













Stafford Manor
High School

Year 9 Spring Term 2

Core Knowledge

-  Art
-  Biology
-  Chemistry
-  Computing
-  Design Technology
-  English
-  French
-  Geography
-  History
-  Maths
-  Performing Arts
-  Physical Education
-  Physics
-  SEL
-  Textiles



1. What are portraits?

- ✿ A **portrait** is a picture or painting that focuses on a person's face or the way they look.
- ✿ It's a way to capture and show what someone looks like, often emphasizing their facial features, expressions, and personality in a visual form.
- ✿ Portraits can be created using various art techniques, such as drawing, painting, or photography.



2. What is wire work?

- ✿ Wire work is a technique where artists use pieces of wire to shape and form various objects or sculptures.
- ✿ This can include bending and twisting the wire to create three-dimensional shapes, figures, or decorative designs.

3. How to use wire safely?

- ✿ Using wire in art can create stunning and intricate pieces, but it is essential to handle wire safely to avoid injury.
- ✿ Wire (various gauges)
- ✿ Pliers (needle-nose, flat-nose, and round-nose)
- ✿ Wire cutters
- ✿ Use a template to help with creating shape and proportion.
- ✿ Use the appropriate pliers (needle-nose, flat-nose, or round-nose) to bend and shape the wire. This gives you more control and reduces the risk of injuring your hands.
- ✿ Join wire pieces together by twisting, wrapping, or using connectors. Ensure all connections are secure to prevent them from coming apart.
- ✿ Inspect your artwork for any sharp ends or loose connections. Smooth any rough edges and make sure all parts are securely attached.

4. Key word definitions:

- ✿ **Wire:** Metal strands used in various gauges and materials (e.g., aluminium, copper, steel) for creating art.
- ✿ **Wire Cutters:** Tools used to cut wire to the desired length.
- ✿ **Pliers:** Tools used to bend, twist, and shape wire (needle-nose, flat-nose, round-nose).
- ✿ **Wrapping:** Coiling wire around another object or wire to create a decorative or functional element.
- ✿ **Beading:** Incorporating beads into wire designs by threading them onto the wire.
- ✿ **Flexibility:** The ability of the wire to bend and maintain its shape.

BIOLOGY

SPRING TERM 2 (CONTENT FROM SPRING TERM 1)

What are light and electron microscopes?

- 🔬 **Light** microscopes use 2 **lenses** (eyepiece & objective) and light to magnify cells, tissues and large sub-cellular structures.
- 🔬 Scanning (3D) and Transition (2D) **electron** microscopes have a much greater **magnification** & **resolution** (the smallest distance between 2 points which can still be seen as two points).

What are eukaryotic and prokaryotic cells?

- 🔬 **Eukaryotic** animal and plant cells: have a **nucleus** and bigger.
- 🔬 **Prokaryotic** bacterial cells: no nucleus and **smaller**.

What are the functions of sub-cellular structures?

- 🔬 **Nucleus**: contain genes that control cell activity [**animal & plant**]
- 🔬 **Cytoplasm**: where cell reactions happen [**animal & plant & bacteria**]
- 🔬 **Membrane**: controls what enters & leaves [**animal & plant & bacteria**]
- 🔬 **Mitochondria**: where respiration releases energy [**animal & plant**]
- 🔬 **Ribosomes**: where proteins are made [**animal & plant & bacteria**]
- 🔬 **Chloroplasts**: site of photosynthesis [**plant**]
- 🔬 **Vacuole**: stores cell sap for cell structure [**plant**]
- 🔬 **Wall**: for structure and support [**plant & bacteria**]

Microscopes core practical – how can we view cells?

- 🔬 Place slide on stage and look through eyepiece lens → start with the lowest objective lens magnification → turn the focus wheel to obtain a clear image → increase the objective lens magnification and refocus.
- 🔬 **Stains** make parts visible: plant cells: **iodine**; animal cells: **methyl blue**.
- 🔬 Magnification = Image Size ÷ Actual Size.

What are specialised animal cell functions and adaptations?

- 🔬 **Sperm cell** fertilises egg cell: acrosome enzyme, haploid nucleus, tail.
- 🔬 **Egg cell** develops into fetus: nutrients in cytoplasm, haploid nucleus.
- 🔬 **Ciliated cells** carry mucus: cilia to waft.
- 🔬 **Red blood cells** carry oxygen: contain haemoglobin but no nucleus.

