Brandon is an American Artist based in Brooklyn.

His *Stolen* series is dedicated to the many black people that were robbed of their lives at the hands of the police in the US.

He uses time as a medium to define how long each portrait is coloured in. 1 year of life = 1 minute of colour. George Floyd lived for 46 years so he coloured his portrait for 46 minutes.



1: Features of a word processor	2: Licensing images	3: Credibility of sources
<p>Software – Programs used on a computer</p> <p>Word processor – A word processor allows you to type letters/symbols/words electronically and save, print, and edit the document.</p> <p>Browser – Software that allows you to access the internet</p> <p>Formatting – Change the appearance of the document</p> <p>Why do we format documents</p> <ul style="list-style-type: none"> • To make the text easy to read • To make it easy for the audience to extract the information that they need • To highlight the important information 	<ul style="list-style-type: none"> • Copyright – A law to protect people copying their work • Adaptations – Are changes and modifications • Copyright license – Is an agreement in Copyright law. • Commercial use - Making money from something • Cropped – removing unwanted areas in a picture • Text wrapped - a feature in Microsoft Word that allows you to surround a picture or diagram with text. 	<p>Credibility – Being trusted and believed in.</p> <p>Trustworthy – being relied on as honest or truthful.</p> <p>Hyperlink – a link to another location</p> <p>Source – The place or thing where something comes from.</p> <p>Implication – the effect that an action or decision will have on something.</p> <p>Contribute – something that you do to help produce or achieve something.</p> <p>Target Audience – a group of people that something is aimed at.</p> <p>Charity – Giving help to those in need.</p>
4: Research and plan	5: Promoting your cause	6: Example blogs
<p>Blog – A blog is a discussion or informational website published on the World Wide Web</p> <p>Research – To try and find information.</p> <p>Citation – A word or piece of writing taken from a written work</p> <p>Plagiarism – The process or practice of using another person’s ideas or work and pretending that it is your own</p> <p>Paraphrase - To repeat something written or spoken using different words, often in a humorous form or in a simpler and shorter form that makes the original meaning clearer</p>	<ul style="list-style-type: none"> • Promoting – the publicising of cause. • Appropriate images – images suitable for the blog. • Attribute to author – stating where you got the information from. • Referenced – links to where the information was collected from. • Microsoft Word – a word processing software, mainly used to type reports, create tables. • Publisher – is a desktop publishing software used for leaflets, Poster and Menus etc. <div style="display: flex; justify-content: center; gap: 20px; margin-top: 10px;">   </div>	<p>IGN – Video games blogging</p> <p>Huffington Post – A news blog</p> <p>Food 52 – Food blogging</p> <p>Rose and Vintage – Fashion blog</p> 

1: Greek Theatre Origins

- A festival honoring the god Dionysus was held in Athens, out of which three dramatic genres emerged: tragedy, comedy and the satyr play.
- The plot of a tragedy was almost always inspired by episodes from Greek mythology.
- A **myth** is a well-known story which was made up in the past to explain natural events or to justify religious beliefs.

2: Greek Chorus

- A typical Greek chorus consisted of a group of 12 to 50 players who spoke or sang their lines in unison, wore masks, and functioned as one actor rather than a large group of individual performers.
- The purpose of the Greek chorus was to provide background and summary information to the audience to help them understand what was going on in the performance.
- They commented on themes, expressed what the main characters couldn't say (like secrets, thoughts, and fears) and provided other characters with information and insights.
- Because Greek theatres were so large, the members of the chorus had to work hard to look and sound like one person.

