

Separate Science Learning Journey



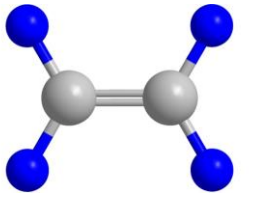
WEST GRANTHAM
Church of England Secondary Academy

Post-16 Ready



Summer 2

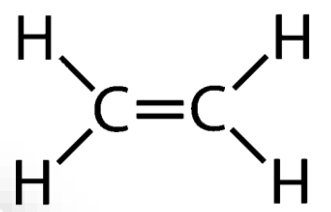
Revision



Based on previous learning and gaps identified

Space

How the solar system formed and the lifecycle of a star. How the universe is evolving including the Big Bang.



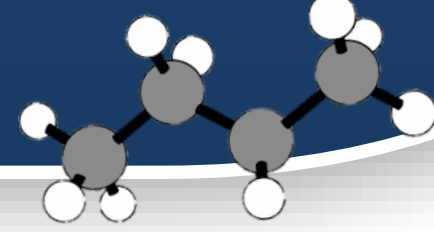
Homeostasis and Response

Summer 1

Magnetism and Electromagnets

The force rule for magnets and the use of magnetic materials. Conducting wires generate magnetic fields and how these are used in motors and speakers. How electricity is transferred including transformers.

Hydrocarbons and homologous series of compounds. The uses and reactions of alkanes and alkenes.



Chemical Analysis

Spring 2

Organic Chemistry

Spring 1

Identify pure substances and separate mixtures with chromatography.

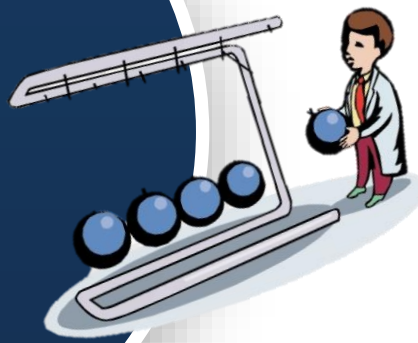
How the atmosphere formed and evolved, how human impact is changing the atmosphere.



Understand populations, communities and ecosystems and how organisms are interdependent. How adaptations make successful competitors.

The difference between scalar and vector quantities. Use force diagrams to describe forces including free body diagrams and resolution of forces. Motion graphs to describe journeys. Calculate momentum and terminal velocity.

Forces



Chemistry of the Atmosphere

Ecology

Autumn 2

Using Resources

The use of renewable and non-renewable resources including potable water.

Year 11

Understand how sexual and asexual reproduction differ including mitosis and meiosis. How DNA influences inheritance and evolution and natural selection drive changes in populations.

The properties of waves including light, sound and EM spectrum. Describe the reflection and refraction of light.

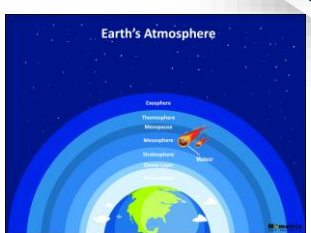
Measure the rate of chemical reactions and explain factors that change the rate of reaction using collision theory. Describe some reactions as reversible and how equilibrium can be achieved.

Inheritance, Variation and Evolution

Summer 2

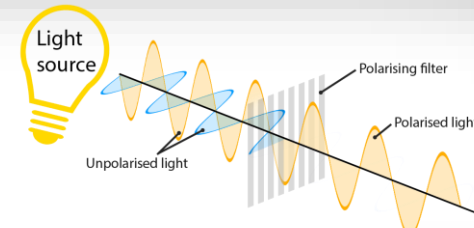
Waves

Rate and Extent of Change



How and why some atoms are radioactive and the dangers associated with this.

Reactions including combustion, displacement, decomposition and oxidation. Represent reactions with word and symbol equations.



Summer 1

Infection and Response Biology

Atomic Structure

Spring 1

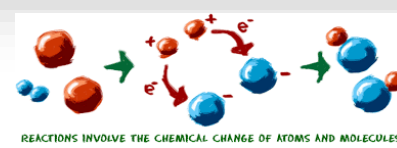
Atomic Structure

Chemical Changes

Spring 2

Quantitative Chemistry

Calculate formula mass, empirical formula and moles. Use moles to calculate masses and concentrations



Understand how communicable and non-communicable diseases occur, how the body fights disease and how to prevent ill health. How lifestyle can impact on health. Understand how the immune system works and how vaccines boost this.

Bonding and Structure

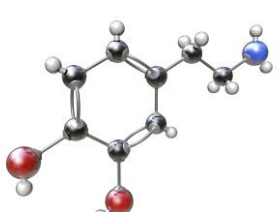
Autumn 2

Particle Model of Matter

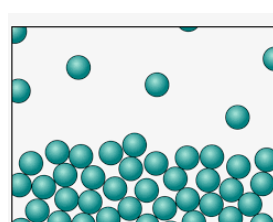
Organisation

Year 10

How atoms form ions and how bonding happens. Know how bonding gives substances their properties. Calculate formula mass, empirical formula and moles.



Properties of solids, liquids and gases and changes of state including gas pressure, latent heat and melting points of substances.



The structure and function of body systems, how enzymes help digestion. How plants and plant tissues are adapted for photosynthesis.



Procedural

Conceptual