Stafford Manor High School

Year 10 Autumn Term 1

Core Knowledge

- Art
- Biology
- Chemistry
- Design Technology
- English
- French
- Geography
- Health and Social Care
- History
- Information Technology
- Maths
- PE
- Performing Arts
- Physics
- SEL
- Textiles

AUTUMN TERM 1 (CONTENT FROM LAST YEAR - SUMMER TERM 2)

1. Describe why presentation is important.

- How we present work can demonstrate professionalism.
- We present our analysis in a way that is appropriate for the different medias used.

2. What must be included in a successful record board?

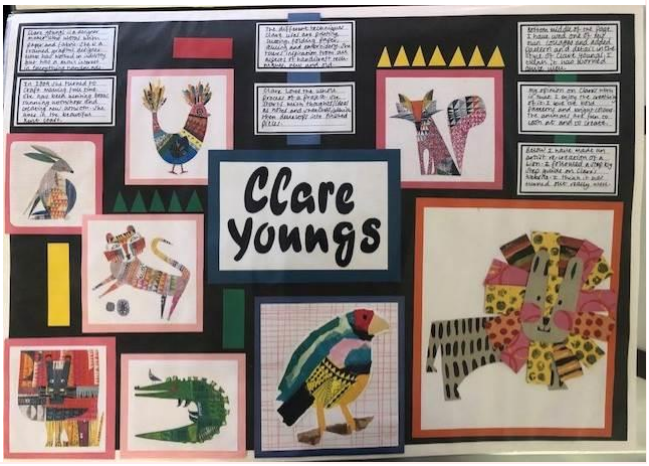
- A title of the relevant board.
- A selection of at least x5 high quality drawings in different medias.
- Annotations based on the drawings. Always using the guidance booklet to assist you.

3. Why is it important to analyse artists?

- We write and learn about artists so we can better understand the world of art and learn from what others have done.

4. What must be included in an artist research page:

- A title which is the artist's name.
- Images of the artist's work.
- A copy of the artist's work which is called an artist recreation.
- Information about the artist.
- A background that links with the artist.



5. Key word definitions:

- **Composition**: How different elements are combined.
- **Contemporary**: Art made today by living artists.
- **Contour**: the artist outlines the shape / mass of an object.
- **Curling**: Strips of paper that are rolled/looped to create shapes
- **Geometric**: Using shapes to create a piece of art
- **Overlapping**: Placing objects over one another to create depth.
- **Perspective**: Gives art a 3D look.
- **Realistic**: Subjects painted from everyday life.
- **Shading**: Darkening of a drawing to show depth.
- **Soft edged**: Indicates a gradual or smooth transition.
- **Symmetry**: Involves mirroring of portions of an image.

BIOLOGY

AUTUMN TERM 1 (CONTENT FROM LAST YEAR - SUMMER TERM 2)

1. What is the central nervous system?

- The Central Nervous system (CNS) controls how you react to what happens around you.
- It is made up of Neurones, receptor cells, the brain and the spinal cord.

2. How are messages transmitted through the CNS?

- Receptor cells detect a change in stimuli → Electrical impulse begins in sensory neurone→ Impulse travels to the brain → Relay neurones → Motor neurones → Effector (muscle or gland)

3. What is a reflex arc

- Response that bypasses the brain to protect from harm. Faster than a response through the central nervous system.
- Receptor cell → Sensory neurone → Spinal cord → Motor neurone → Effector

4. What is a synapse?

- A synapse is a gap between neurones.
- When an electrical impulse reaches a gap then chemicals called neurotransmitters are released to bind to receptors on the next neurone.
- Synapses slow the impulse down as the diffusion of neurotransmitter takes a long time.

5. What are the 3 types of neurones?

- Sensory neurone: Carries electrical impulses from receptor cells to the brain and relay neurones. Has dendrites, dendron, cell body with nucleus, axon, and myelin sheath.
- Relay neurone: Carries electrical impulses from sensory neurones to motor neurones. Has dendrites, cell body with nucleus, and an axon. No myelin sheath and no Dendron.
- Motor neurone: Carries electrical impulse from relay neurone to effectors. Has dendrites, cell body with nucleus, axon and myelin sheath.