3: Mask Theatre

Mask: a covering for all or part of the face

If you're using masks in your performance remember that your facial expressions can't be seen so:

- *your body language has to be extremely clear*
- *your movement and gestures need to be exaggerated to show emotions*
- *you must bring your whole body into the performance*

4: NVC Skills

Non Verbal Communication (NVC) relates to the way movements, posture and gestures can show how someone feels without speaking.

facial expression: the appearance, mood or feeling conveyed by a person's face

posture: the position a character holds themselves in when sitting or standing

gesture: a movement made by part of the body (e.g. arms, head) to convey a character's emotions

gait: a person's manner of walking

5: Vocal Skills

- **Pitch:** the degree of highness or lowness of the voice
- **Pace:** the speed at which someone speaks
- **Tone:** a quality in the voice that expresses the speaker's feelings or thoughts
- **Volume:** the degree of loudness or the intensity of a sound

6: Performance Skills

To ensure that you give an effective performance in the style of Greek theatre, the skills and points below should be incorporated:

- Greek Theatre Techniques (Box 2 and 3)
- NVC—Non Verbal Communication (Box 4)
- Vocal Skills (Box 5)
- remain in character
- don't have your back to the audience

Oracy Focus

oracy: the ability to express oneself fluently and grammatically in speech

volume: ensure that your voice reaches everyone in the audience

clarity: ensure that you speaking clearly

pace: ensure that your pace of speech is appropriate to your character

1: Vocabulary

conveys (verb): to express a thought, feeling or idea.

deduce (verb): to reach an answer or decision by thinking carefully about the known facts.

denouement (noun): the final outcome of a story

highlights (verb): to attract attention or make something stand out

omniscient (noun): knowing everything— an omniscient narrator knows everything that happens in a story.

realisation (noun): the moment of starting to understand a situation

2: Terminology

Atmosphere: the tone or mood that comes about during a certain scene or event.

Chronology: the order in which something happens in a story.

Foreshadowing: is a literary device in which a writer gives an advance hint of what is to come later in the story.

Narrative Perspective: the person who is telling the story, or the narrator, as well as the character from whose point of view the story is told.

Setting: the place or type of surroundings where something is positioned or taking place.

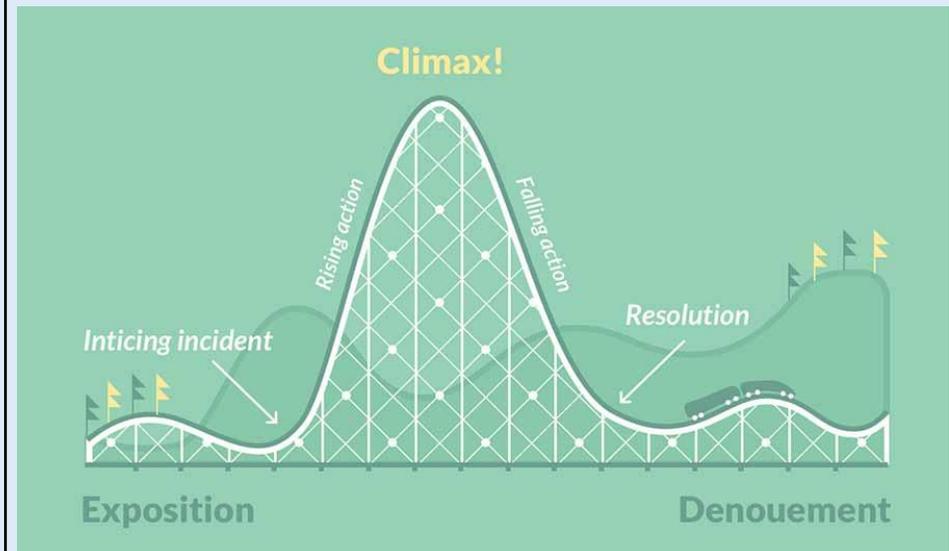
Suspense: the intense feeling a reader goes through while waiting for the outcome of certain events leaving the reader wanting more information.

Syntax: the way in which words are put together to form a sentence.

