Stafford Manor High School

Every Child Reaching their Full Potential

Year 9 Summer Term 1

Core Knowledge

- Art
- Biology
- Chemistry
- Design Technology (DT)
- Digital Communications
- English
- French
- Geography
- History
- Maths
- Performing Arts
- Physical Education
- Physics
- SEL
- Textiles

ART

SUMMER TERM 1 (CONTENT FROM SPRING 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. Why is it important to complete a mock GCSE project?

- To prepare you for your GCSE's, even if you decide not to choose Art, it is skills that can be used in other subjects.

3. Describe what a record board is.

- A board that shows how you can draw, what medias you are capable of using and how you challenge yourself with them.

4. 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.

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

SUMMER TERM 1 (CONTENT FROM SPRING TERM 2)

1. What is Mitosis?

- Mitosis is cell division which produces **two genetically identical** daughter cells from one cell. The cells produced are **diploid** (have 23 chromosomes.)
- Mitosis is used for growth and repair and asexual reproduction.
- It happens in every cell in the body excluding the gametes.

2. What are the stages of mitosis?

- **IPMAT**

Interphase → Prophase → Metaphase → Anaphase → Telophase

3. What are specialised cells?

- Cells that have undergone **differentiation** to become specialised.
- Specialised cells are specially adapted so they can carry out specific jobs.
- Examples of specialised cells include red blood cells, white blood cells, sperm cells, egg cells, ciliated epithelial cells.
- Plant cells also have specialised cells – these include root hair cells, palisade cells, Xylem cells and phloem (sieve and companion cells.)

4. What are stem cells?

- Stem cells are cells that have not undergone differentiation. They are useful as scientists can direct them to grow into any type of cell they want.
- Embryonic stem cells can differentiate into any type of cell
- Adult stem cells can differentiate into a small number of cells, dependent on where the stem cell is located.

5. How do plants grow?

- **Cell division**, **Cell elongation** and **Differentiation**.
- Mitosis (cell division) happens in specific regions of plants known as the meristem, these are found in the tip of roots and shoots.
- Cells that are found in the meristem can differentiate into any types of plant cell. This is why plants can regrow shoots/stems if they break.

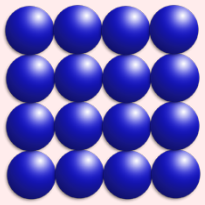
6. Uses of stem cells

- Produce cells required for bone marrow transplants.
- To grow organs required for medical transplants.
- Medical research.

CHEMISTRY

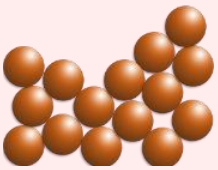
SUMMER TERM 1 (CONTENT FROM SPRING TERM 2)

1. What is the movement and arrangement of particles in a solid?



- **Movement**: Vibrating about a **fixed position**
- **Arrangement**: **Regular** pattern and **touching**

2. What is the movement and arrangement of particles in a liquid?



- **Movement**: Can move / **flow**
- **Arrangement**: **Random** pattern and **touching**

3. What is the movement and arrangement of particles in a gas?

- **Movement**: Moving fast in **all directions**
- **Arrangement**: **Random** pattern and **not touching**

4. What are the main state changes?

- **Melting**: Solid turning into a liquid (e.g. ice melting)
- **Freezing**: Liquid turning into a solid (e.g. water turning into ice)
- **Evaporating**: Liquid turning into a gas (e.g. water turning into steam)
- **Condensing**: Gas turning into a liquid (e.g. condensation on windows)

5. What happens when a state change graph goes flat?

- **Melting** / **Boiling** are occurring.
- Energy is being used to break the **intermolecular** forces

6. What do the words '**pure**' and '**mixture**' mean?

- **Pure**: Only one chemical (e.g. pure water)
- **Mixtures**: More than one chemical not bonded together (e.g. salt water)

7. What do the words '**soluble**' and '**insoluble**' mean?

- **Soluble**: Something that will dissolve (e.g. salt)
- **Insoluble**: Something that will not dissolve (e.g. sand)

COMPUTING

SUMMER TERM 1 (CONTENT FROM SPRING TERM 2)

1. What does ASCII stand for and what is it?

ASCII (American Standard Code for Information Interchange) is a character set used to represent English keyboard characters.