6. How are neurones adapted?

- The myelin sheath insulates the electrical impulse, prevents interference and allows electrical impulse to continue quickly.
- They are long which speeds up the electrical impulse. The longer the neurone the less synapses there are.

CHEMISTRY

AUTUMN TERM 1 (CONTENT FROM LAST YEAR - SUMMER TERM 2)

1. What type of element is present in each type of bonding?

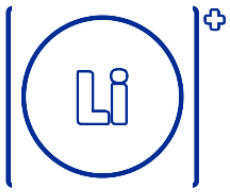
- **Ionic**: Contains a **metal** and a **non-metal**.
- **Simple Covalent**: Contains a few **non-metal** atoms.
- **Giant Covalent**: Contains many **non-metal** atoms.
- **Metallic**: Contains **metals** only.

2. What are the properties of each type of bonding?

- **Ionic**: **High** melting points and only conduct when **liquid**.
- **Simple Covalent**: **Low** melting points and **don't** conduct.
- **Giant Covalent**: **High** melting points and **don't** conduct.
- **Metallic**: **High** melting points and **do** conduct electricity.

3. What are ions?

- An ion is an atom that has ***lost*** or ***gained*** electrons and become a ***charged*** particle.
- **Cation:** 'PAW'sitive ions formed when metals **lose electrons**.
- **Anion: A N**egative **ION** formed when non-metals **gain electrons**.



4. Explaining the properties of ionic compounds

- **Don't conduct when solid**: ***IONS*** not free to move.
- **Do conduct when melted/liquid**: **IONS** are free to move.
- **High melting points**: **Lots of energy** to break the **strong force of attraction** between **ions.**

5. Explaining the properties of simple covalent compounds

- Definition: Shared **pair** of electrons
- **Don't conduct** when solid/liquid: ***Electrons*** are not free to move.
- **Low melting points**: **Not much energy** to break the **weak intermolecular forces**.

6. Explaining the properties of giant covalent compounds

- **Don't conduct** when solid or liquid: ***Electrons*** are not free to move.
- **High melting points**: **Lots of energy** to break the **strong covalent bonds**.

7. Explaining the properties of metallic substances

- **High melting points**: **Lots of energy** to break the **strong electrostatic attraction** between **cation and delocalised electron.**
- **Do conduct** electricity as solid / liquid: **Electrons** are **free to move.**
- **Malleable**: **Layers can slide** without breaking the **metallic bond.**

DESIGN TECHNOLOGY

AUTUMN TERM 1 (CONTENT FROM KEY STAGE 3)

1. What are the two types of timber?

- Hardwoods, i.e. oak, mahogany, Iroko, etc
- Softwoods, i.e. pine, spruce, cedar

2. What tools are predominantly used with timber?

- Tenon Saw
- Coping saw
- Block plane
- Surform
- Rasp

3. What surface treatments do we use with timber products?

- Varnishes
- Sealants
- Paint
- Wax

4. Timber is a renewable resource, why?

- As timber is sourced from trees, a planting and harvesting system can be adopted to ensure more materials are always growing so that more is always available.

5. What is a man-made board?

- A man-made board is one that has been formed by humans from the core material of timber, often the waste products from milling processes, i.e. MDF, Chipboard, Block board, plywood

6. What are the two groups of metals?

- Ferrous metals:- these are iron based and attracted to magnetic fields
- Non-Ferrous:- these do not contain iron and are not attracted by magnets

7. What are some examples from each group

- **Ferrous**:- Low Carbon Steel, Medium Carbon Steel, High Carbon Steel, Chromium, Manganese
- **Non-Ferrous:-** Aluminium, Lead, Copper, Brass, Gold

DESIGN TECHNOLOGY

AUTUMN TERM 1 (CONTENT FROM KEY STAGE 3)

8. What tools are predominantly used with metals?

- Junior Hacksaw
- Hacksaw
- Engineers square
- Scribe
- File

9. What surface treatments do we use with metal products?

- Paint
- Plastic coating
- Anodising
- Plating
- Sealing

10. Metals are a finite resource, why?

- As metals are mined from within the earths mantle there is only a limited amount and supplies will eventually run out.

11. What is an alloy?

- An alloy is a form of processed material where by two or more metals are combined to bring together their different properties in a new material.

