Year 10 Higher CS Science 2023-2024

Curriculum Intent We believe that students deserve a broad and ambitious Science curriculum that enriches in skill and knowledge, which ignites curiosity and prepares them well for future learning or employment. Our curriculum is sequenced to build upon prior knowledge learnt from KS1, KS2 and KS3 and firmly embed the precise learning points that pupils need to succeed in their qualification and also to go on to further career success.

*Thursdays – Will reteach or extend pupils on prior knowledge

Term	Topic	Knowledge and Skills	Assessments	Careers	SMSC	SRE/ British Values	Literacy	Character Virtues
Autumn 1								
4th September 11th September 18th September	Chemical change	Understanding of chemical changes began when people began experimenting with chemical reactions in a systematic way and organizing their results logically. Knowing about these different chemical changes meant that scientists could begin to predict exactly what new substances RP: Reactions with metal carbonates, metal oxides, metal hydroxides and metals and acid	Knowledge Retrieval- to test prior knowledge Exit ticket to test progress from the topic. Pupils should correct and make improvements from further teacher input.	Used industry for the discovery of new substances by identifying what we have already discovered.	Social- Working with others in a practical setting and realise they may have different ideas.	The rule of law- the right to health and safety.	Tier 2 and Tier 3 key words to be printed and placed in books	**Teamwork** **Resilience**

25th September 2nd October 9th October	Infectious Disease and Response	B1- Explore how we can avoid diseases by reducing contact with them, as well as how the body uses barriers against pathogens. Once inside the body our immune system is triggered which is usually strong enough to destroy the pathogen and prevent disease.	Knowledge Retrieval questions daily in lessons. EXIT tickets at the end of each topic.	Discovery of new drugs; Drug Development and Testing; developing vaccines; Evaluating healthcare sanitation; Research into antibiotic resistance	Spiritual- learning about scientific skills used to identify the world around them. Social- Working with others in a practical setting and realise they may have different ideas.	BV- Democracy- pupils learn to work in groups and accept other's views The rule of law- the right to health and safety SRE- Sexually transmitted disease specifically HIV, AIDS and Gonorrhoea	Tier 2 and Tier 3 key words to be printed and placed in books Texts to read on Semmelweis and the discovery of antibiotics.	Wisdom, knowledge courage Resilience
16th October	B1 Assessment							
Half term 23rd October -27th October								
AUTUMN 2								
30th October - 11th December	Radioactivity	P1- Ionising radiation is hazardous but can be very useful. Today radioactive materials are widely used in medicine, industry, agriculture and electrical power generation RP- Alpha, beta and gamma properties.	Knowledge Retrieval Questions EXIT Ticket for Radioactivity - Marked by teacher. Pupils correct, teacher input and pupils given similar questions to demonstrate progress.	Working at a nuclear power plant. Radiographers Uses of radioactive tracers in the medical profession Uses of tracers for gas	Social- Debating the pros and cons of nuclear energy Moral – Although nuclear radiation has many useful benefits it also poses many negative and extreme consequences.	BV- Individual liberties: Pupils have the right to work independently and make choices in a safe environment. Democracy- Debating the nuclear energy use issues	Tier 2 and Tier 3 key terms to be in pupil books	Curiosity Resilience Teamwork Humanity
	Quantitative	Chemists use quantitative analysis to determine the	Knowledge Retrieval Questions	Chemists working in a lab. Pharmaceutical company	Social- Working with others in a practical setting and realise they	The rule of law- the right to health and safety	Tier 2 and tier 3 words to be glued into books and	**Resilience Teamwork** Critical Thinking

		formulae of compounds and the equations for Reactions.	EXIT Ticket for Quantitative - Marked by teacher. Pupils correct, teacher input and pupils given similar questions to demonstrate progress.		may have different ideas.		referred to throughout topic	Reasoning Reflection
	Particle Model	Used to predict the behaviour of solids, liquids and gases and this has many applications in everyday	Exit Ticket to be completed	Engineers use these principles when designing vessels to withstand high pressures and temperatures, such as submarines and spacecraft. It also explains why it is difficult to make a good cup of tea high up a mountain!		The rule of law- the right to health and safety.	Tier 2 and tier 3 words to be glued into books and referred to throughout topic	Resilience Teamwork Critical Thinking Reasoning Reflection
End of Term 18th December-1st January 2024								
SPRING 1								
2nd January- 5th February	Electrolysis	Predicting aqueous and molten products. Uses of electrolysis. Cost of process.	Exit ticket	Laboratory Engineering new substances	Social- Working with others in a practical setting and realise they may have different ideas.	Individual liberties: Pupils have the right to work independently and make choices in a safe environment.	Tier 2 and tier 3 words to be glued into books and referred to throughout topic	Wisdom, knowledge courage Resilience
	Energy Endo/Exo	Energy changes are an important part of chemical reactions. The interaction of particles often	Knowledge Retrieval Exit ticket at the end of the topic. Pupils to correct,	Laboratory Engineering new substances	Social- Working with others in a practical setting and realise they may have different ideas.	Individual liberties: Pupils have the right to work independently and	Tier 2 and tier 3 words to be glued into books and referred to throughout topic	Wisdom, knowledge courage Resilience