2. What is the difference between ASCII and Extended ASCII?

- ASCII is a 7-bit set of codes that allows 128 different characters and is only used for the English language.
- Extended ASCII code is an 8-bit character set that represents 256 different characters, making it possible to use characters such as é or © so is useful for European languages

3. What is UNICODE?

Unicode can represent up to 65,000+ characters. This is enough characters to hold all the current languages spoken in the world in one place and is commonly used across the internet.

4. What is a pixel?

Pixel or picture element is a single dot of colour in a digital bitmap image or on a computer screen.

5. What affects an images quality?

Image quality is affected by the resolution of the image.

- In a low-resolution image, the pixels are larger so fewer are needed to fill the space. This results in images that look blocky or pixelated.
- An image with a high resolution has more pixels, so it looks a lot better when you zoom in and is better quality. The downside of having more pixels is that the file size will be bigger.

6. What is sample rate and how does it affect sound quality?

- The number of samples recorded in any given period of time.
- Sample rate is measured in hertz. 1 Hz is one sample per second.
- The higher the sample rate, the closer the recorded signal is to the original so it is better quality.

DESIGN TECHNOLOGY

SUMMER TERM 1 (CONTENT FROM SPRING TERM 2)

1. How will I ensure quality with my product?

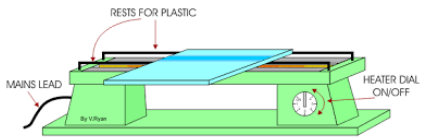
- **Visual checks** – comparing with an exemplar piece
- **Measurement checks** – compared against dimensioned drawings
- **Physical inspection** – touch can be used to inspect a surface for imperfections

2. Surface finishing method?

- Sand all surfaces smooth with glass paper
- Ensure surfaces are free of dirt or saw dust
- Apply a primer paint using a brush in thin layers, allow for drying and possible sanding back between layers
- Once primed apply chosen colour in even layers with brush, allow for drying and possible sanding back between layers
- In some cases a clear coat sealant may be applied

3. Forming polymers with heat?

- In order to bend Acrylic it is necessary to apply heat. This is done with a strip heater.



4. What are some Tier 3 terms I need to know?

- **Quality control –** this is a series of checks to ensure the product turns out as intended
- **Refinement** – where the quality or standard of the work is improved by small steps
- **Surface Prep** – where the surface of the product is smoothed/cleaned in preparation for finishing
- **Surface Finish** – the external final coating applied to a product i.e. paint, plasti-coat, varnish, etc.
- **Application** – when a finish is put on to the surface of the product
- **Evaluation** – where the product is tested and measured against success criteria
- **Specification** – a list of points/success criteria that the end product must or should comply with.

ENGLISH

SUMMER TERM 1 (CONTENT FROM SPRING TERM 2)

1. What is enjambment?

- The continuation of a sentence or phrase from one line of poetry to the next.

2. What is caesura?

- A pause near the middle of a line.

3. In the poem 'Valentine' what does the onion symbolise?

- It symbolises a positive aspect of love - honesty and optimism, often experienced at the beginning of a relationship.

4. What is the poem 'Bedecked' about?

- Gender and identity - The speaker criticises people's judgement on her son, as he does not conform to societal standards.

5. What is a metaphor?

- A metaphor is a figure of speech that compares two unrelated things, by stating that one thing is another.

6. What are structural features in poetry?

- the shape of the poem on the page
- the number and lengths of stanzas
- the number and lengths of lines
- the number of beats and rhythm of words in each line
- the pattern of rhymes, if any
- the use or non-use of punctuation
- whether the poem has a set form or not

7. What is 'free verse'

- a poetic style that does not feature a set rhythm or rhyme scheme.