What are specialised plant cell functions and adaptations??

- 🔬 **Root hair cell** absorbs water & minerals: large surface membrane and many mitochondria for energy.
- 🔬 **Xylem cells** transports water: hollow with lignin deposits.
- 🔬 **Phloem cells** sieve cells with holes allow movement and companion cells with mitochondria for energy.

What are the quantitative units of cell biology?

- 🔬 Milli = 10^{-3} Micro = 10^{-6} Nano = 10^{-9} Pico = 10^{-12}

CHEMISTRY

SPRING TERM 2 (CONTENT FROM SPRING TERM 1)

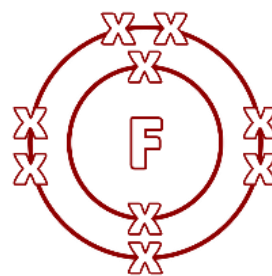
1. How do you calculate the number of protons, neutrons, and electrons?

Key knowledge:

- ✿ **Protons:** The smallest number (the atomic number)
- ✿ **Neutrons:** Take the two numbers away (mass number – atomic number)
- ✿ **Electrons:** The smallest number (the atomic number)

2. How do you draw/write the electronic configuration?

- ✿ **Electrons:** The smallest number (the atomic number)
- ✿ **1st shell:** Can contain 2 electrons.
- ✿ **2nd shell+:** Can contain 8 electrons.



3. What is the charge and mass of protons, neutrons, and electrons?

- ✿ **Protons** are **positive** and have a mass of **1**.
- ✿ **Neutrons** are **neutral** and have a mass of **1**.
- ✿ **Electrons** are **negative** and have a mass of **0.005 (almost 0)**.

4. What do the group and period tell us?

- ✿ **Group:** The total number of electrons in the **outer shell**.
- ✿ **Period:** The total number of **shells** in an atom.

5. What is an isotope?

- ✿ **An isotope** is an atom with the **same number of protons** and a **different number of neutrons**.

6. Similarities and differences between Mendeleev's Periodic Table and ours.

- ✿ **Similarity:** Both in **groups** based on **chemical properties**.
- ✿ **Difference 1:** His was in order of **atomic weight/mass**. Ours is in order of **atomic number**.
- ✿ **Difference 2:** His had **gaps**, ours doesn't.

7. Why did Mendeleev leave gaps?

- ✿ If the elements in a group didn't match up, Mendeleev would **swap** the elements or **leave gaps**.
- ✿ Mendeleev left gaps because elements **hadn't been discovered** yet.

1. What is 2D animation?

It is the process of creating the illusion of movement by displaying a series of pictures or drawings, called frames, one after another.

2. What are some the different types of animation?

- ❖ 2D and 3D animation
- ❖ Flipbook animation
- ❖ Motion capture
- ❖ Claymation
- ❖ Cut-out animation

3. What are the different levels on which you place objects on?

Layers

4. What is the process of generating images that go between keyframes of an animation?

Tweening

5. What are the 3 types of animation tweening?

- ❖ **Motion** tween – used to create movements, sizes and rotation of symbols.
- ❖ **Shape** tween – conversion(change) of objects such as a shape into another shape
- ❖ **Classic** tween – used when making objects fade in and out; move across a scene and also used to change the size of an object

6. What are the benefits of tweening?

- ❖ Tweening makes it more convenient to change the movement between from one key frame to another.
- ❖ It allows animators to create more complex animations with fewer keyframes.

DESIGN TECHNOLOGY

SPRING TERM 2 (CONTENT FROM SPRING TERM 1)

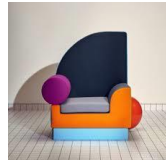
1. What is the Memphis Design Movement?

- The Memphis Design Movement in the 1980s was all about bold, playful designs with vibrant colours, unconventional shapes, and a mix of influences.
- It created eye-catching furniture and objects that broke away from traditional design norms, leaving a significant mark on 1980s aesthetics.



2. Ettore Sottsass?

- He was a designer and founding member of the Memphis movement responsible for the iconic look and some iconic products.