12. Polymers come in two groups

- Polymers can be either Thermoforming – polymers such as acrylic that can be heated and reformed many times, or Thermosetting – polymers such as Melamine Formaldehyde that are more brittle and cannot be reformed once set in their shape.

13. The following tools can be used with thermoforming polymers

- Any fine small toothed saw – coping saw, hacksaw, etc
- File
- Disc sander
- Polisher
- Strip heater
- Plastics oven

ENGLISH

AUTUMN TERM 1 (CONTENT FROM LAST YEAR - SUMMER TERM 2)

1. Who are the main characters in the novel?

- Captain Walton - An Arctic explorer
- Victor Frankenstein - A scientist. In his early twenties.
- Clerval - Frankenstein's friend. A philosopher.
- Elizabeth - Frankenstein's 'cousin'.
- The Monster-Frankenstein's creation.
- William - Frankenstein's younger brother

2. What are the themes in the novel?

- Religion - Frankenstein goes against God by creating the monster - the novel warns against 'playing God'.
- Prejudice -The monster suffers from prejudice from Frankenstein and all others he meets. He is judged to be evil before people have even spoken to him.
- Innocence -The monster is initially innocent until he learns destruction through humans.
- Ambition - Frankenstein's ambition to create the monster – is ambition always good?
- Loneliness - Many of the characters are lonely some by choice and some not.
- Revenge - Both Frankenstein and the monster feel wronged and seek revenge even at the cost of their own safety, health and happiness.

3. How is Prometheus connected to the story of Frankenstein?

- The novel's subtitle is 'The Modern Prometheus'. Prometheus is a figure in Greek mythology who made humans out of clay. He also stole fire from the Gods, and to punish him, they chained him to a rock and called an eagle to peck out his liver each day.

4. Who was Mary Shelley?

- Mary Shelley (1797-1851) was an English novelist, best known for writing Frankenstein. Her husband was the famous romantic poet and philosopher Percy Bysshe Shelley. In 1816, the couple famously spent a summer in Switzerland, where they wrote ghost stories – this is where Mary conceived the idea for Frankenstein!

5. What was healthcare like when Shelley was writing?

- Health– Throughout Europe there had been multiple pandemics of bubonic plague, which had wiped out huge numbers of the European population. Healthcare was much more limited, and medical knowledge developing, but still extremely basic. Even minor diseases could be fatal. Life expectancy in much of Europe was no higher than 30.

6. What major events occurred at this time?

- The world was a much more unstable place in 1818. In the late 1700s, many wars and disputes were still taking places all over Europe, as borders and empires were becoming established. For example, there were revolts, in places such as Poland, France, and Ireland.

7. Key quotation:

- "Beware; for I am fearless, and therefore powerful."

8. Key quotation:

- "I do know that for the sympathy of one living being, I would make peace with all. I have love in me the likes of which you can scarcely imagine and rage the likes of which you would not believe. If I cannot satisfy the one, I will indulge the other."

9. Key quotation:

- "If I cannot inspire love, I will cause fear!"

FRENCH

AUTUMN TERM 1 (CONTENT FROM LAST YEAR - SUMMER TERM 2)

1. devoir; vouloir; pouvoir; savoir

- To have to; to want to; to be able to; to know how to

2. what are these verbs called?

- Modal verbs

3. je dois; je veux; je peux; je sais

- I have to; I want to; I am able to (I can); I know how to

4. il faut + infinitive

- You have to / one has to + activity (il faut faire les devoirs = you should do your homework)

5. je crois; je ne crois pas; je crois que; je ne crois pas que

- I believe; I don't believe; I believe / think that; I don't believe / think that

6. What is an infinitive?

- The name of the verb (in French ends in er, ir or re; in English, starts with 'to' regarder = to watch

7. Boire de l'eau est important - translate

- Drinking water is important (Note the difference between the use of the infinitive in French and the 'ing' form in English

GEOGRAPHY

AUTUMN TERM 1 (CONTENT FROM LAST YEAR - SUMMER TERM 2)

