Stafford Manor High School

Every Child Reaching their Full Potential

Year 9 Autumn Term 2

Core Knowledge

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

ART

AUTUMN TERM 2 (CONTENT FROM AUTUMN TERM 1)

1. What is a mind map?

- A mind map is a visual tool used to organize and represent information, ideas, concepts, or tasks around a central theme or topic. It is a diagram that starts with a central idea or keyword and branches out into related subtopics, thoughts, or categories.
- **Central Topic**: Positioned at the centre of the map, usually represented by a word, image, or symbol.
- **Keywords or Concepts**: Words or short phrases used to label branches and nodes, encapsulating key ideas or themes.
- **Colour and Images**: Often incorporates colours, icons, or images to visually distinguish different branches or to enhance understanding and memory retention.
- **Brainstorming**: Generating and organizing ideas around a central topic or problem.

2. Watercolour Techniques

- Watercolour painting offers a wide range of techniques that artists use to achieve different effects and styles. Here are some fundamental watercolour techniques along with brief descriptions of each:
- **Wet-on-Wet Technique -** Applying wet paint onto a wet paper surface. This technique allows colours to blend softly and create diffused edges. It's ideal for creating atmospheric effects like skies or soft backgrounds.
- **Dry Brush Technique** - Using a relatively dry brush with thick paint to create a textured or broken effect. This technique is suitable for adding details or textures with controlled brushstrokes.
- **Salt Technique** - Sprinkling salt onto wet paint to create interesting textures and patterns as the salt absorbs moisture. Different types of salt (table salt, sea salt) can yield varying effects.
- **Splattering and Spraying** - Flicking or spraying paint onto the paper using a brush, toothbrush, or spray bottle. This technique adds texture and spontaneity to a painting, creating effects like splashes or speckles.

3. How to paint a large-scale watercolour painting.

- Painting a large-scale watercolour painting requires careful planning and consideration due to the scale and the unique properties of watercolour as a medium.
- Sketch out your composition lightly on the paper using a pencil. Consider the focal points, balance, and overall composition of your painting.
- Begin with broad washes and lighter colours to establish the overall tone and atmosphere of your painting. Work in sections to manage the drying time and maintain control over the paint.
- Gradually build up layers of paint, allowing each layer to dry completely before adding the next. Use different techniques like wet-on-wet, dry brush, or glazing to create depth and texture.
- Once the painting is mostly dry, add final details, highlights, and any necessary adjustments to balance the composition and enhance visual interest.

BIOLOGY

AUTUMN TERM 2 (CONTENT FROM AUTUMN TERM 1)

1. Describe the structure of DNA

- DNA is a made up of two long molecules in a **double helix**.

2. What are the complementary base pairs in DNA?

- **Adenine** always pairs with **thymine**.
- **Cytosine** always pairs with **guanine**.

3. How are genes, chromosomes and DNA linked?

- The nucleus contains **chromosomes**, made up of **DNA**.
- Each section of a chromosome is called a **gene**.
- A gene is the code to produce a particular **protein**.

4. What are alleles, genotypes and phenotypes?

- **Alleles** are different variations of the same gene.
- **Genotypes**: The collection of genes, which gives you blue or brown eyes.
- **Phenotypes**: The **visible** characteristic, such as **blue** eyes.

5. Continuous vs. Discontinuous variation.

- **Continuous variation** is a something that changes **gradually**, such as height, weight, heart rate and leaf size.
- **Discontinuous variation** is a something that only has a **few** different variations, such as blood type and eye colour.

6. What is natural selection?

- Where the **best-adapted** individuals survive and reproduce.
- They then pass on the **gene** for that advantageous adaptation.

7. What is Darwin's theory of evolution?

- Evolution is a change in the **inherited** characteristics of a population over **a long time** through **natural selection**.

8. How do tools and fossils prove evolution?

- **More advanced** tools/fossils are found in **newer** rocks.
- **Less advanced** tools/fossils are found in **older** rocks.

9. Why do some animals become extinct?

- There may be too much **competition** for food / land.
- There could be **new diseases** or **new predators**.
- There could be changes to the environment (**climate change**)

10. What is selective breeding?

- Choosing parents with a **characteristic you want**, to produce offspring with **more desirable** characteristics.

CHEMISTRY

AUTUMN TERM 2 (CONTENT FROM AUTUMN TERM 1)

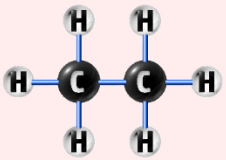
1. Describe the word "exothermic"

- Heat is **given out** to the surroundings.
- The temperature **increases**.