3. What are the benefits of a laser cutter?

- A laser cutter is a form of Computer Aided Manufacture. The design work is done on pc with a CAD package then the file is sent across to the cutter where it can be repeatedly produced both accurately and consistently, without the need for skilled labour.



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

- **Acrylic** - Transparent plastic known for versatility.
- **CAD/CAM** - Computer tools for design and manufacturing.
- **Chisel** - Sharp tool for carving or shaping.
- **Coping Saw** - Small saw for curved cutting.
- **Epoxy Resin** - Two part adhesive material.
- **Mallet** - Hammer for striking or shaping.
- **MDF (Medium Density Fibreboard)** - Engineered wood for furniture.
- **Memphis Design** - 1980s style with bold colours and geometric shapes.
- **PVA (Polyvinyl Acetate)** - Common glue for woodworking.
- **Strip Heater** - Device to heat and bend plastic sheets.

1. What are the themes in the play Romeo and Juliet?

- 🔥 Love, fate, hate, religion, family and honour.

2. What is a soliloquy?

- 🔥 Soliloquies are used as a device in drama to let a character make their thoughts known to the audience, address it directly or take it into their confidence.

3. Who are the main characters in the play?

- 🔥 Romeo, Juliet, Mercutio, Tybalt, Benvolio, Friar Lawrence, The Nurse, Prince Escalus

4. What does Romeo compare Juliet to at the masked ball in Act 1?

- 🔥 Torches, burning brightly
- 🔥 A snowy dove
- 🔥 A rich jewel

5. How is Tybalt presented in the play?

- 🔥 He grows up in Verona and is raised with a strong sense of loyalty to his family and their feuds. His hatred for the Montague family runs deep, and he eagerly participates in the ongoing conflict between the two households.

6. Who does Romeo see before visiting Juliet in the Capulet tomb?

- 🔥 Paris

7. Why does Romeo refuse to fight with Tybalt in Act 3?

- 🔥 Romeo is now married to Tybalt's cousin. He doesn't want Juliet to become angry with him.

FRENCH

SPRING TERM 2 (CONTENT FROM SPRING TERM 1)

1. What does BRAGS stand for?

Beauty, rank, age, good / bad, size

2. What does BRAGS help us remember?

Which adjectives go BEFORE a noun

3. Where do most adjectives go in French?

AFTER the noun

4. Where do ALL adjectives go in English?

BEFORE the noun

5. Beauty: beau (m) What is the feminine form?

belle

6. Rank: what is 'same' in French?

même

7. Age : what does 'jeune' mean ?

young

8. Age: vieux = old What is the feminine form?

vieille

9. What is 'good' and what is 'bad' in French?

Good = bon /bonne Bad = mauvais(e)

10. If there are two or more adjectives after a noun, which extra word would you use?

Et = and (j'ai un chien brun et mignon)

1. Explain urban change in the UK.

- 🌐 England 54.3m, Wales 3.1m, Scotland 5.3m, N. Ireland 1.8m
- 🌐 More people live in cities opposed to rural areas.

2. What is the impact of migration in Bristol?

- 🌐 Variety of foods from all over the world
- 🌐 Clothes from different countries
- 🌐 Festivals such as St Paul's Carnival

3. What is dereliction?

- 🌐 Abandoned buildings and wasteland

4. What is urban regeneration?

- 🌐 Reversing the urban decline by modernising or redeveloping, aiming to improve the local economy.

5. What does derelict mean?

- 🌐 Abandoned buildings and wasteland

6. What is a brownfield site?

- 🌐 The land has already been developed/built on and is no longer in proper use.

7. What is a greenfield site?

- 🌐 A greenfield site is one that has not been built on.

8. What is urban sprawl?

- 🌐 Unplanned growth of urban areas into the surrounding rural areas.

9. What is urban regeneration?

- 🌐 Reversing the urban decline by modernising or redeveloping, aiming to improve the local economy.

1. Whose assassination sparked the outbreak of the First World War?

- Archduke Franz Ferdinand

2. Why did Britain declare war on Germany?

- Germany invaded France by attacking Belgium. Belgium was an ally of Britain.