FRENCH

SUMMER TERM 1 (CONTENT FROM SPRING TERM 2)

1. Which verb helps form the near future tense ?

- Aller + infinitive

2. I go, you go, he / she goes

- Je vais, tu vas, il/elle va

3. vouloir: to want to Complete the verb paradigm for je (I), tu (you sing.), il / elle (he, she)

- Je veux; tu veux; il / elle veut

4. pouvoir: to be able to (can) Complete the verb paradigm for je (I), tu (you sing.), il / elle (he, she)

- Je peux; tu peux; il / elle peut

5. devoir: to have to (must) Complete the verb paradigm for je (I), tu (you sing.), il / elle (he, she)

- Je dois; tu dois; il / elle doit

6. What kind of structure are near future and modal verbs + infinitive?

- Two verb structures

7. Describe how to form a two verb structure

- Short form / conjugated verb + long form / infinitive

8. Make these negative:

Positive:	Negative:
Tu dois prendre le bus (you have to get the bus)	Tu ne dois pas prendre l'autobus (you musn't take the bus)
je peux faire mes devoirs (I can do my HW)	je ne peux pas faire mes devoirs (I cannot do my HW)
il veut jouer au handball (he wants to play handball)	il ne veut pas jouer au handball (he doesn't want to play handball)

GEOGRAPHY

SUMMER TERM 1 (CONTENT FROM SPRING TERM 2)

1. What are cold environments?

- Areas that experience temperatures that are at or below **zero** degrees Celsius.

2. Characteristics of cold environments are:

- Polar
- Tundra

3. Where is Svalbard?

- Svalbard is a Norwegian territory in the Arctic Ocean.

4. What are the opportunities for development in Svalbard?

- Mineral extraction
- Energy developments
- Fishing
- Tourism

5. What are the challenges for development?

- Extreme temperatures
- Construction
- Services
- Accessibility

6. What biomes are found within Russia?

- Tundra
- Taiga
- Temperate forest
- Steppe
- Mountain

7. How many time zones are in Russia?

- 9 time zones

HISTORY

SUMMER TERM 1 (CONTENT FROM SPRING TERM 2)

1. What is a democracy?

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

2. What is a dictatorship?

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

3. What is communism?

- A political theory in which all property is owned by the state and each person contributes and receives according to their ability and needs

4. What is fascism?

- An authoritarian and nationalistic system of government

5. Which country became communist in 1917?

- Russia

6. What did Germany have to accept the blame for in the Treaty of Versailles?

- Starting the First World War

7. When did Hitler become German chancellor?

- 30 January 1933

8. When did Hitler invade the Rhineland?

- 1936

9. Which country did Hitler unite Germany with in 1938?

- Austria

10. Which part of Czechoslovakia did Britain give to Hitler in Sept. 1938?

- The Sudetenland

11. When did Germany invade Poland?

- 1 September 1939

12. What was the Blitz?

- The bombing of British cities by Nazi Germany

13. When was D-Day?

- 6 June 1944

14. On which country were the first atomic bombs used?

- Japan

MATHEMATICS

SUMMER TERM 1 (CONTENT FROM SPRING TERM 2)

1. Key word definitions:

- **Numerator:** The number on the top of the fraction
- **Denominator:** The number on the bottom of the fraction

2. What are equivalent fractions?

Equivalent fractions have the same value but are represented with different numbers.

3. How do you add/subtract with fractions?

You can only add or subtract fractions when they have the same denominator. (You will need to convert the fractions first if they are not the same)

4. What are the seven key equivalent FDP?

Fraction	$\frac{1}{2}$	$\frac{1}{4}$	$\frac{1}{5}$	$\frac{1}{8}$	$\frac{1}{10}$	$\frac{1}{20}$	$\frac{1}{100}$
Decimal	0.5	0.25	0.2	0.125	0.1	0.05	0.01
%	50%	25%	20%	12.5%	10%	5%	1%

5. What is a multiplier?

The decimal equivalent of a percentage.
Multiply an amount by a multiplier to calculate a percentage of an amount.

6. How do you find the multiplier for a percentage increase?

(100 + percentage) ÷ 100

7. How do you find the multiplier for a percentage decrease?

(100 - percentage) ÷ 100

8. How do you find the original amount?

Divide by the multiplier that had been used.

9. What is VAT?

VAT stands for value added tax, and is an amount of money paid to the government on items that you might buy.

PERFORMING ARTS

SUMMER TERM 1 (CONTENT FROM SPRING TERM 2)

1. How are the following techniques used in performances?

- **Naturalism**: A style of performance where actors and designers try to create the illusion that what is happening on stage is 'reality'.
- **Target Audience-** Who the play was intended for
- **Protagonist-** The good guy/Main character
- **Antagonist-** The bad guy/ Evil Villain
- **Props-** Short for properties and used in performances like a hair brush, mop, books etc.
- **Project-** To project your voice so you can be heard
- **Multi-role playing**: An actor plays multiple characters.
- **Fourth Wall**: An imaginary wall between the actor and the audience.