3: Grammar Pop: Sentence Types

- **main clause:** a sentence that can stand alone
- *e.g. The dog went for a walk.*
- **subordinate clause:** a clause at the start of a sentence that depends on the main clause
- *e.g. When the dog cried, the owner took him for a walk.*
- **simple sentence:** a sentence with only a main clause
- *e.g. She knocked the mug off the shelf.*
- **compound sentence:** at least two simple sentences joined together
- *e.g. She moved too quickly and knocked the mug off the shelf.*
- **complex sentence:** a sentence with a subordinate clause and a main clause
- *e.g. She moved too quickly and knocked the mug off the shelf, but it didn't break.*

4: Narrative Arc



Narrative: story

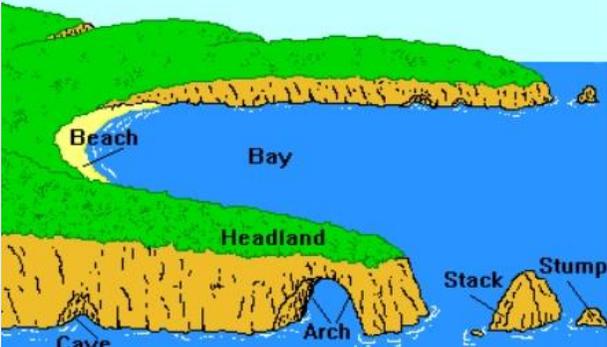
Narrative Arc: the typical chronological order of events that take place in a story. As seen in the image above.

Exposition: (opening) the background information within a narrative that sets the story up.

Rising Action: the part of the story after the characters and setting are introduced and where the events of the story begin to create suspense.

Climax: the most intense, exciting, or important point of the narrative.

Denouement: (ending where all is explained) the final part of a play, film, or narrative in which the plot is drawn together and matters are explained.

1: Water Cycle	2: Long profile of the River	3: How are rivers important to us?
<p>Water on Earth is constantly moving. It is recycled over and over again. This recycling process is called the water cycle.</p> <p>1. Water evaporates into the air The sun heats up water on land, in rivers, lakes and seas and turns it into water vapour. The water vapour rises into the air.</p> <p>2. Water vapour condenses into clouds Water vapour in the air cools down and changes back into tiny drops of liquid water, forming clouds.</p> <p>3. Water falls as precipitation The clouds get heavy and water falls back to the ground in the form of rain or snow.</p> <p>4. Water returns to the sea Rain water runs over the land and collects in lakes or rivers, which take it back to the sea.</p>	<ul style="list-style-type: none"> • Long profile: shows the gradient of a river as it journeys from source to mouth. It spans the source of a river and the mouth. • It is separated into three different river courses. • Upper course: is found in an area of high relief. Water trickles from saturated land and merges to form a channel. In the upper course, there may be rapids and waterfalls as the river flows through steep V-shaped valleys. • Middle course: is further downstream and the relief is usually hilly. The gradient of the long profile becomes more concave as the vertical erosion reduces. • Lower course: is closest to the mouth of the river where the land is low-lying. The gradient is almost flat due to the lack of vertical erosion. 	<ul style="list-style-type: none"> • Importance: the value something has • Economic: relating to money or jobs • Development: grow and become more mature, advanced, or elaborate. • In the UK humans use rivers for irrigation in agriculture, for drinking water, like swimming and boating. for transportation, to produce electricity through hydroelectric dams, and for leisure activities • Rivers can also cause damage to us as well. When a river floods it can damage buildings, roads, parks, wildlife, and cost a lot of money to repair. • However, human use rivers in a negative way as well. They use them for dumping chemical or domestic waste, littering, and leisure activities, which may pollute the water and disrupt wildlife.
4: Erosion and Deposition	5: Coastal Landforms	5: How can we stop erosion?
<ul style="list-style-type: none"> • Erosion – this is where material is taken away by the sea or a river. • Abrasion: this is when pebbles grind along a rock platform, much like sandpaper. • Attrition – this is where rocks collide and become smaller and smoother. • Hydraulic Action – This is the force of river or sea eroding a cliff or river bank. • Solution – this is where rock is dissolved by the sea or river and carried away. • Deposition – this is where material is dropped by the river or the sea. • Where the water flows the fastest or where the wave has the most power. This is where the most erosion of material occurs. 	<ul style="list-style-type: none"> • Landform: this is a feature on the Earth's surface. Landforms on a coast are created due to the different types of rock. Soft rock erodes quicker than hard rock. Think back to the Geology lessons. 	<p>There are two methods to stop erosion on the coast and on a river.</p> <ol style="list-style-type: none"> 1) Man Made structures. Also known as hard engineering. These can be sea or river walls which absorb the energy of a wave to reduce erosion. These are very effective at protecting cities and towns. However, the are very expensive. 2) Natural methods. Also known as soft engineering. These methods use the natural world to protect the coastline. This is where sand is added to a beach or trees are planted. These are low cost but they are not as effective as hard engineering.