1. What is the correct term used to describe earthquakes and volcanoes?

- Tectonic hazards

2. What is the name of the world's most volcanically active region?

- Pacific Ring of fire

3. What do we call the plate margin where the plates move apart?

- Constructive plate margin

4. The San Andreas fault is an example of what plate margin?

- Conservative plate margin

5. The 2010 earthquake that killed more than 200,000 people occurred where?

- Haiti

6. How many people died in the 1995 Kobe earthquake?

- 6500

7. What was the cost of the Kobe earthquake?

- $220billion

HEALTH & SOCIAL CARE

AUTUMN TERM 1 (CONTENT FROM LAST YEAR - SUMMER TERM 2)

1. List examples of jobs/careers in Health and Social Care:

- Nurse
- Social Worker
- Occupational Therapist
- Paramedic
- Health visitor
- Care worker
- Early Years Practitioner
- Midwife
- Art Therapist
- Youth Worker
- Activities Coordinator
- Community Support Worker

2. List examples of services in Health and Social Care

- Hospital
- GP Surgery
- Dentist
- Residential Care Home
- Nursery
- Private Clinics
- Youth Centre

3. Who is cared for by Health and Social Care practitioners?

- Babies
- Children
- Teenagers
- Adults
- Elderly

4. Name the three Components you will be studying over the next 2 years

- **Component 1**: Human Lifespan Development
- **Component 2**: Health and Social Care Services and Values
- **Component 3**: Health and Wellbeing

5. How are Component 1 and 2 assessed?

- Component 1: A 6-10 hour-controlled assessment in the computer room in January of Year 10
- Component 2: A 6-10 hour-controlled assessment in the computer room in October of Year 11

6. How is Component 3 assessed?

- A 2-hour exam in the hall at the end of Year 11

HISTORY

AUTUMN TERM 1 (CONTENT FROM LAST YEAR - SUMMER TERM 2)

1. What was the Industrial Revolution?

- A period in British history which saw a significant change in how people worked and lived.

2. What does anti-Semitism mean?

- Hatred towards Jews

3. When was the First World War?

- 1914 – 1918

4. When was the Second World War?

- 1939 – 1945

5. What was the Holocaust?

- The genocide of 6 million Jews

6. When was the Holocaust?

- 1933 - 1945

7. What is a democracy?

- A system of government by the whole population, typically through elected representatives

8. What is a dictatorship?

- A government by a dictator where they make the rules without input from anyone else

9. When did Hitler become chancellor of Germany?

- 30 January 1933

INFORMATION TECHNOLOGY

AUTUMN TERM 1 (CONTENT FROM LAST YEAR - SUMMER TERM 2)

1. What are the three main stages of media production?

1. Preproduction (planning, scripting, storyboarding)
2. Production (the actual shooting, recording or creating)
3. Post-Production (everything between production and creating the final media object)

2. What tools can be used in pre-production?

Mind maps, spider diagrams, mood boards, visualisation, storyboards, scripts

3. What is a visualisation used for?

To plan the layout of a still image, or show how the finished item may look.

4. What is a storyboard used for?

Provide visual representation of how a media project will look along a timeline.

5. What are vector graphics?

Graphics composed of mathematical paths and colour information.

6. What are raster graphics?

Graphics composed of pixels containing colour information.

7. What is copyright?

The legal right to control the production and selling of a piece of media.

8. Name seven types of camera angle.

1. Close up
2. Medium Shot
3. Long Shot
4. High Angle
5. Low Angle
6. Over the shoulder
7. Pan

MATHEMATICS

AUTUMN TERM 1 (CONTENT FROM LAST YEAR - SUMMER TERM 2)

1. Key word definitions:

- **Inverse:** The opposite
- **Infinite:** Continues forever
- **Finite:** Has an end
- **Ascending:** going up
- **Descending:** going down

2. What are the inverse operations of…

Add <-> Subtract
Multiply <-> Divide
Square <-> Root

3. What does changing the subject mean?

Rearranging an equation or formula so that it is equal to a different unknown.

4. What is the nth term?

A rule that you can use to find any term in a sequence.

5. How do you find the nth term?

Find the difference between the terms.
Then compare the sequence to the timestable for the difference.

6. What is an arithmetic sequence?

A sequence of numbers that increases by the same amount each time.

7. What is a geometric sequence?

You find the next number in the sequence by multiplying by the same number each time.