3. Where was the Western Front?

- Through Belgium and France

4. What was the area known as 'no man's land'?

- The area between the trenches of the two opposing armies

5. Name two new technologies used during the First World War

- Aeroplanes
- Tanks

6. How did Britain blockade Germany?

- By laying mines

7. What caused the most deaths on the Home Front?

- Air-raids

8. What was conscription?

- Men were made to join the army, by the government

9. What are the years for the First World War?

- 1914 - 1918

10. What jobs were carried out by women during the First World War?

- Nursing
- Factory work
- Farm work

1. Key word definitions:

- 🌀 **Discrete data:** can be counted in whole numbers and does not have in between values such as number of pets.
- 🌀 **Continuous data:** data that has to be measured. A good example of this is height

2. What does it mean to collect data?

This is the process of gathering and measuring information

3. How would you use a data collection sheet?

You would use this to write down the information you have collected, it could be as a tally or in words or numbers

4. How would you write 9 o'clock in the evening using 12 and 24 hour clock?

12 hour clock 9pm

24 hour clock 21:00

5. Plotting co-ordinates do you use the x or y value first?

x value - remember - along the corridor then the stairs.

6. When drawing a bar chart what three things should you remember?

1. Even gaps between the bars 2. Label the axes 3. Write in the scale

7. What is a pictogram?

A pictogram uses pictures or icons to represent the data being counted. Each picture will represent an amount shown in a key.

8. With which chart would you use a line of best fit?

You would use it with a scatter graph

9. What should stem and leaf diagram always have?

It must have a key (e.g. 3|4 means 34)

PERFORMING ARTS

SPRING TERM 2 (CONTENT FROM SPRING TERM 1)

1. What is Ground Bass (basso ostinato)?

- ❖ A repeating melodic pattern in a musical composition's bass line.
- ❖ It persists throughout the piece, providing unity while other elements above it change.
- ❖ This technique is employed across various music genres and periods.

2. What are the characteristics of Ground Bass:

- ❖ **Repetition:** A defining feature of ground bass is its repetitive nature, persisting throughout the composition.
- ❖ **Stability:** It offers a stable foundation, allowing variations in upper voices or instruments.








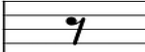
3. What are the genres and forms of ground bass?

- ❖ Ground basses span genres like opera, dance suites, and chamber music, particularly in Baroque and early Classical compositions.

4. Case Study: Pachelbel's Canon

- ❖ **Composition and Structure:** Johann Pachelbel wrote Canon in D around 1680 for three violins and basso continuo.
- ❖ **Canon Form:** The piece utilizes a canon, with a melody imitated by successively entering voices.
- ❖ **Ground Bass:** Featuring a ground bass (basso ostinato), the Canon's repeating bassline provides a foundation for harmonically rich variations in the upper voices.

5. These are the note values which you need to know in order to know how long to play the notes for:

note value	notes	rests	rest value
4 beats	= 		= 4 beats
2 beats	= 		= 2 beats
1 beat	= 		= 1 beat
$\frac{1}{2}$ beat	= 		= $\frac{1}{2}$ beat

6. Key word definitions:

- ❖ **Ostinato:** A persistently repeating musical motif in any part of the musical texture.
- ❖ **Canon:** A musical form where a melody is played and successively imitated by entering voices, as seen in Pachelbel's Canon in D.
- ❖ **Rhythm:** The pattern of sounds and silences in music, including beat, tempo, and meter.
- ❖ **Melody:** A sequence of single pitches, representing the tune or main musical line.
- ❖ **Tempo:** The speed or pace of a piece, indicated by terms like "allegro" (fast) or "adagio" (slow).

PHYSICAL EDUCATION

SPRING TERM 2 (CONTENT FROM SPRING TERM 1)

1. Handball

Key Skills:

Offensive and defensive movement:

- Feinting with the body
- Feinting a shot
- Feinting a pass

Advanced skills, (applies to all positions, except where stated) to include: Catching:

(one handed assisted on both sides)

- At a variety of heights
- Stationary
- On the move
- From the bounce

Jumping Catching/shot stopping: (one handed assisted on both sides, goalkeeper only)

- At a variety of heights
- Stationary
- On the move



2. Tactics and Strategies

Key Content and Terms to learn:

- Attacking positioning on the field
- Defensive positioning on the field
- Defensive ploys – man to man marking, zonal marking

Awareness of strengths/weaknesses and actions of other players e.g. adopt a variety of roles in attack and defence in the game

3. Rules & Regulations

Rules

- A match consists of two periods of 30 minutes each.
- Each team consists of 7 players; a goalkeeper and 6 outfield players.
- Outfield players can touch the ball with any part of their body that is above the knee.
- Once a player receives possession, they can pass, hold possession or shoot.
- If a player holds possession, they can dribble or take three steps for up to three seconds without dribbling.
- Only the goalkeeper is allowed to come into contact with the floor of the goal area.