1 – Rise of Persecution	2 – Death Squads	3 - Ghettos
<ul style="list-style-type: none"> • Hitler became Chancellor of Germany in 1933. • The Nuremberg laws in 1935 did the following: <ul style="list-style-type: none"> <input type="checkbox"/> Removed Jews as German citizens <input type="checkbox"/> Banned marriage between Jews and Aryan <input type="checkbox"/> Stopped Jews from voting • Jews fled Germany from 1933 onwards. • Jewish synagogues were burned down during Kristallnacht in 1938. <p>Key Dates: 1933 – Hitler became Chancellor of Germany 1935 – Nuremberg Laws Language of the Lesson: The Holocaust – the extermination of Jews in Europe</p>	<ul style="list-style-type: none"> • After Operation Barbarossa (the invasion of the Russia in 1941) 4 million Russian-Jews came under Nazi control. • Jews were rounded up by SS units called the ‘Einsatzgruppen’ also known as ‘Death Squads’. • They would shoot mass groups of Jews, often after making them dig their own graves. • 1.2 million Jews killed by Death Squads. <p>Key Date: June 1941 – The invasion of Russia. Language of the Lesson: execution – the killing of someone Death Squads – Nazis who killed Jews in mass groups</p>	<ul style="list-style-type: none"> • The persecution of the Jews progressed after the outbreak of the Second World War in 1939. • Polish-Jews were transported into forced living areas known as Ghettos. • Living conditions include: five families sharing one room, crowded streets, disease, poor food rations. • Ghettos were monitored by Nazi soldiers. • Most Jews living in Ghettos were later sent to concentration camps to work or die. <p>Key Date: 1939 - Jews were placed into Ghettos, mainly in Poland. Language of the Lesson: Ghetto – forced living for Jews concentration camp – a camp in which you work or die</p>
4 – The Final Solution	5 – Concentration Camps	6 – Perpetrators of the Holocaust
<ul style="list-style-type: none"> • 1942 – The Wannsee Conference • The Nazis developed a plan called the Final Solution. • This involved fit and strong Jews being required to work for the Germans during the Second World War. • The mass extermination of Jews throughout Europe in concentration camps. <p>Key Date: December 1940 – Auschwitz-Birkenau is built</p> <p>Language of the Lesson: extermination – to remove something/someone entirely</p>	<ul style="list-style-type: none"> • Auschwitz designed to support the mass extermination of Jews in gas chambers. • 1.1 million Jews murdered in Auschwitz. • A popular method of extermination was to march Jews to death, known as Death Marches • Auschwitz was liberated by the Russians in January 1945. <p>Key Dates: 1942 – Wannsee Conference 1944–45 – Death Marches</p> <p>Language of the Lesson: liberated – to be set free</p>	<ul style="list-style-type: none"> • Adolf Hitler: <ul style="list-style-type: none"> <input type="checkbox"/> Born in Austria <input type="checkbox"/> Leader of the Nazi Germany 1933-1945 <input type="checkbox"/> Fascist (racist) views towards Jews in particular <input type="checkbox"/> Disliked Jews, homosexuals, Poles, Gypsies. • Heinrich Himmler: <ul style="list-style-type: none"> <input type="checkbox"/> High-ranking Nazi <input type="checkbox"/> Leader of the Einsatzgruppen (SS) <input type="checkbox"/> Built extermination camps <p>Language of the Lesson: perpetrator – someone who commits an immoral act fascist – someone against a particular group of people</p>

1. The first 12 prime numbers

2	17
3	19
5	23
7	29
11	31
13	37

2. Types of number

Factor - When a number can be written as a product of two numbers, these numbers are known as **factors**.
*Example: $3 \times 9 = 27$, therefore 3 and 9 are **factors** of 27*
Factors are always **integers (whole numbers)**

Highest common factor (HCF) - The greatest number which is a factor of two or more numbers

Multiple - A number in a specified timestable
*Example: 9, 18, 27, 36 and 45 are the first five **multiples** of 9, because they are the first five numbers in the 9 times table*

Lowest common multiple (LCM) - The lowest number which is a multiple of two or more numbers.