8. What is the gradient?

The steepness of the line.

9. What is the y-intercept?

Where the line cross the y axis.

PERFORMING ARTS

AUTUMN TERM 1 (CONTENT FROM LAST YEAR - SUMMER TERM 2)

1. What is a music genre?

Music genres are categories that identify pieces of music as belonging to a shared tradition or set of conventions. Here are some of the most well-known music genres.

2. What are examples of music genres?

- Blues
- Classical
- Country
- Electronic/Dance
- Hip-Hop/Rap
- Jazz
- Pop
- R&B/Soul
- Reggae
- Rock

3. What is a drama genre?

Drama is a broad category in literature, film, and television that focuses on realistic narratives, complex characters, and emotional themes.

Within drama, there are several subgenres that cater to different themes, tones, and styles.

4. What are examples of music genres?

- Action
- Adventure
- Crime
- Sci-Fi
- Fantasy
- Horror
- Thriller

5. What is a target audience?

- A target audience is a specific group of people intended to receive an advertising message, product, service, or content.
- This group is typically defined by demographic, psychographic, and behavioural characteristics.
- Understanding the target audience is crucial for marketers, advertisers, and content creators.
- It helps tailor messages and offerings to better meet the needs, preferences, and behaviours of the audience.

PHYSICAL EDUCATION

AUTUMN TERM 1 (CONTENT FROM LAST YEAR - SUMMER TERM 2)

1. Fitness (linked to the Fitness Unit in Year 9)

Aerobic means "with oxygen and anaerobic means "without oxygen." **Aerobic Exercise:** This occurs when blood is carried through your vessels to deliver oxygen to the muscles to keep you moving, and you sustain the activity for more than just a few minutes.
Anaerobic Exercise: short, high intensity exercise. At the point in time where the energy you are using does not allow the body to create enough oxygen.
Training Methods:-
Interval -Athletes training with periods of work followed by periods of rest
Continuous -Training for a specific period of time with no rest
Fartlek -A combination of slow and fast running over a variety of distances and terrains
Cross -A mixture of training
Circuit -A number of exercises, set out at 'stations' to avoid exercising the same muscle group consecutively
Weight -Using progressive resistance, either in the form of actual weight lifted or in terms of the number of times the weight is lifted
Flexibility – Either Ballistic; Static or PNF.
Plyometric – Involves jumping and immediately Jumping again.
Speed Training – Could include Hollow Sprints ; Acceleration and Interval Training

2. Effects of exercise

Effects of exercise on the body – Breathing and Heart Rate increase with intensity of exercise.
Pulse rate – Pulse rate (the number of times your heart beats in a minute) can be taken at either your wrist or neck. The normal rate
=70-100BPM
How to take your pulse rate: -
Gently place 2 fingers of your other hand on this artery.
1. Do not use your thumb, because it has its own pulse that you may feel.
Count the beats for 30 seconds, and then double the result to get the number of beats per minute.

3. Fitness Tests

Key Skills: Components of Fitness/ Tests for Components of Fitness:- *M*uscular endurance- The ability to use muscles repeatedly for a long period. 1 Minute Sit-Up Test &
1 Minute Press-Up Test
***C*ardiovascular/Aerobic Endurance** - Being able to exercise the whole body for a long period using oxygen and nutrients efficiently. Cooper 12-Minute Test; multi stage & Harvard Step Test
***M*uscular Strength-** The amount of force that muscle produces in one contraction. Grip Dynamometer
***F*lexibility-** The range of movement possible at a joint. Sit and Reach Test ***B*ody Composition-** The measure of how much of your body is made up of fat-free mass, vital organs and fat. Body Mass Index
***A*gility-** The ability to change direction at speed (quickly) without losing balance. Illinois Agility Run Test
***B*alance-** The ability to maintain centre of mass over a base of support. Stork Balance Test
***C*o-ordination-** The smooth flow of movement needed to perform a motor task efficiently and accurately using two or more body parts together.
Alternate Hand Wall Toss Test
***P*ower-** Speed X Strength Vertical Jump Test
***R*eaction time-** How quickly someone can react to a stimulus. Ruler Drop Test
***S*peed-** How quickly an object or human moves from 'A' to 'B'. 30m/40mSprint Test

PHYSICS

AUTUMN TERM 1 (CONTENT FROM LAST YEAR - SUMMER TERM 2)

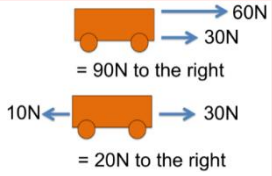
1. What are scalars and vectors?