2. What are "genres" in performing arts?

- The genre refers to the type or style.

Examples:

- Action
- Adventure
- Comedy
- Drama
- Horror
- Musical
- Mystery
- Romantic
- Romantic Comedy
- Sci-fi
- Soap
- Thriller
- Tragedy

3. What are "themes" in performing arts?

- Themes refer to what the performance is about.

Examples:

- War
- Crime
- Bullying
- Revenge
- Sacrifice
- Death
- Love
- Hate
- Desire
- Jealously
- Witchcraft
- Magic

4. How can we be safe when performing?

- Listen to instructions.
- No running in the drama space.
- No eating.
- Ensure equipment is put away.
- Be careful when using props especially breakables.
- Ensure the space is clear of obstructions.
- Ensure the stage is clicked together properly.
- Be aware of the space on the stage. Do not step back without checking how close you are to the edge.
- Ensure backstage is clear of obstructions.
- Tape any wires down- trip hazard.

PHYSICAL EDUCATION

SUMMER TERM 1 (CONTENT FROM SPRING TERM 2)

1. Aerobic and Anaerobic Respiration

Aerobic Exercise: Aerobic means "with oxygen". This occurs when blood is carried through your vessels to deliver oxygen to the muscles to keep you moving.

Anaerobic Exercise: Anaerobic means "without oxygen". Short, high intensity exercise that produces lactic acid as the body cannot get enough oxygen.

2. Training Methods

- **Interval:** Work-rest cycles.
- **Continuous:** No rest, steady pace.
- **Fartlek:** Varying speed & terrain.
- **Cross:** Mixed training styles.
- **Circuit:** Exercise stations, different muscle groups.
- **Weight:** Progressive resistance lifting.
- **Flexibility:** Ballistic, Static, or PNF.
- **Plyometric:** Jumping, then immediate jump.
- **Speed Training:** Hollow sprints, acceleration, interval training.

3. How to take your pulse rate:

Gently place 2 fingers of your other hand on this artery.
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.

4. Fitness Tests

- **Muscular Endurance:** Repeated muscle use (1-Min Sit-Up & Press-Up Test).
- **Cardiovascular Endurance:** Sustained whole-body exercise (Cooper 12-Min, Multi-Stage, Harvard Step Test).
- **Muscular Strength:** Max force in one contraction (Grip Dynamometer).
- **Flexibility:** Joint movement range (Sit & Reach Test).
- **Body Composition:** Fat vs. fat-free mass (BMI).
- **Agility:** Quick direction change (Illinois Agility Run).
- **Balance:** Stability control (Stork Balance Test).
- **Coordination:** Smooth multi-body part movement (Alternate Hand Wall Toss).
- **Power:** Strength × Speed (Vertical Jump Test).
- **Reaction Time:** Response speed (Ruler Drop Test).
- **Speed:** Movement from A to B (30m/40m Sprint Test).

PHYSICS

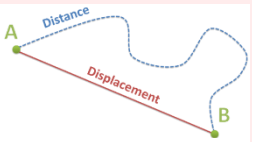
SUMMER TERM 1 (CONTENT FROM SPRING TERM 2)

1. What are scalar and vector quantities?

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

Examples of scalar quantities:	**Examples** of scalar quantities:
Distance (m), Speed (m/s) Time (s), Energy (J), Mass (kg)	Displacement (m), Velocity (m/s), Acceleration (m/s^2), Force (N), Weight (N), Momentum (kg·m/s)

2. Vector V Scalar



- **Distance** and **displacement** are both measured in **meters**, distance is how far the journey is, and displacement is the distance covered, and the direction travelled, in a straight line.
- **Speed** and **velocity** are both measured in **metres per second**, speed is how far moved every second & velocity is speed in a certain direction.

3. What is speed?

- Speed tells us how far an object is travelling every second.

Speed = distance ÷ time

- Some ***typical*** speeds are:

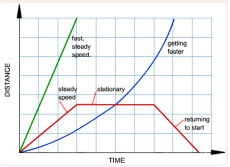
Walking	Running	Cycling	Cars in town	Car on the motorway	Trains
1-3 m/s	3-6 m/s	7-10 m/s	13 m/s	31 m/s	55 m/s

4. How can we investigate speed?

- We measure speed by measuring distance and time.
- We often use a ruler for measuring distances. For longer distances we may use a tape measure or a trundle wheel.
- We often use a stopwatch to measure time but a light gate can measure time, especially for faster speeds, with much more accuracy.

