



# Year 7 Learning Journey



## Half Term 1:

### **Introduction: Working Scientifically**

Lab safety in the form of prevention

*Hazards, equipment, planning investigations, identifying variables, recording and presenting data, interpreting data, forming conclusions and making improvements*

## Half Term 2:

### **Biology: Cells, Tissues, Organs and Organ Systems**

*Life processes, the parts and functions of major organs and systems.*

### **Chemistry: Particles & their behaviour**

*Particle model, states of matter, melting/freezing, boiling, changes of state, diffusion.*

## Half Term 3:

### **Physics: Forces**

*Squashing/stretching, drag forces, friction, balanced/unbalanced forces.*

### **Biology: Structure & Functions of body systems.**

*Organisation, gas exchange, breathing, skeleton, movement with muscles and joints.*

### **Chemistry: Elements, atoms & compounds.**

*Atoms, elements, formulae.*

## Half Term 4:

**Activities for British Science Week 2023:** *STAR Innovators Challenge, Competitions, Islam & Science.*

### **Physics: Sound**

*Waves, sound and energy transfer, loudness and pitch, echoes and ultrasound.*

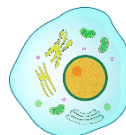
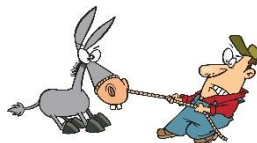
## Half Term 5:

### **Biology: Reproduction**

*Adolescence, reproductive systems, fertilisation, implantation, development of a foetus, menstrual cycle.*

### **Chemistry: Reactions**

*Chemical reactions, word equations, burning fuels, thermal decomposition, conservation of mass, exo/endermic.*



## Half Term 6:

### **Revision**

Biology, Chemistry and Physics

**STEM Project** linking science to technology, engineering and maths



# Year 8 Learning Journey



## Half Term 1:

### **Introduction: Working Scientifically**

*Hazards, equipment, planning investigations and data.*

### **Physics: Light**

*Reflection, refraction, the eye vs. camera, colour.*

## Half Term 2:

### **Chemistry: Acids & Alkalis**

*Indicators, pH, Neutralisation, making salts.*

### **Physics: Space**

*The night sky, solar system, The Earth, The Moon.*

## Half Term 3:

### **Biology: Health and Lifestyle:**

*nutrients, balanced diets, digestion, absorption.*

### **Chemistry: The Periodic Table**

*Metals & non-metals, groups/periods, Group 1, Group 7, Group 0.*

## Half Term 4:

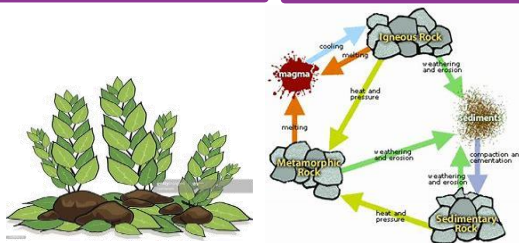
**Activities for British Science Week 2023: STAR Innovators Challenge, Competitions, Islam & Science.**

**Physics: Electricity & Magnetism:** *Charge, circuits, current, potential difference, series/parallel, resistance.*

## Half Term 5

### **Biology: Ecosystem Processes**

*Photosynthesis, leaves, plant minerals, chemosynthesis, aerobic/anaerobic respiration, food chains/webs, ecosystems.*



## Half Term 6:

### **Chemistry: Separation Techniques**

*Mixtures, solutions, solubility, filtration, evaporation, distillation, chromatography.*

**STEM Project** *linked to science, technology, engineering and maths.*



# Year 9 Learning Journey



## Half Term 1:

### **Adaptations & Inheritance;**

Competition and adaptation, variation, continuous and discontinuous, DNA, inheritance, natural selection and extinction

### ***Metals and Acids***

*Acids, metals, oxygen, water, displacement, extracting metals, ceramics, polymers and composites*

## Half Term 2:

### **Energy**

Food and fuels, energy, temperature, particles, radiation, resources, power and work done.

### **The Earth**

Its atmosphere, sedimentary rocks, Igneous and metamorphic rocks, the rock cycle, carbon cycle, climate change and recycling.