Prime number - has exactly 2 factors – itself and 1.
 1 is not a prime number as it only has one factor

Prime factors - Factors of a number which are also prime.

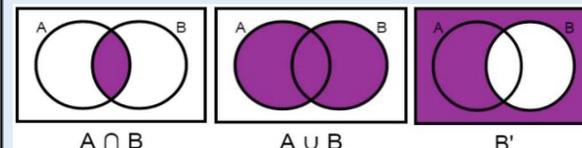
3. Venn diagrams

Venn diagram - A diagram used to categorise

Intersection (\cap) - Elements belong to two or more sets

Union (\cup) - a set made by combining the elements of two sets

Complement ($'$) - Elements which are not in a particular set.



We can find the HCF and LCM of two or more numbers by writing the product of prime factors for each number in a Venn diagram.

The **highest common factor** is the product of the elements in the intersection

The **lowest common multiple** is the product of the elements in the union

4. Percentages

Percentage - A fraction out of 100

% is the symbol used to represent a percentage

Increase - To make an amount bigger. The new amount will be greater than 100%

Decreasing - To make an amount smaller. The new amount will be less than 100%

Multiplier - A number used to increase or decrease an amount by a given percentage
 E.g. to increase an amount by 20% we can multiply the amount by the **multiplier** 1.2
 To decrease an amount by 20%, we can multiply the amount by the **multiplier** 0.8

5. Financial maths

Date	Description	Credit £	Debit £	Balance £
2-May	Opening balance			104.50
5-May	Gift	20		124.50
6-May	Phone Bill		38.50	86

Credit - money going into a bank account. Also known as income

Debit - money going out of a bank account. Also known as expenses

Balance - How much money is in an account

Profit - A financial gain.
 Example: Sam bought a bike for £30 and sold it for £100. He made a profit of £70 ($100 - 30 = 70$)

Loss - Losing money.
 Example: Kate bought a bike for £30 and sold it for £20. She made a £10 loss ($30 - 20 = 10$)

6. Currency

Currency - The money used by a country.

Conversion rate - The ratio between two currencies.
 e.g. £1 = \$1.20. This means that every £1 is worth \$1.20

Exchange rate - Another phrase for **conversion rate**.

Conversion rates and **exchange rates** are used when changing money between currencies.

Sterling - The British currency

Euros - The currency used in the majority of countries in Europe

US Dollars - The currency of America

1: Texture

texture: layers of sounds

monophonic: a single line of music

Homophonic: a melody with accompaniment (harmony)

Polyphonic: lots of musical ideas interweaving between each other.



2: Melody

solo: a single instrument or voice playing independently

duet: when two instruments or voices perform together

countermelody: when an additional melody is performed at the same time as another. Two melodies performing at the same time.

conjunct: when a melody moves in step

disjunct: when a melody jumps around various pitches.

3: Harmony

Chord: two or more notes performed at the same time.

Discord: when notes in a chord clash

Concord: when notes in a chord create a pleasing sound

Cadence: the names give to two chords which form the end of a musical phrase.

4: Timbre

Timbre: the characteristic sound of particular instruments.

Pizzicato: the name given when a stringed instrument is plucked rather than bowed.

Arco: when a string instrument is bowed

Overblow: when a brass/wind player forces extra air through the instrument to create a squeak.

5: Dynamics and Tempo

Tempo

Tempo is how fast or slow a piece of music is played.

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

Dynamics

Dynamics are how loud or quiet music is played.

Dynamic Symbols

Symbols and Italian terms are used to describe how a piece of music should be played.



< **Crescendo**
Becoming gradually louder

ff **Fortissimo**
Very loud

f **Forte**
Loud

mf **Mezzoforte**
Moderately loud

mp **Mezzopiano**
Moderately soft

p **Piano**
Soft

pp **Pianissimo**
Very soft

> **Diminuendo**
Becoming gradually softer



Fitness Testing

Normative data establishes a baseline for a score on a test against which comparisons can be made.