5. How do we read distance-time graphs?

- A **horizontal** line tells us that the object is **stationary**.
- A **straight sloping** line tells us the object has a **steady speed**.
- A **steeper line** indicates a **higher speed**.
- A **curved line** tells us that the **speed is changing**



6. How do we calculate acceleration?

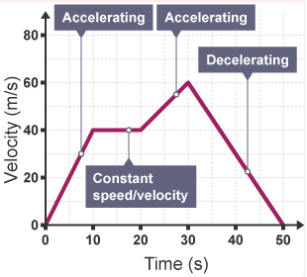
- Acceleration is the rate of change of velocity (how quickly velocity is changing).

Acceleration = change in velocity ÷ time

- The **acceleration** due to **gravity,** '**g**', on Earth is **10 m/s^2**.

7. How do we read velocity-time graphs?

- A **horizontal** line tells us the object is travelling at a **constant speed**
- A **straight sloping** line tells us the object is **accelerating** at a steady rate
- A **steeper line** indicates **higher acceleration**
- A **curved line** tells us the **acceleration is changing** (getting steeper = increasing acceleration)



SEL

SUMMER TERM 1 (CONTENT FROM SPRING TERM 2)

1. What is meant to by consent?

- When a person agrees by choice, and has the freedom and capacity (ability) to make that choice.

2. What is the legal age of consent in the UK?

- Sixteen

3. Before being intimate with a partner, the individual should consider the following:

- Age
- Contraception
- Am I physically and emotionally ready?
- How will it impact my relationship?
- Trust
- Sexual history of your partner
- Is it the right thing to do?

4. Factors that may impact someone's ability and capacity to give or withdraw consent include:

- Drugs and Alcohol
- Age
- Learning difficulty/disability
- Being threatened
- Manipulation
- Unconsciousness

5. Examples of sexually transmitted infections (STI) include:

- Chlamydia
- Gonorrhoea
- Genital Warts
- Syphilis
- Pubic Lice
- Genital Herpes
- HIV

6. Different types of contraception include:

- The Pill
- Contraceptive Patch
- Contraceptive Injection
- Contraceptive Implant
- Plastic IUD & IUS
- Copper IUD
- Male Condom
- Female Condom
- Diaphragm/Cap
- Fertility Awareness
- Sterilisation/Vasectomy

7. Before using a condom you must ensure you check:

- Use by/Expiry date
- That it has a European (CE) or UKCA mark
- The packet/condom is not damaged or ripped
- The condom is not put on inside out

TEXTILES

SUMMER TERM 1 (CONTENT FROM SPRING TERM 2)

1. Artist information – Micha Bulter

Micha Bulter is a free-lance craft artist from Norwich in the UK who sells her work online.

She has a page on Etsy where she takes commissions.

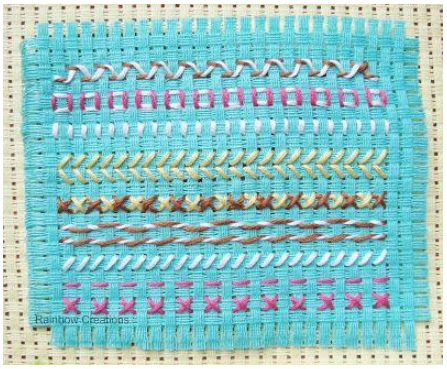
Her work involves accessorises with **embroidery** and **cross stitch**. Her most successful work is **binca bookmarks**.

Her work involves a variety of embellishment and hand sewing techniques.

She uses natural fabrics such as binca.

Cotton Binca Fabric is **composed of 100% cotton** and is 50cm wide.

Cotton Binca is a superior quality embroidery fabric suitable for creating a wide range of embroidery and cross stitch designs.



2. What is embroidery?

- Embroidery is the craft of decorating fabric with needle and thread to create patterns or designs.

3. What is a cross stitch?

- Cross stitch is a form of embroidery where X-shaped stitches are used to form a grid pattern and create detailed designs.