## Half Term 3:

### **Biology: Key Concepts in**

**Biology** *Cell Biology & Digestion, enzymes, enzymes activity, Transporting substances, three core practical's*

### **Chemistry: States of Matter**

*Solids, Liquids and Gases & separation techniques, mixtures*

## Half Term 4:

### **Activities for British science week**

*STAR Innovators Challenge, Competitions, Islam & Science.*

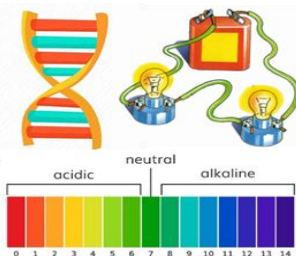
### **Physics: Waves and the Electromagnetic Spectrum**

*uses and dangers of the electromagnetic spectrum, investigating refraction, long and short wavelengths*

## Half Term 5

**Chemistry: Atomic Structure** *Atoms, sub-atomic particles and isotopes.*

**Chemistry: The Periodic Table-** *Elements, atomic structure and electronic configuration*



## Half Term 6:

### **Biology: Cells and Control**

*Cell Division , Growth and the nervous system*

### **Chemistry: Calculations involving masses**

*Masses and empirical formula, conservation of mass and moles*



# Year 10 Learning Journey



## Half Term 1:

### **Chemistry: Ionic and Covalent**

*Ionic Bonds and properties, Lattice structures. Simple/giant covalent structures.*

### **Chemistry: Types of Substances**

*Allotropes of Carbon, Metals and Bonding models*

### **Physics: Motion**

*Vectors and Scalars, Distance and Speed/Velocity graphs, Acceleration*

### **Physics: Forces and Motion**

*Forces, Newton and his Laws, momentum and stopping distances*

### **Biology: Natural Selection and**

**Genetic Modification** *Evolution, Darwin, classification and genes in agriculture and medicine*

## Half Term 2:

### **Physics: Conservation of**

**Energy**, *Energy Stores and transfers, Keeping warm, renewable and non-renewable energy.*

### **Chemistry: Acids & Alkalis**

*Indicators, salts, neutralisation.*

### **Physics: Radioactivity**

*Atomic models, Inside the atom, radiation, Decay, Half life and Dangers of radiation.*



## Half Term 3:

### **Chemistry: Electrolytic processes**

*Splitting compounds using electricity.*

### **Chemistry: Obtaining/using metals & Dynamic equilibria**

*Ores, oxidation, equilibrium*

### **Biology: Health, Disease and the development of Medicines**

*Disease, Non communicable and communicable disease, Pathogens and the immune system*

## Half Term 4:

### **Activities for British Science**

**Week: STAR Innovators** *Challenge, Competitions, Islam & Science.*

### **Physics: Energy, Forces doing work, Forces and their Effects**

*Work and Power, vector diagrams*

## Half Term 5:

### **Biology: Plant structures-**

*Photosynthesis and factors affecting it, Light intensity, absorbing mineral ions*

## Half Term 5:

**Physics: Electricity and Circuits-** *Circuits, current, Resistance, Potential difference, Energy, Power, Electrical safety.*

### **Biology: Animal Coordination-**

*Hormones, Menstrual Cycle, Homeostasis*

## Half Term 6:

**Physics: Magnetism and the Motor Effect and electromagnetic Induction-** *magnets, magnetic forces transformers*

### **Chemistry: Groups in the periodic table-**

*Group 1, Group 7 and Group 0*



# Year 11 Combined Learning Journey



## Half Term 1:

### **Biology: Ecosystems & Material Cycles**

*Energy transfer, abiotic/biotic factors, pollution, biodiversity, water/carbon/nitrogen cycles*

### **Physics: Particle Model, Forces and Matter**

*Density, Energy, Gas, Bending, Stretching and Extension, Fluids.*

## Half Term 5:

**Preparation For GCSE's**

## Half Term 2:

### **Chemistry: Groups in the Periodic Table**

*Halogens, noble gases, alkali metals.*

### **Chemistry: Rates of Reaction & Heat changes**

*Factors affecting rates, catalysts and activation energy, endo/exo.*

### **Biology: Exchange & Transport in Animals**

*Efficiency, diffusion, circulatory system, the heart, cellular respiration, respiration rates.*

### **Chemistry: Fuels and Earth and Atmospheric Science**

*Hydrocarbons, Alkanes and Alkenes, Fractional Distillation, Cracking, The Atmosphere, Climate Change.*

