Year 7- Working in a Lab

"Working in a lab" is taught at the start of year 7 in order to acclimatise students to the secondary school science lab. Students from different, smaller primary schools often will have different levels of scientific understanding and investigative skill. The aim of this unit is to ensure all students have awareness and opportunities with basic disciplinary and substantive knowledge in order to study and investigate further scientific phenomena.

Lesson covered in this unit

Lesson	**Title**
1	Safety
2	Measuring
3	Introduction to Bunsens
4	Using bunsens
5	Introduction to microscopes
6	Using microscopes
7	Introduction to circuits
8	Using circuits
9	How to draw graphs 1: Bar charts
10	How to draw graphs 2: Line graphs
11	Equipment

Year 7- Biology

This unit is designed to build upon the KS2 national curriculum in understanding the basic structures of animals. We study how cells make up everything within a living organism, to the role of subcellular components and their roles within a living organism. We also study reproduction and learn how our body changes during adolescence to prepare for pregnancy.

Lessons covered

Lesson	Title
1	Cells
2	Unicellular organisms
3	Multicellular organisms
4	Diffusion
5	Human Skeleton
6	Muscles
7	Healthy Diet
8	Unhealthy diet
9	The digestive system
10	Nutrients for plants
11	Male and female reproductive systems/ Sexual intercourse
12	Menstruation/Puberty
13	Pregnancy
14	Flower structure/ Types of pollination
15	Seed and fruit dispersal/ Dispersal mechanisms

Year 7- Chemistry

This unit builds upon work done during KS2 on using everyday materials and categorising them by states of matter. We do this through the introduction of particle models and the existence of the atom. Breaking down all matter into its smallest unit then allows us to work upwards and begin discussing the difference between mixtures and compounds, simple chemical reactions and separation techniques (which in turn will build upon the practical work done earlier in the year during "Working in a Lab"). This knowledge is fundamental to everything taught in Chemistry across the rest of KS3 and into KS4 and 5, where it will be built upon further into topics such as symbol equations, organic chemistry and quantitative chemistry.

Lessons covered

Lesson	Title
1	The particulate nature of matter
2	Atoms, elements and compounds
3	Pure and impure substances
4	Separating mixtures
5	
6	Chemical reactions
7	Chemical reactions 2
8	Acids and alkali
9	Reactions of acids
10	Energetics

Year 7- Physics

This unit will build upon work done during KS2 on forces, light and sound. We do this through the introduction of naming forces and using force arrows. We delve further into similarities and differences between different types of waves and types of energy. This knowledge is fundamental to everything taught in Physics across the rest of KS3 and into KS4 and 5, where it will be built upon further into topics such as kinetic energy, fields and wave behaviour.

Lessons covered

Lesson	Title
1	Energy
2	Application of energy
3	Heat energy
4	Speed
5	Forces
6	Application of forces
7	Pressure
8	Forces and motion
9	Waves
10	Application of waves
11	Light and colour

Year 7- Experimental Procedure

This topic will teach students about working scientifically. They will be introduced to the scientific process including hypothesis, data collection, analysis, conclusions and peer review. Students will start with simple experiments that require some knowledge of scientific concepts and then build on this in increasing complex substantive and disciplinary knowledge. Students will be given scope to pick their own variables and develop their own investigation. This will progress through year 8 before being linked to KS4 e.g. required practicals.

Investigations conducted

EP1- Bouncing balls – Students investigate energy through varying drop height of a ball and measuring the bounce height. Students will then decide what variable to change related to the energy changes in a bouncing ball.

EP2- Agar diffusion - Students will investigate speed of diffusion with different surface areas. Students will then decide what variable to change related to surface area.

EP3- Speed – Students will investigate how to measure speed through distance and time. Students will then decide what variable to change related to calculating speed.

EP4- Disappearing cross – Students will investigate chemical reactions through the reaction of Sodium Thiosulphate with varying concentrations of Hydrochloric acid. Students will then decide what variable to change related to chemical reactions with these chemicals.