

YEAR 9 LEARNING JOURNEY INFORMATION

SCIENCE

Hidden Forces Carbon Cycle and Climate Change Materials



Autumn Term 1

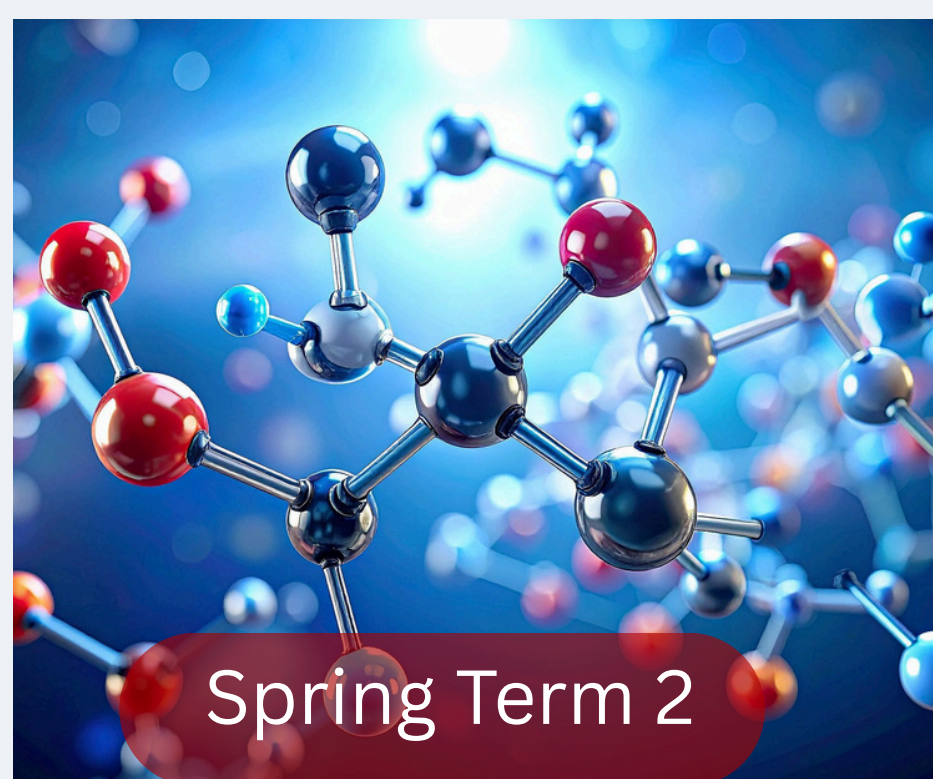
Knowledge

I will learn about forces in every day situations including gravity, elastic objects, levers and turning forces. I will learn about the processes involved in the cycling of carbon and how this links to climate change. I will learn about the properties and uses of ceramics and polymers and how different metals are extracted.

Skill

I will learn how to investigate Hooke's Law and how to use the results of displacement reactions to determine reactivity of metals.

