

LEARNING JOURNEY

Chemistry

9.1 – Further Chemical Reactions

Reactivity

Reactivity Series

How can we use chemical observations to rank metals in order of their reactivity?

Displacement Reactions

How can a more reactive metal "push out" a less reactive metal from its compound?

Extracting metals from ores

How can we use carbon to extract pure metals from their oxides?

Exothermic and Endothermic Reactions

What is the difference between reactions that release energy and those that absorb it?

Investigating exothermic reactions

How can we use experimental data and graphs to identify a reaction as exothermic?

Catalysts

What is a catalyst, and how does it affect the rate of a chemical reaction?

This module continues your learning journey from previous learning in the Chemistry module from Year 8 where you studied Simple Chemical Reactions.

Building your understanding toward a GCSE standard you will learn about how reactivity can allow you to predict the products of displacement and how energy movement makes all reactions either exothermic or endothermic.

KEY VOCABULARY

Displacement, Extraction, Metal Ore, Reduction, Exothermic, endothermic, Catalyst, Rate, Observe, Precise, Accurate, Error



9.2 EARTH AND ATMOSPHERE

The Earth and The Atmosphere

Conserving the world's resources

What is the difference between finite and renewable resources, and why is recycling so important?

The composition of the atmosphere

What is the current composition of our atmosphere, and how does it compare to other planets?

Complete and incomplete combustion

What different pollutants are produced when fuels burn with different amounts of oxygen?

Climate Change

How are human activities impacting the carbon cycle and contributing to global climate change?

This module continues your learning journey on from your previous Chemistry topic of Chemical Reactions and Rocks

This module will build your understanding about the roles of the atmosphere, how it is affected by using resources from the earth, and how we can work to reduce the environmental effects that humans have.

KEY VOCABULARY

Resources, Recycle, Finite, Composition, Atmosphere, Range, Combustion, Limited, Impurity, Climate, Correlation, Causation

LEARNING JOURNEY Chemistry



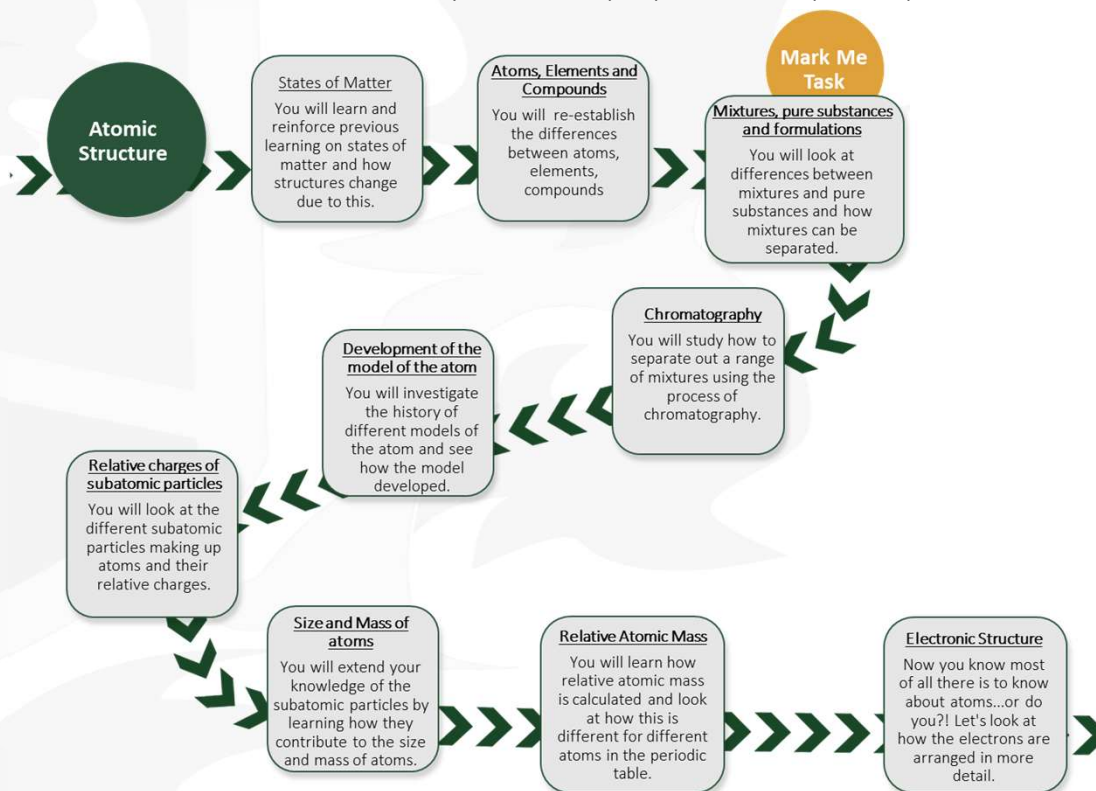
Atomic Structure

Year 9 Spring

This module continues your learning journey from the work covered in Key Stage 3 on the simple structure of the atom, simple chemical reactions and the properties of different materials.

During this module, you will develop an understanding of atoms in more detail. You will look at what atoms are made from and how they interact with other atoms.

You will also look at how we can carry out more complex practical techniques to separate matter



TUDOR HABITS: You will develop the Tudor Habit of being open to failure and feedback and you will learn from making mistakes when writing balanced symbol equations.

VOCABULARY:

Element, Mixture, Compound
Distillation, Structure
Chromatography
Isotopes, Crystallisation



LEARNING JOURNEY

Year 9 Summer Term

Chemistry

Structure and Bonding

Bonding

Ions

You will learn about how atoms gain or lose electrons to become charged as ions. This links previous and future learning.

Ionic Bonding

You will learn how metals bond with non-metals to form ionic structures through the loss or gain of electrons.

Mark Me Task

Ionic Compounds

You will learn about the properties of ionic compounds due to electrostatic forces of attraction.

Covalent Bonding

You will learn about how non-metals bond by sharing electrons in covalent bonding and be able to apply to new examples.

Giant Covalent Structures

You will learn about giant covalent structures with a focus on graphite and diamond which are both 100% carbon but have different properties.

Fullerene and Graphene

You will learn about two very important man-made chemicals which have important technological properties.

Metallic Bonding

You will research about the bonding in metals and why a giant metallic structure allows them to be good electrical conductors

Metals and Alloys

You will learn about alloys and how the mixing of different metal atoms to make alloys changes their properties compared to pure metals.

Separate Chemistry Content

Nanoparticles

You will learn what nanoparticles are and why they have useful unique properties. You will also learn about potential drawbacks of nano-technology..

VOCABULARY

Ion Lattice
Electrostatic
Intermolecular
Allotrope
Alloy

TUDOR HABITS AND VALUES

You will develop the Tudor Habit of being open to failure and feedback and you learn from making mistakes in drawing ionic and covalent bond diagrams.

This module continues your learning journey from previous learning in Chemistry about atoms and now takes understanding of electrons from C1 to learn how bonding works.

You will develop an understanding of ionic and covalent bonding and should be able to apply this to any given example. From this you will also learn about the properties which all ionic and covalent molecules have and how we use these in industry.

You will also begin to study the world of nano-science which is the fast growing area of technology currently.