Goalkeepers are allowed out of the goal area but must not retain possession if they are outside the goal area.



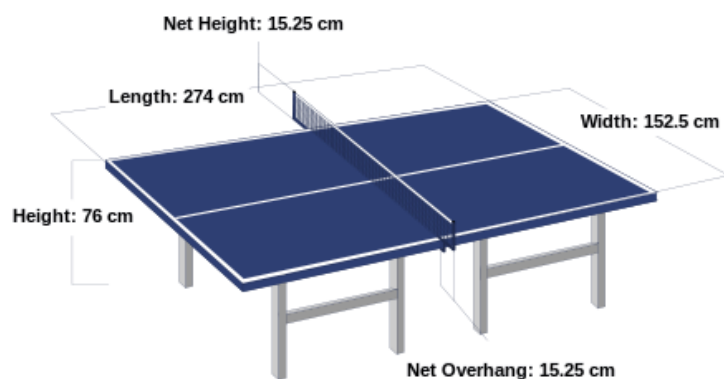
4. Table Tennis

Key Skills

- Forehand drive - is the most basic and fundamental stroke. It returns aggressive/attacking strokes and is played with your palm facing your opponent.
- Backhand drive - is the mirror of the forehand drive, intended to return attacking shots with the reverse of your hand
- Backhand Push - returns short balls, and prevents your opponent from making an attacking return.
- The forehand push - is also designed for returning short balls and preventing attacking shots.
- Serve - is the final basic skill, you perform the serve to begin each point in the match by playing the ball against both sides of the table. The ball must rest on an open hand and be tossed approximately 10cm before hitting

5. Tactics and Strategies

- Attacking and defending
- Create space and cut down space
- Changes of speed
- Changes of direction
- Use of disguise Use of spin – backspin/topspin
- Timing
- Decision making



6. Rules & Regulations

SCORING

A match is played as the best of 1, 3 or 5 games

For each game, the first player to reach 11 points wins the game. However a game must be won by at least a 2 point margin

A point is scored at the end of each rally

The edges of the table (but not the sides) are part of the legal table surface

A POINT IS LOST IF A PLAYER

Fails to make a good serve, Fails to hit the ball onto their opponents side, Fails to hit the ball, Hits the ball before bounces (volley)

A GOOD SERVE - The ball must rest on the palm of the open hand. Toss it up at least 15 cm (6 inches) and strike it so the ball first bounces on the server's side and then on the opponent's side

A 'let' service is called if the ball touches the top of the net and goes over and onto the table •Let serves do not score points and the server

MATCH FLOW - Each player serves 2 points alternately. If a game reaches 10 all, each player serves 1 point alternately until the game is won by 2 clear points. After each game players change ends •In the final game players change ends after the first player reaches 5 points

PHYSICS

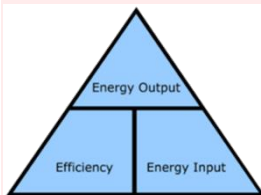
SPRING TERM 2 (CONTENT FROM SPRING TERM 1)

1. What are the eight energy stores?

- Energy allows work to be done, it has **8** different stores (types)
- Energy is measured in **joules (J)**

Thermal	The hotter an object, the more thermal energy it stores	Today Kids Can Easily Memorise GCSE Energy Names
Kinetic	Any moving object has a kinetic energy store	
Chemical	Can release energy through a chemical reaction (e.g. fuels, foods)	
Elastic	Anything stretched or compressed (e.g. elastic band or spring)	
Magnetic	In two magnets that are attracting or repelling	
Gravitational	Due to an objects position within a gravitational field	
Electrostatic	In two electric charges that are attracting or repelling	
Nuclear	Released from the nucleus (e.g. decay, fission or fusion)	

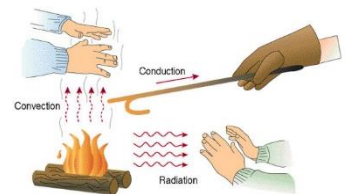
2. What is the conservation of energy?