		involves transfers of energy due to the breaking and formation of bonds	reteach and then demonstrate			make choices in a safe environment.		
	Homeostasis	Explore the structure and function of the nervous system and how it can bring about fast responses. We will also explore the hormonal system which usually brings about much slower changes Separate Science ONLY- The Brain and discoveries in the brain	Knowledge Retrieval Exit ticket at the end of the topic. Pupils to correct, reteach and then demonstrate	Endocrinologist	Social Moral- Use of natural resources	BV- Individual liberties: Pupils have the right to work independently and make choices in a safe environment.	Tier 2 and tier 3 words to be glued into books and referred to throughout topic	Wisdom, knowledge courage Resilience
Half term 12th February -16th February								
SPRING 2								
19th February	Homeostasis							
26th February								
4th March	Reteach							
11th March	Mocks							
18th March								
25th March								
End of Term 29th March- 12th April								
SUMMER 1								
15th April	Rates of reaction	How to calculate rate of reaction Units Factors such as pressure,	Knowledge Retrieval Exit ticket at the end of the topic. Pupils to correct,	Laboratory Drug production Production of all chemicals in industry and	Social- Working with others in a practical setting and realise they	The rule of law- the right to health and safety	Tier 2 and tier 3 words to be glued into books and referred to throughout topic	Wisdom, knowledge courage Resilience Reflection
22nd April								
29th April								

		concentration, catalyst(also in C1 energy change), temperature and surface area affect rate of reaction. Collision Theory Application to industry HIGHER:	reteach and then demonstrate	optimal conditions to reduce waste and maximise profit	may have different ideas.			Courage
6th May 13th May 20th May	Forces	Engineers analyse forces when designing a great variety of machines and instruments, from road bridges and fairground rides to atomic force microscopes. Anything mechanical can be analysed in this way	Knowledge Retrieval Exit ticket at the end of the topic. Pupils to correct, reteach and then demonstrate	Engineers Racing cars Setting speed limits Collision Safety	Social- Working with others in a practical setting and realise they may have different ideas.	The rule of law- the right to health and safety	Tier 2 and tier 3 words to be glued into books and referred to throughout topic	Wisdom, knowledge courage Resilience Reflection Courage
Half Term 27th May-31st May								
Summer 2								
3rd June 10th June	Crude Oil	The chemistry of carbon compounds is so important that it forms a separate branch of chemistry. A great variety of carbon compounds is possible because carbon atoms can form chains and rings linked by C-C bonds	Knowledge Retrieval Exit ticket at the end of the topic. Pupils to correct, reteach and then demonstrate	Chemists are able to take organic molecules and modify them in many ways to make new and useful materials such as polymers, pharmaceuticals, perfumes and flavourings, dyes and detergents.		Tier 2 and tier 3 words to be glued into books and referred to throughout topic	Wisdom, knowledge courage Resilience Reflection Courage	

17th June 24th June	Electromagnetism	Electromagnetic effects are used in a wide variety of devices. That when current flows around a magnet it can produce movement.	Exit Ticket for Magnetism and Electromagnetism Complete Physics Paper 1	Engineers make use of the fact that a magnet moving in a coil can produce electric current. Using the Fleming's rule for the motor effect			Tier 2 and Tier 3 key terms to be printed and glued in books	
1st July 8th July 22nd July	Reproduction and Variation	Gene mutations occur continuously and on rare occasions can affect the functioning of the animal or plant. These mutations may be damaging and lead to a number of genetic disorders or death. Very rarely a new mutation can be beneficial and consequently, lead to increased fitness in the individual	Knowledge Retrieval Exit ticket at the end of the topic. Pupils to correct, reteach and then demonstrate	Geneticist Fertility clinic nurse, doctor Researched	Moral Cultural	SRE – The right to choice BV- Democracy	Tier 2 and Tier 3 key terms to be printed and glued in books	**Teamwork** Wisdom Humanity