Multistage Fitness Test

This test involves continuous running between two lines 20 meters apart in time to recorded beeps. The time between the beeps gradually becomes shorter.

Vertical jump test

Stand side on to a wall and reach up with the hand closest to the wall. Keeping the feet flat on the ground, the point of the fingertips is marked or recorded. The athlete then leaps vertically as high as possible and this is recorded. The difference in distance between the standing reach height and the jump height is the score. The best of three attempts is recorded.

Grip dynamometer

Hold the dynamometer in the hand to be tested. When ready squeeze the dynamometer with maximum effort, which is maintained for about 5 seconds. The best of three attempts is recorded.

1 min sit up test

Lie on the floor with your knees bent, with feet flat on the ground. Your hands should be resting on your thighs. Count how many sit ups you can do in one minute.

Practicality: is the test appropriate for our environment? For example, can we carry out the test in our school?

Validity: Does the test measure what it says it will measure? For example, if you wanted to test for strength, the 1 minute sit up test would be invalid.

Reliability: If the test were to be repeated would you get the same results? For example, can you rely on the MSFT to give you the same results?

Methods of training

Circuit – exercises at stations

Fartlek – varying intensity and terrain

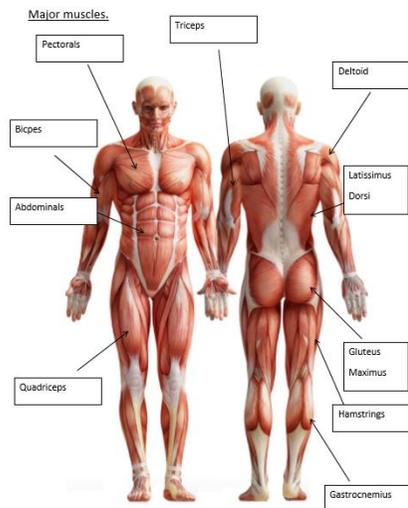
Continuous – at least 30mins no breaks.

HIIT – High Intensity Interval Training

Weight – resistance.

Orienteering – links to continuous/fartlek training due to running between markers.

Muscular system



Effects of exercise

Short term: increase in heart rate, increase in breathing rate, increase in blood pressure. This happens to get more oxygen to the working muscles. Muscles feel fatigued.

Long term: Stronger, more efficient cardiorespiratory system. This happens as the heart muscle grows in size and the lungs are capable of more efficient gas exchange.

Basic Principles of Training

Frequency	How often training takes place (should be 3 times a week at least)
Intensity	How hard the exercise is (should be within your target zone of 60-85% of max heart rate)
Time	How long the exercise lasts (should be at least 30 mins)
Type	Which exercise is undertaken (should be relevant to your training needs)

Additional Principles of Training

Progressive overload	Gradually increasing the intensity at which you work in order to increase fitness.
Individual needs	Matching the exercise to your own goals and needs.
Rest and recovery	Allowing the body to recover from the training and to allow adaptation to occur.
Reversibility	When training is stopped, maybe due to injury, fitness levels will reduce.

Box 1 – How did it Begin?

Hinduism is the religion of the majority of people in India and Nepal. It also has over 900 million followers worldwide! About 3,500 years ago, the people who lived around the River Indus were known as Dravidians. They were invaded from the North by a group of people called Aryans- it is a mixture of these two civilisations from which HINDUISM grew. Hindu traditions are very ancient and have no definite starting point. The traditions which started Hinduism may go back several thousand years and some followers of the religion claim that the Hindu revelation is eternal.

Box 2 – Belief in God

In Hinduism they believe that there is one God (Brahman) but that this God has lots of different faces or ways of showing himself to the world. Three of the most significant forms of Brahman are Brahma, Vishnu and Shiva. These three gods express key aspects of Brahman, the Ultimate Reality. The word trimurti means ‘three faces’. In the trimurti, Brahma is the creator, Vishnu is the preserver and Shiva is the destroyer. In a Hindu temple, there are no images of Brahman. However, there are many images of gods and goddesses, which are aspects of the Brahman, or Divine One.