- The **conservation of energy** tells us that: energy cannot be made or destroyed, it can only be transferred between stores
- Efficiency** = $\frac{\text{useful energy transferred by device}}{\text{total energy supplied to device}}$
- To improve efficiency- reduce the amount of energy wasted.
- To **reduce** the amount of **energy wasted**- use **insulation** to reduce heat loss or use a **lubricant** to reduce friction.

3. How can heat energy be transferred?

- Heat energy can be transferred from one place to another through **Conduction, convection** or **radiation**
- Insulators** are poor conductors, using insulation slows down the rate of energy transfer to the surroundings.



4. How can the amount of energy stored be calculated?

- Gravitational potential energy (GPE) is stored in raised objects
 $GPE (J) = \text{mass (kg)} \times \text{gravitational field strength (N/kg)} \times \text{change in height (m)}$
- Kinetic energy (KE) is stored in moving objects.
 $KE (J) = \frac{1}{2} \text{mass (kg)} \times \text{velocity}^2 (m/s)$

5. How are non-renewable energy resources used?

- Fossil fuels** (coal, oil and gas) & **nuclear** are non-renewable
- Advantages:** they are a **reliable** source of energy, fairly **cheap** to use and they provide a **lot of energy**
- Disadvantages:** They are **running out**, fossil fuels **produce carbon dioxide**, nuclear power produces **radioactive waste**.

6. How are renewable energy resources used?

- Solar power, wind power, hydroelectric, geothermal and biomass are all examples of renewable energy resources.
- Advantages:** they **will not run out**, they **do not produce carbon dioxide** (biofuels are carbon neutral).
- Disadvantages:** In general they are **not reliable** and **do not produce enough energy** to meet our demands.



1. A relationship is:

- **Relationship:** The way in which two or more people are connected to each other.

2. Positive family relationships include:

- | | |
|---|---|
| <ul style="list-style-type: none">• Shared family activities• Shared meal times• Structure and routine• Open communication• Agreed family rules and expectations• Love and kindness• Affection• Laughter | <ul style="list-style-type: none">• Safety• Trust• Comfort• Love• Acceptance• Happiness• Peaceful |
|---|---|

3. Marriage is:

- **Marriage:** The legal union of two people through a wedding ceremony.

4. A civil partnership is:

- **Civil Partnership:** A legal relationship that has been registered between two people.

5. Cohabiting is:

- **Cohabiting:** Living together in a relationship without being married or in a civil partnership.

6. Reasons a relationship might change include:

- | | |
|--|---|
| <ul style="list-style-type: none">• Moving to a new location• Starting a new school, college or university• Starting or stopping a particular sport or hobby | <ul style="list-style-type: none">• Starting or leaving a job;• A change in family dynamics• Choosing to cohabit, get married, or form a civil partnership. |
|--|---|

7. Types of abuse include:

- | | |
|--|--|
| <ul style="list-style-type: none">• Neglect• Physical abuse | <ul style="list-style-type: none">• Emotional abuse• Sexual abuse |
|--|--|

TEXTILES

SPRING TERM 2 (CONTENT FROM SPRING TERM 1)

1. When was the first bookmark made?

- 🌀 The earliest existing bookmark dates from the **6th century AD**.

2. What was the first bookmark made of?

- 🌀 Ornamented leather lined with vellum on the back.

3. Who invented the first bookmark?

- 🌀 One of the earliest references to the use of bookmarks was in 1584 when the Queen's Printer, **Christopher Barker**, presented Queen Elizabeth I with a fringed silk bookmark.

4. What is the purpose of a bookmark?

- 🌀 A bookmark is used to keep track of the page you were reading in a book, so you can easily pick up where you left off.

5. What are bookmarks made out of?

- 🌀 **Paper:** Simple and often printed with designs or information.
- 🌀 **Cardstock:** Thicker than standard paper, providing durability.
- 🌀 **Metal:** Often slim and decorative, made from materials like stainless steel or brass.
- 🌀 **Plastic:** Durable and sometimes laminated for extra longevity.
- 🌀 **Fabric:** Often made from materials like ribbon or felt, sometimes with decorative elements.
- 🌀 **Wood:** Less common, but can be intricately designed and sturdy.