Atomic Structure and the Periodic Table



Spring Term 2

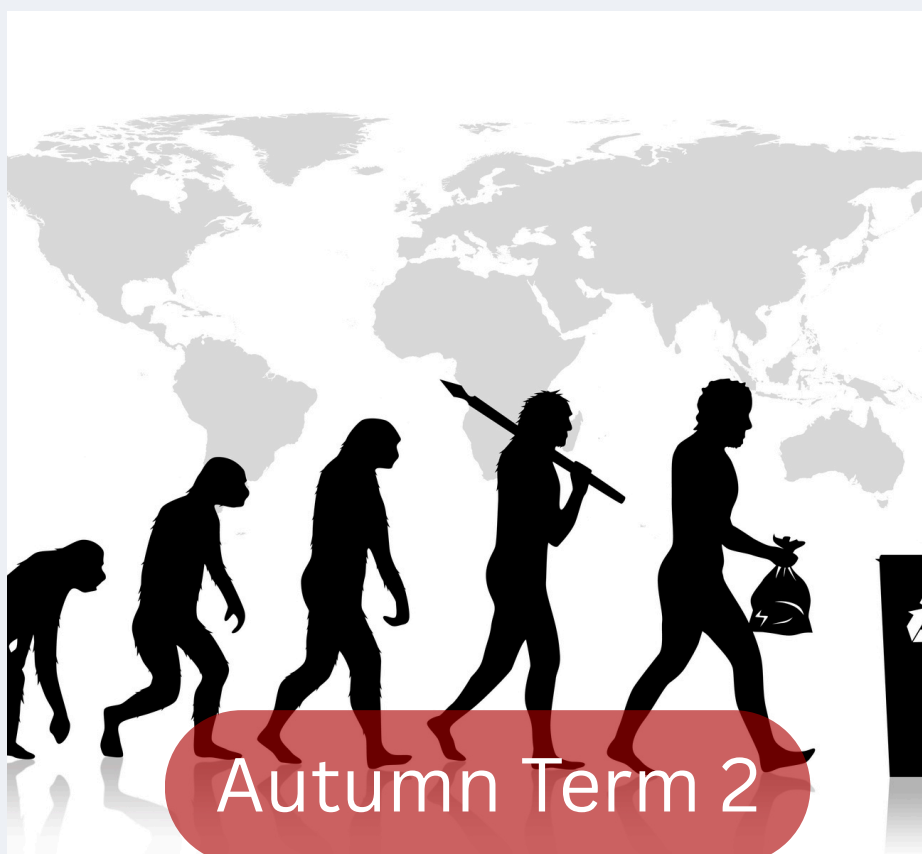
Knowledge

I will learn about the structure of atoms and the discoveries that led to our developing knowledge on this. I will learn the difference between elements, compounds and mixtures and how mixtures are separated. I will learn about the layout of the periodic table and how this developed over time.

Skills

I will learn how to separate different mixtures using filtration, crystallisation, distillation and chromatography.

Resistance and Parallel Circuits Adaptations, Competition and Evolution Climate Change and Biodiversity



Autumn Term 2

Knowledge

I will learn how circuits are connected in parallel and how resistance affects the flow of current in circuits. I will learn how organisms are adapted, how they compete with each other and how survival of the fittest leads to evolution. I will learn how climate change is affecting biodiversity and how humans have a responsibility to protect and prevent this.

Skill

I will learn how to build circuits to measure resistance of components.