Box 3 – Deities

Brahma – the creator: Images or murtis of Brahma have four heads, which see in all directions at once. Brahma’s four arms carry symbols of power - a goblet, a bow, a sceptre and the Vedas. Vishnu – the preserver: Images or murtis of Vishnu express splendour and power. His four arms carry symbols of power - a discus, a lotus flower, a conch shell and a mace. Vishnu, god of light and enlightenment has appeared on Earth through avatars. Shiva – the destroyer: Images or murtis of Shiva vary. He is often pictured dancing and with four arms. He holds a drum and a flame, and holds in the his hand a pen, meaning ‘fear not’.

Box 4 – Denominations

Hindus who worship Vishnu and those who worship Shiva each consider that their form of God is especially important. Those who worship Vishnu are called Vaishnavites. These communities emphasise the idea of gods and goddesses appearing on Earth as avatars. They particularly focus on the avatars of Vishnu, such as Rama and Krishna. Those who worship Shiva are called Shaivites. Shaivite traditions are most popular in southern India. These communities often engage in restrictive practices, such as fasting, for spiritual reasons.

Box 5 – The Story of Rama and Sita Part 1

1. A good man, called Rama, was married to a beautiful princess, called Sita
2. They had been banished to live in the forest with his brother, by his stepmother, as she wanted her son to be King.
3. Ravana, the Demon king with ten heads, heard of Sita’s beauty and goodness and planned to kidnap her.
4. The demon king disguised himself as an old man and tricked Sita. He kidnapped her and flew away.

Box 6 – The Story of Rama and Sita Part 2

5. Rama and Lakshman (his brother) searched many months for Sita. Finally, they asked Hanuman for help. Hanuman could fly.
6. He found Sita imprisoned on the island of Lanka.
8. Rama borrowed a special bow and arrow from the gods. Rama shot Ravana and the battle was won.
8. Rama rescued Sita and they decided to go home. As it got dark, the people of the kingdom put out little oil lamps (divas) in their windows to show the way home.

Vocabulary	Definition
Aryans	The original group on Hindus.
Hindus	People who follow the religion of Hinduism.
revelation	Something revealed to humans by God.
eternal	Lasting forever
trimurti	Three faces
avatars	An incarnate (human) version of a God on Earth.
murti	A face.
enlightenment	Realisation that are things are united.
banished	Forbidden from coming back.
imprisoned	Trapped.
discus	A heavy thick disk.
mace	A heavy stick with a spikey head.
goblet	A large metal cup.
sceptre	A large, often golden, staff or stick.
Deity	A God.

1: Chemistry - Particle Model

State:	Arrangement	Movement
solid	regular arrangement	fixed positions
liquid	random	move randomly whilst still touching
gas	random	move freely

Limitations of the Particle Model:

- No forces shown on diagram.
- Particles are not solid spheres.
- Different particles have different sizes.

3: Chemistry-Atoms, Ions and Isotopes

atom	single unit of matter
ion	an atom that has lost or gained electrons
isotope	atoms that have the same atomic number but a different mass number
mass no.	number of protons and neutrons in the nucleus
atomic no.	number of protons in the nucleus
electronic configuration	number of electrons in each shell: first, second, third

5: Physics - Static Electricity

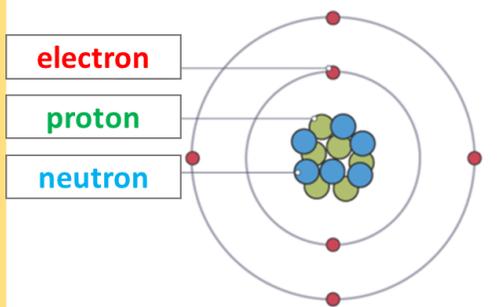
How is static charge induced in an insulator?