- **Scalar** quantities are quantities that have a **size** (magnitude) but **no direction**.
- **Vector** quantities are quantities that have **both size and direction**.

Scalar quantities	Vector quantities
Distance (m)	Displacement (m)
Speed (m/s)	Velocity (m/s)
Time (s)	Acceleration (m/s^2)
Energy (J)	Force (N)
Mass (kg)	Weight (N)
	Momentum (kg m/s)

2. What are resultant forces

- Usually there is more than one force acting on an object, the overall effect of these forces is called the **resultant force**.
- To calculate the resultant force:
  - Forces in the **same direction**, **add them** together
  - Forces in **opposite directions**, **subtract one from the other**



3. What is Newton's first law of motion?

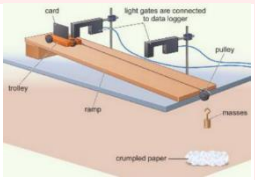
- If the **forces** acting on an object are **balanced** then the **velocity of the object will not change**, it will stay at rest or continue at the same velocity.
- If the **forces** acting on an object are **unbalanced** then **velocity of the object will change**, it will speed up, slow down or change direction.

4. What is Newton's second law of motion?

- The **bigger the resultant force**, the **bigger the acceleration**.
- The **larger the mass** of the object, the **smaller the acceleration**.
- **Force = mass x acceleration**

5. How can we investigate Newton's second law of motion?

- As the card passes through the light gates the **speed** of the trolley is calculated using the **length of the card** and **the time it took the card to pass through**.
- You **change** the **force** pulling the trolley by **adding masses to the hanger**.



6. What is Newton's third law of motion?

- All forces require interaction between two objects, creating two forces
- Newton's third law tells us these pair of forces are always the **same size** and act in **opposite directions**, they act on different objects and are the same type of force.

7. Are mass and weight the same thing?

- An object's **mass** (**measured in kg**) only changes if the object itself changes but the object's **weight** (**measured in N**) depends on the mass and the gravitational field strength. The Earth's gravitational field strength **'g' is 10 N/kg**.

8. What factors affect stopping distance?

- *Total stopping distance = thinking distance + braking distance*
- The **thinking distance** depends on your **reaction time** (typically **0.25 seconds**).
- Factors that can **increase reaction time** are **drugs, alcohol, age, tiredness and distractions** (e.g. mobile phone).
- The **braking distance** depends on the amount of **friction** between the **brakes, tyres and road**: factors that can **increase braking distance** are **poor brakes, poor tyres, wet, icy or oily roads**. V**ehicle mass** also affect braking distance.
- Both of these distances **increase with speed**

9. How do car safety features work?

- **Crumple zones**, **air** and **seat belts** are designed to make objects **slow down slower**- reducing the deceleration and the forces involved.

1. What is resilience?

- The capacity to recover quickly from difficulties; toughness.

2. When carrying out emergency First Aid, what does the acronym DR ABCD stand for?

- **D** – Danger
- **R** – Response
- **A** – Airway
- **B** – Breathing
- **C** – Call 999/Circulation
- **D** - Defibrillation

3. What is anxiety?

- Anxiety is an emotion closely related to fear.

4. Physical sensations of anxiety include:

- Raised heart beat
- Sweating
- Butterflies in the stomach
-
- Tension in the neck, legs, shoulders
- Tight chest/shallow breathing
- Light-headedness

5. Define anger:

- An intense emotional state involving a strong uncomfortable and hostile response to a perceived provocation, hurt or threat

6. How can anger be managed effectively?

- Take a breath and count to 20
- Exercise
- Talk to a friend
- Take a break

7. Positive money habits include:

- Look after the pennies and the pounds will look after themselves
- Think and then spend
- Shop around and look for discounts
- Stay in control of your finances
- Save up and then buy things
- Plan for the future