2. Describe the word "endothermic"

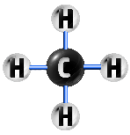
- Heat is **taken in** from the surroundings.
- The temperature **decreases**.

3. Describe what a hydrocarbon is

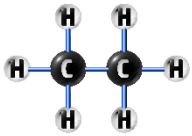


- A compound made up of **hydrogen** and **carbon**…
- …**ONLY**!

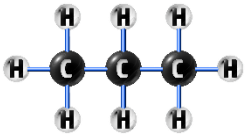
4. Draw the first 4 alkanes



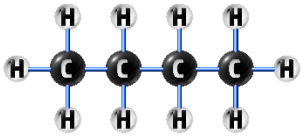
Methane, CH_4



Ethane, C_2H_6

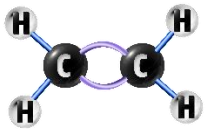


Propane, C_3H_8

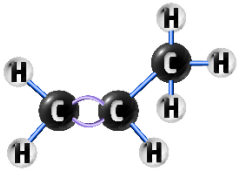


Butane, C_4H_{10}

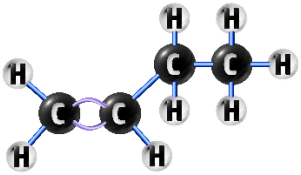
5. Draw the first 3 alkenes



Ethene, C_2H_4



Propene, C_3H_6



Butene, C_4H_8

6. Identify 4 ways to speed up a reaction

- Increase the **temperature.**
- Increase the **concentration.**
- Increase the **surface area** (crush it up!).
- Use a **catalyst.**

7. Describe what is needed for a chemical reaction to occur

- A **collision**…
- …with enough **energy** to make it successful.

8. Describe what a catalyst is

- **Speeds up** a chemical reaction.
- **Doesn't get used up**.

COMPUTING

AUTUMN TERM 2 (CONTENT FROM AUTUMN TERM 1)

1. What is data?

Data is raw facts and figures

2. What is information?

Information is data that has been processed and has become meaningful

3. What is social engineering?

Social engineering is a set of methods used by criminals to deceive people into handing over information.

4. What is phishing?

Phishing is an attack in which the victim receives a disguised email aiming to trick them into giving up personal data.

5. What is hacking?

Gaining unauthorised access to or control of a computer system.

6. What is malware?

Malicious software designed to gain access to a computer.

7. What is the computer misuse act?

A law passed in 1990 in order to help prosecute perpetrators of computer crimes.

8. Give an example of a type of malware

Virus, Trojan, worm, adware, spyware, ransomware

9. What is a firewall?

A firewall checks incoming and outgoing network traffic. It scans the data to make sure that it doesn't contain anything malicious.

DESIGN TECHNOLOGY

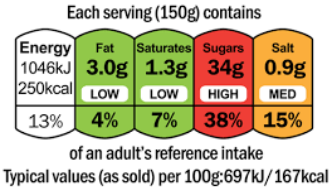
AUTUMN TERM 2 (CONTENT FROM AUTUMN TERM 1)

1. What is meant by seasonal food?

- It is only in the last hundred years that refrigeration has become more commonplace in homes. For this reason, people would more commonly buy fruit, veg and meats on a daily basis. It would also mean that different items were only available at different times of the year depending on when they grew.

2. Nutritional information

- When we buy food from the shops it must have the nutritional information for the product. Like the one shown here--→



3. Food prep equipment

- Sauce Pan
- Frying Pan
- Measuring Jug
- Chopping boards (coloured)
- Wooden Spoon
- Spatula
- Cooks Knife

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

- **Sautee** – to gently fry in either a frying pan or small saucepan
- **Bake** – to cook something in the oven without fat or oil
- **Poach** – to cook something gently submerged in water
- **Steam** – to cook using only the steam from boiling water
- **Roasting** – to cook in an oven using animal fat or oil
- **Vitamins** – elements found in nature our body needs for good **health**
- **Minerals** – as vitamins
- **Food storage** – appropriate methods for keeping raw and cooked food
- **Taste** – the different sensations caused by food items
- **Budget** - the amount of money you spend or have to spend on food

ENGLISH

AUTUMN TERM 2 (CONTENT FROM AUTUMN TERM 1)

1. What is dramatic irony?

- Dramatic irony is when the audience understands more about a situation than some of the characters do.

2. What is a 'flash forward'?

- It is a scene that temporarily takes the narrative forward in time from the current point of the story in literature, film and television.