Static charge is induced in an insulator by friction.

static charge	remains in one area
charge	two types of charge: positive (+) or negative (-).
attract	to move towards one another (a pull)
repel	to move away from one another (a push)

2: Chemistry - Atomic Structure

The Structure of the Atom



Sub-atomic Particle	Relative Charge	Relative Mass	Position in Atom
electron	-1	0.0005	shell
proton	+1	1	nucleus
neutron	0	1	nucleus

4: Physics - History of the Atom

Scientist	Discovery	Atomic Model
Dalton	atoms of the same type are elements	Solid Sphere
Thomson	positive mass with negative electrons spaced evenly	Plum Pudding
Rutherford	mostly empty space, positive nucleus	Nuclear
Bohr	electron shells	Planetary

6: Physics – Non-Contact Forces

Weight:

$$\text{force (N)} = \text{mass (kg)} \times \text{acceleration (m/s}^2\text{)}$$

Work Done:

$$\text{work done (J)} = \text{force (N)} \times \text{distance (m)}$$

Law:

$$\text{force (N)} = \text{force constant (Nm)} \times \text{extension (m)}$$

1: The Role of the Environmental Health Officer

Environmental health officers make sure people's surroundings are safe, healthy and hygienic.

Salary £25,000 to £60,000 average per year	Hours 35-40 per week
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- Inspecting business for food safety standards
- Follow up complaints
- Follow up outbreaks of food poisoning
- Collecting samples for testing
- Giving evidence in prosecutions
- Maintaining evidence
- Submitting reports
- Issue food hygiene rating



2: High Risk Foods

Foods high in protein and Foods high in moisture are described as high risk

•Examples of high risk foods are :-

- Eggs
- Meat, poultry and other meat products
- Milk and dairy products
- Fish and Shellfish
- Cooked rice
- Stocks, sauces, gravies and soups
- Foods which are handled and those which are reheated-
- **However, preserved foods, or those with high concentrations of vinegar, salt or sugar, are low-risk

3: Food Handlers

Have regular training in food safety

- Be dressed in clean 'whites' or other uniform
- Have hair tied back (and ideally wear a hat)
- Have short, clean nails – no nail varnish or jewellery
- Be in good health (no upset stomachs)
- Have 'good' habits, e.g. no coughing or sneezing over food
- Wash their hands after handling raw meat, after blowing nose, after going to the toilet etc
- Cuts should be covered with a blue plaster

1 – Staying Safe in a Workshop

We use signs to help us stay safe in a workshop.



Red signs prohibit actions.



Blue signs show mandatory (must do) actions.



Yellow signs show warnings.



Green signs highlight areas of safety.

2 – Specification and Design Briefs

Levers use mechanical advantage to make lifting or applying pressure easier. All **levers** are made of a **bar** and a **pivot**, called a **fulcrum**.

Mechanical advantage - The amount of help you get by using a mechanism.

Effort - the amount of force applied by the user, also referred to as the input.

Fulcrum - where the lever pivots.

Load - the weight that needs to be moved, also referred to as the output.

Pulley – A wheel with a grooved edge that a cord passes around.

3 – Electronics

Input– A signal from the physical/'real world' and turns it into an electronic signal. Eg. Heat

Process device – A device that controls how the system functions. Eg. Micro-Controller

Output – Take a signal from the process device and turns it into a physical/'real world' signal. Eg. Opens windows

LED – Light Emitting Diode. It emits light when electrical current is passed through it.

LDR – Light Dependent Resistor. A type of resistor that is affected by changes in light levels.

4 – Making

Tenon Saw – A hand saw for cutting straight lines in wood.

Coping Saw – A hand saw for cutting intricate lines in wood.

Band Facer – A machine that uses sandpaper to shape wood.

Pillar Drill – A machine fixed in place that can drill holes in to material.

Bench Hook – A piece of equipment used to hold material against whilst working on it.

5 – New/Emerging Technology

Automation – Using automated machines in production to speed up making.

Finite resources – Resource that can only be used once and is in limited supply. Eg. Oil.

Non-finite resources – A renewable energy that harnesses the Earth's natural resources. Eg. Wind

Technological Push - When technology advances enough to invent or develop new products.

Market Pull - When consumer demand forces the invention or development of a new product.