Particle Model Bioenergetics



Summer Term 1

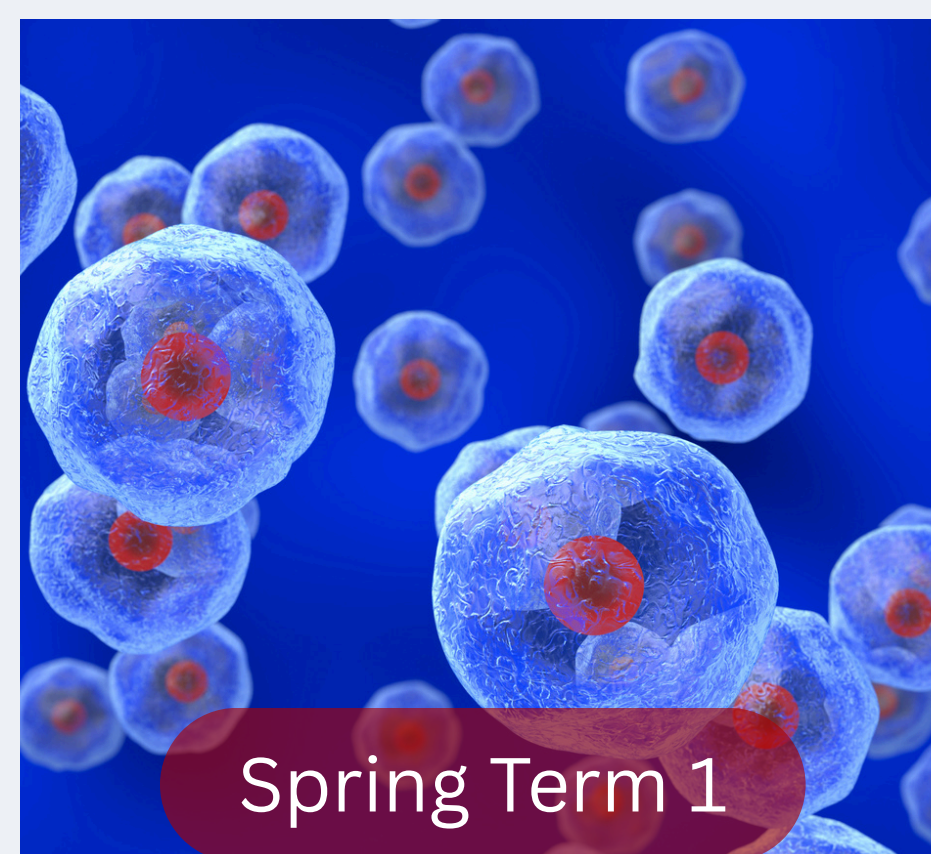
Knowledge

I will learn how particles are arranged in solids, liquids and gases and the energy changes involved in state changes. I will learn about density and how to calculate density. I will learn about the two main living processes – photosynthesis and respiration.

Skill

I will learn how to accurately measure volume and mass to calculate density and how to investigate effect of light intensity on photosynthesis.

Cells



Spring Term 1

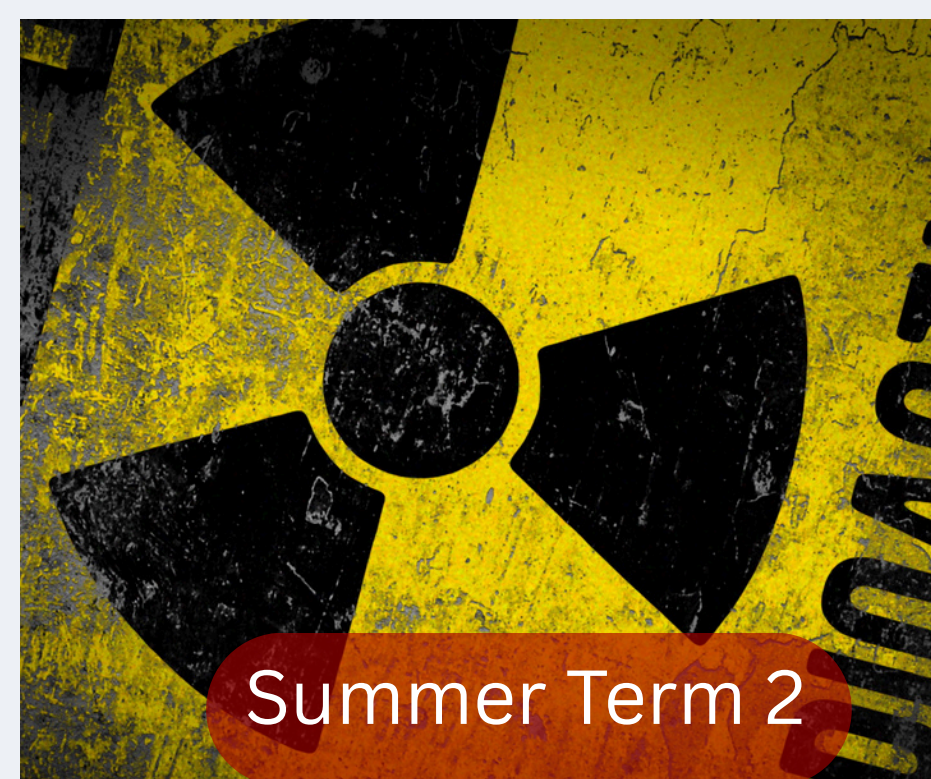
Knowledge

I will learn about the structure of animal, plant, prokaryotic and specialised cells. I will learn how new cells are made in the cell cycle and how substances are transported around cells. I will learn about stem cells and benefits of concerns involved with their use.

Skill

I will learn how to investigate osmosis in potato cells.

Bonding Atomic Structure and Radioactivity



Summer Term 2

Knowledge

I will learn about covalent, ionic and metallic bonding and the properties of substances of each type. I will learn about allotropes of carbon, nanotechnology, polymers and alloys. I will learn about alpha, beta and gamma decay, the random process of decay and half-life. I will learn how radioactive isotopes are used in industry and medicine.

Skill

I will learn how to calculate half-life from graphs and how to balance nuclear equations.