3. How old are Mickey and Edward when they first meet on the street?

- Seven

4. What are the themes in Blood Brothers?

- Themes of social class and inequality, superstition and fate, and violence are explored.

5. Why did Willy Russell write Blood Brothers?

- Russell wrote Blood Brothers in 1981. This was during the period that Conservative Prime Minister Margaret Thatcher was in power. There was very high unemployment during this time, particularly in industrial working-class areas in northern England, such as Liverpool - where Russell is from and where the play is set. Mickey and his family represent the working classes, who were badly affected by the economic downturn, whereas Edward and the Lyons family embody the middle classes, who thrived in the 1980s.

6. How is the character of Mrs Lyons presented?

- Mrs Lyons is lonely, manipulative, bitter and paranoid.

7. What is the purpose of the narrator in the play?

- The Narrator serves several purposes in the play. He acts as a social conscience, drawing the audience's attention to the rights and wrongs of characters' actions. He also reminds the audience of the mothers' guilt and the twins' inevitable death.

FRENCH

AUTUMN TERM 2 (CONTENT FROM AUTUMN TERM 1)

1. How is 'y' <u>always</u> pronounced in French?

- ee

2. What do 'choisir', 'remplir' and 'définir' mean?

- To choose; to fill; to define

3. What are the first, second and third person singular endings for these verbs? (je, tu, il/elle)

- Je = is (je choisis); tu = is (tu remplis) ; il / elle = it (elle définit)

4. What does the verb 'travailler' mean?

- To work

5. What do 'la matière', 'le cahier', 'le collège', 'la langue', 'le directeur' mean ?

- Subject, exercise book, middle school, language (tongue), head teacher

6. What does 'redoubler' mean?

- To retake a school year if you get less than 50% in end of year exams

7. What do 'dans cinq minutes', 'dans trois jours', 'dans un mois' mean ?

- In 5 minutes, in 3 days, in a month

8. What does 'demain' mean?

- tomorrow

9. What does 'l'année prochaine' mean ?

- next year

GEOGRAPHY

AUTUMN TERM 2 (CONTENT FROM AUTUMN TERM 1)

1. What do we call it when we see changes in climate as a result of natural or human causes?

- Climate Change

2. What is the term used to explain human increasing the amounts of toxic gases in the atmosphere?

- Enhanced greenhouse effect

3. Who is the Serbian physicist who came up with orbital changes that cause climate change?

- Milutin Milankovitich

4. What natural cause of climate change causes the earth to cool?

- Volcanic activity

5. What type of agriculture releases methane into the atmosphere?

- Cattle farming (cows)

6. What is the correct term for planting trees?

- Afforestation

HISTORY

AUTUMN TERM 2 (CONTENT FROM AUTUMN TERM 1)

1. What was the Industrial Revolution?

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

2. What powered the new machines to produce cloth?

- Steam engines

3. Britain became the world's first industrial nation, during which period of time?

- 1750 – 1850

4. What was the name given to unskilled builders?

- Navvies

5. What did these unskilled builders build from the 1840s onwards?

- The railways

6. In which part of England were most textile factories located?

- The north of England

7. What type of help was there for people who were struggling financially?

- Poor relief from the parish

8. What age did children in the factories and mines start working?

- Six years old

9. What were the working hours for children in factories and mines?

- They were long – 13 to 14 hours per day

10. What happened to children in the factories if they did not work fast enough?

- They were beaten

MATHEMATICS

AUTUMN TERM 2 (CONTENT FROM AUTUMN TERM 1)

1. Key word definitions:

- **Digit:** A single symbol used to make a number.
- **Integer:** A whole number.
- **Significant Figure:** the first non-zero digit in a number.
- **Round:** change a number to make it easier to work with.

2. What is the order of operations?

Brackets or Powers
then
Multiply or Divide
then
Add or Subtract

3. What are the inequality symbols?

<	>	≤	≥
less than	greater than	less than or equal to	greater than or equal to
-4 < 3	18.39 > 18.35	16, 17, 18 ≤ 18	3 + 9 ≥ 7

4. What are the equality symbols?

=	≠
equal to	not equal to
2 + 3 = 3 + 2	2 + 3 ≠ 4 - 1

5. What are credit and debit?

Credit: money going <u>into</u> a bank account.
Debit: money going <u>out</u> of a bank account.

6. What are the four power facts?

$n^0 = 1$

$n^1 = n$

$n^{-1} = \frac{1}{n}$

$n^{-2} = \frac{1}{n^2}$

7. What is standard form?

Standard form is a method to make very big, or very small, numbers easier to read.