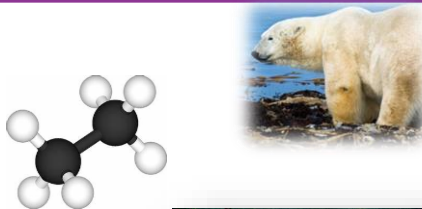
## Half Term 3:

**Continued:**

### **Chemistry: Fuels and Earth and Atmospheric Science**

*Hydrocarbons, Alkanes and Alkenes, Fractional Distillation, Cracking, The Atmosphere, Climate Change.*

**Revision for Mock exams in half term 3**

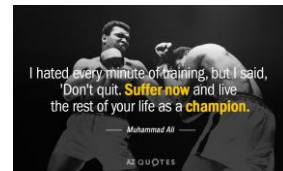


## Half Term 4:

**Preparation for GCSE's**

## Half Term 6:

**GCSE's Examinations**





# Year 10 Triple Learning Journey



## Half Term 1:

### **Chemistry: Ionic and Covalent**

*Ionic Bonds and properties, Lattice structures. Simple /giant covalent structures.*

### **Chemistry: Types of Substances**

*Allotropes of Carbon, Metals and Bonding models*

### **Physics: Motion**

*Vectors and Scalars, Distance and Speed/Velocity graphs, Acceleration*

### **Physics: Forces and Motion**

*Forces, Newton and his Laws, momentum and stopping distances*

### **Biology: Natural Selection and**

**Genetic Modification** *Evolution, Darwin, classification and genes in agriculture and medicine*

## Half Term 2:

### **Physics: Conservation of**

**Energy**, *Energy Stores and transfers, Keeping warm, renewable and non-renewable energy.*

### **Chemistry: Acids & Alkalis**

*Indicators, salts, neutralisation.*

### **Physics: Radioactivity**

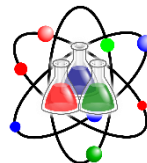
*Atomic models, Inside the atom, radiation, Decay, Half life and Dangers of radiation.*

## Half Term 3:

### **Chemistry: Electrolytic processes**

*Splitting compounds using electricity.*

**Chemistry: Obtaining/using metals & reversible reactions and Transition metals, alloys and corrosion** *Ores, oxidation, equilibrium*



## Half Term 4:

### **Biology: Health, Disease and the development of Medicines**

*Disease, Non communicable and communicable disease, Pathogens and the immune system*

### **Activities for British Science**

**Week: STAR Innovators Challenge, Competitions, Islam & Science.**

## Half Term 5:

**Astronomy** – *Solar system, gravity, life cycle of stars and red shift*

**Biology: Plant structures-** *Photosynthesis and factors affecting it, Light intensity, absorbing mineral ions*

**Physics: Energy, Forces doing work, Forces and their Effects** *Work and Power, vector diagrams*

## Half Term 6:

**Quantitative analysis, dynamic equilibrium, chemical cells and fuel cells** – *yields, concentrations, titrations, fertilisers*

**Physics: Electricity and Circuits-** *Circuits, current, Resistance, Potential difference, Energy, Power, Electrical safety.*



# Year 11 Triple Learning Journey



## Half Term 1:

### **Biology: Ecosystems & Material Cycles**

*Energy transfer, abiotic/biotic factors, pollution, biodiversity, water/carbon/nitrogen cycles*

### **Chemistry: Groups in the Periodic Table**

*Halogens, noble gases, alkali metals.*

### **Chemistry: Rates of Reaction & Heat changes**

*Factors affecting rates, catalysts and activation energy, endo/exo.*

## Half Term 2:

**Physics: Magnetism** magnets, electromagnetism, induction, transformers and the national grid

### **Biology: Exchange & Transport in Animals**

*Efficiency, diffusion, circulatory system, the heart, cellular respiration, respiration rates.*

### **Physics: Particle Model, Forces and Matter**

*Density, Energy, Gas, Bending, Stretching and Extension, Fluids.*

## Half Term 3:

### **Chemistry: Fuels and Earth and Atmospheric Science**

*Hydrocarbons, Alkanes and Alkenes, Fractional Distillation, Cracking, The Atmosphere, Climate Change.*

### **Chemistry: Hydrocarbons and Alcohols**

Alkanes and alkenes, ethanol, carboxylic acids, polymers

## Half Term 4:

### **Chemistry: Ions and Nano**

Flame tests, positive and negative ions, composite materials

### Preparation for GCSEs

## Half Term 6:

**GCSE's Examinations**

## Half Term 5:

**Preparation For GCSEs**

