Term 2
Year 8 Science Curriculum Overview – Term 2

Welcome to the Year 8 Science curriculum overview for this half term. Following the AQA KS3 Science curriculum, students will be exploring topics from chemistry and biology: *Chemical Reactions* and *Digestion and Breathing*. These units are designed to deepen students' understanding of fundamental scientific principles and their relevance to real-world contexts. Below is an outline of what your child will be learning this term.

Chemical Reactions

In this chemistry unit, students will explore the fascinating world of chemical reactions, learning about how substances interact and transform into new materials.

1. **Types of Chemical Reactions**
    - Students will identify and investigate key types of chemical reactions, including combustion, neutralisation, and oxidation.
    - Practical activities will allow students to observe these reactions and record their effects.
2. **Word and Symbol Equations**
    - Students will learn how to represent chemical reactions using word equations and begin to understand the use of chemical symbols and formulas in equations.
    - They will practice balancing equations, a fundamental skill in chemistry, to show how atoms are conserved during reactions.
3. **Acids, Alkalis, and Indicators**
    - This section introduces acids and alkalis, including their properties and how they react with each other in neutralisation reactions.
    - Students will use indicators, such as litmus and universal indicator, to identify the pH of various substances and understand the pH scale.
4. **Energy Changes in Reactions**
    - Students will explore exothermic and endothermic reactions, identifying examples such as combustion and thermal decomposition.
    - We will discuss how energy changes in reactions are important in everyday life, from hand warmers to chemical ice packs.

Digestion and Breathing

In this biology unit, students will study two essential processes in the human body: digestion and breathing. These topics will enhance their understanding of how the body obtains energy and nutrients to sustain life.

1. **The Digestive System**

    - Students will learn about the structure and function of the digestive system, identifying organs such as the mouth, stomach, and intestines, and their roles in breaking down food.
    - We will discuss the importance of enzymes in digestion, focusing on how they speed up the breakdown of carbohydrates, proteins, and fats into smaller, absorbable molecules.
2. **Nutrients and Their Importance**
    - Students will explore the different types of nutrients—carbohydrates, proteins, fats, vitamins, and minerals—and their roles in maintaining a healthy body.
    - They will study how the digestive system absorbs these nutrients into the bloodstream for use by cells.
3. **The Respiratory System**
    - This section introduces the respiratory system, focusing on the lungs, trachea, bronchi, and alveoli.
    - Students will learn how oxygen is taken into the body during inhalation and how carbon dioxide is expelled during exhalation.
4. **Gas Exchange and Cellular Respiration**
    - Students will study gas exchange in the lungs, understanding how oxygen enters the bloodstream and carbon dioxide is removed.
    - We will explore the importance of respiration, the process by which cells release energy from glucose using oxygen.
5. **The Link Between Digestion and Breathing**
    - Students will investigate how the digestive and respiratory systems work together to provide the energy the body needs, highlighting the interdependence of these systems.

Assessment and Skills Development

Throughout the term, students will participate in hands-on investigations, such as observing chemical reactions, testing for nutrients in food, and modeling gas exchange. These activities will develop their practical skills, analytical thinking, and ability to interpret data. Assessments will include quizzes, practical write-ups, and an end-of-term test to evaluate progress and understanding.

We look forward to a term of exciting discoveries and hands-on learning!