PERFORMING ARTS

AUTUMN TERM 2 (CONTENT FROM AUTUMN TERM 1)

1. What is Film Music?

- Music created for films

There are two types of film music:

- non-diegetic is music included only for the audience's benefit to build tension or heighten emotion of a scene, eg a battle or a love scene
- diegetic music is heard by the characters in the film and by the audience, eg if there is a scene at a party with loud music

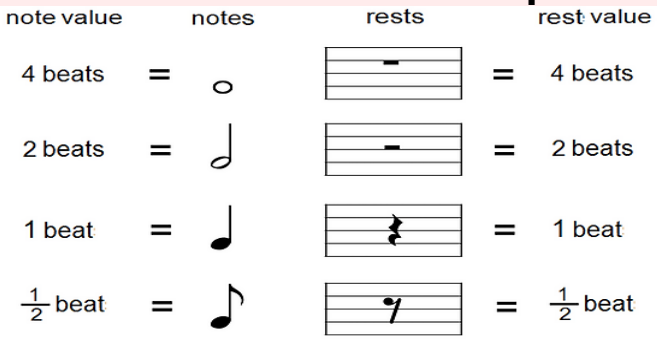
2. Film composers

Hans Zimmer, who wrote music for *Gladiator*, *The Dark Night* and *Boss Baby*

John Williams, who wrote the music for *Star Wars*, *Indiana Jones* and *Harry Potter*

John Barry, who wrote the music for 11 of the James Bond films

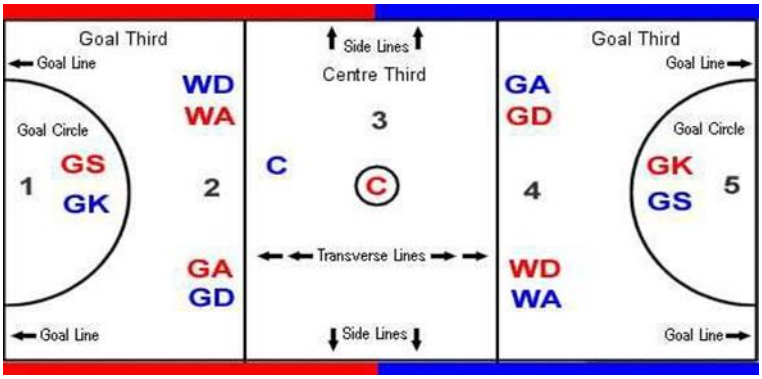
3. These are the note values which you need to know in order to know how long to play the note for. Rests are important too! Don't get the 2 beat and 4 beat rest mixed up!



PHYSICAL EDUCATION

AUTUMN TERM 2 (CONTENT FROM AUTUMN TERM 1)

1. Netball Court



POSITIONS AND RESPONSIBILITIES

Goal Shooter (GS) – To score goals and work in and around the circle with the GA. Marks the GK.

Goal Attack (GA) – To feed the ball to the GS and to score goals. Marks the GD.

Wing Attack (WA) – To feed the ball into the circle and to help move the ball down to the teams attacking third. Marks the WD.

Centre (C) – To take the centre pass and to act as a link between defence and attack. Moves the ball down the court. Marks the opposite C.

Wing Defence (WD) – To look for interceptions and move the ball down into attack. Marks the WA.

Goal Defence (GD) – To get the ball from the attack and help pass it back down the court. To prevent the GA from scoring. Marks the GA.

Goal Keeper (GK)- To work with the GD and to prevent the GA/GS from scoring. Marks the GS.

2. Key Terms

Passing and receiving	Shooting – Accuracy
Attacking	Dodging
Defending	Penalty
Footwork	Obstruction
Contact	Tactical

3. Rules

Rules: The game starts with a centre pass and the ball must be caught in the centre third.

You must comply with the footwork rule e.g. a 1-2 landing.

You only have 3 seconds to release the ball.

When defending you must be 1 metre away from the player. If too close you get a penalty against you and you must stand with the player.

There must be no contact with an opposing player. If you do contact them it is a penalty against you and you must stand with the player.

Only GS and GA may score a goal.

You must stay in the correct area of the court for your position. If you go offside it's a free pass to the opposite team.

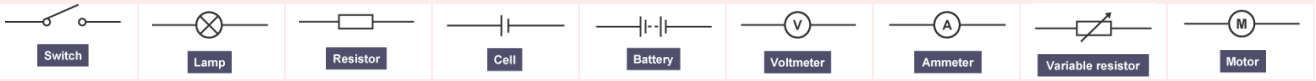
Teams take it in turns to take a centre pass.

The ball must be touched in each third of the court.

PHYSICS

AUTUMN TERM 2 (CONTENT FROM AUTUMN TERM 1)

1. How do you draw circuit symbols?



2. What is electric current?

- Current is a measure of how much **electric charge** flows through a circuit.
- The ***more charge*** that flows, the ***bigger the current***.

3. What is voltage?

- Voltage is a measure of the **difference in energy** between two parts of a circuit.
- The bigger the difference in energy, the bigger the **voltage**.

4. How do you measure current?

- Current is measured in **amperes** (A).
- You use an **ammeter**, placed in **series**.

5. How do you measure voltage?

- Voltage is measured in **volts** (A).
- You use an **voltmeter**, placed in **parallel**.

6. How do you calculate resistance?

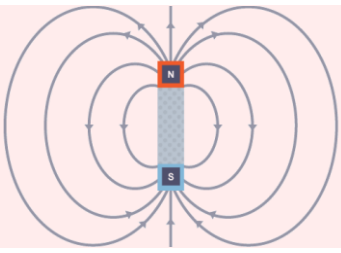
- **Resistance (Ω) = potential difference (V) ÷ current (A)**

7. What are the magnetic metals?

Iron	**Steel**	**Cobalt**	**Nickel**

8. What do magnetic field lines look like?

- The field lines are loops.
- The field lines do not overlap.
- The field lines flow **from** the **north** pole to the **south** pole.



9. How are negative and positive charges built?

- **Negative**: When something **gains *negative* electrons**.
- **Positive**: When something **loses *negative* electrons.**

10. How does friction cause static electricity?

- **Friction transfers electrons** from one material to another.
- The material that **gains** electrons will have a **negative** charge.
- The material that **loses** electrons will have a **positive** charge.
- Both materials will have the **same size charge.**

SEL

AUTUMN TERM 2 (CONTENT FROM AUTUMN TERM 1)

1. Features of a **healthy relationship** include:

- Trust
- Respect
- Honesty
- Support
- Kindness
- Generosity
- Boundaries
- Privacy
- Consent
- Loyalty
- Reconciliation

2. The signs that someone may be a **member of a gang** include:

- Wearing gang symbols/clothes/tattoos
- Risk-taking behaviours
- Mixing with known gang members
- Seeming to have a lot of money/expensive items without a clear income source
- Using street/coded language
- Carrying knives
- Having a hierarchy

3. Reasons someone may **join a gang** include:

- Sense of belonging and/or identity
- Pressure to join
- Expectations to join as family or friends are members
- Protection
- Enjoy risk taking
- To get respect
- Looking for a glamorous lifestyle
- Fear

4. Consequences of **carrying a knife** include:

- Possession of a knife has a 4-year prison sentence, even if it is not used.
- A person can be arrested, charged and sent to prison if they are with someone who stabs another person
- People involved in knife attacks can be seriously injured or killed

5. Support available for young people involved in gangs and knife crime are:

- Home/school support (friend, parent/carer, tutor, head of year, Designated Safeguarding Lead or other trusted adult
- **A Better Medway**: www.abettermedway.co.uk
- **Childline**: www.childline.org.uk 0800 1111
- **NSPCC**: www.nspcc.org.uk/gangs 0808 800 5000
- **Crimestoppers**: www.crimestoppers-uk.org/ 0800 555111
- **Victim support**: www.victimsupport.org.uk 0808 16 89 111
- **Runaway helpline**: www.runawayhelpline.org.uk/advice/gangs/ Call or Text 116 000, email 116000@runawayhelpline.org.uk

TEXTILES

1. What is a circular weave?

Circle weaving, also known as circular weaving or round weaving, is similar to regular weaving, but it's done on a round loom instead of a rectangular loom. When you string the loom, your warp strings look like bicycle spokes, and you weave in and out of these spokes (or warp strings) in a circular direction.

2. Who is Tammy Kanat?

- Tammy Kanat is a Melbourne-based artist whose recent work has focused on tapestries woven around an oval-shaped copper frame. ... Throughout her career, Kanat has explored the representation of natural forms in tapestry – the concentric circles in these four works recall cut agate, living coral and aerial landscape scenes.

3. What is a Natural fabric

- Textiles also called fabrics can be made from either **Natural** or **Synthetic** fibers.
- **Natural fabrics**
- Can be harvested from plants animals. For example cotton comes from plants and wool from sheep
- **Synthetic fabrics** (manmade)
- These are made from polymers (long-chains molecules). These mainly come from oil and coal (non-renewable fossil fuels)