



Year 9

Pathway 2/3/4

Science - Summer Term 1

Learning Intention:

Physics - Sound

This topic introduces students to the concept of sound and the way sound is made through vibrations travelling as wavelengths. Pitch and volume is also explored as well how sound vibrations travel into the human ear.

Physics - Forces and Magnets

The topic looks at different types of forces and their movements e.g push/pull/twist/bend. Gravity and friction is studied and drawn as arrows on diagrams. Balanced/ unbalanced forces in diagrams are also looked at e.g floating and sinking.

Students look at:

- How magnets create a push or pull force through their opposite poles by attracting and repelling
- Magnetic fields and their strengths are observed
- Students test different materials for magnetism

Key knowledge that should be learned during this SoW

All

Most

Some

Concept:

Students will have the opportunity to learn about the physics of sound. They will learn about what makes sounds and how the human ear works. They will then explore Forces and Magnets by taking part in a range of practical experiments where they will begin to understand the laws behind it.

Knowledge:

- | | | |
|--|---|---|
| <ul style="list-style-type: none">• Sound: 'sound walk' - identifying sounds on a CD;• The ear; how we hear sounds; muffling sounds; pitch and volume | <ul style="list-style-type: none">• Experimenting with sounds and instruments; animal ears and how animals hear• To experiment with sounds | <ul style="list-style-type: none">• To know how the human ear works• To understand what is meant by volume and pitch |
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	● To identify sounds on a CD or from the Internet ● To know that sounds are made by vibrations ● To understand that sounds become fainter when they are further away	● To understand how animals hear the position and size of their ears ● To know elements of how the human ear works ● To experiment on muffling sound ● To understand how we hear sounds	● To carry out an experiment on muffling sound ● To recall facts:assessment
Key Skills:	To be able to recognise that scientists can use their knowledge of Maths, Engineering and Technology to solve problems.	To be able to understand that scientists can use their knowledge of Maths, Engineering and Technology to solve problems.	To gain understanding of how scientists can use their knowledge of Maths, Engineering and Technology to solve problems.
Language and/or communication skills:	● Sound ● Pitch ● Volume ● Vibrations ● Ear	● Human Ear ● Muffling	● Outer ear ● Ear canal ● Ear wax ● Eardrum ● Hammer or Malleus
Curricular Links	Links to other learning within the subject are: Science/Resistant Materials/ PSHCE/PE		



Year 9

Pathway 2/3/4

Science - Summer Term 2

Learning Intention: Continue/ start OCR Entry Level Certificate: OCR ELC12, 'CSI Plus': Evidence left at a crime scene

Key knowledge that should be learned during this SoW

All

Most

Some

Concept:

Know that anyone present at a crime scene will leave some evidence behind. Understand why crime scene investigators wear special clothing to avoid leaving evidence at a crime scene. Know how fingerprints can be removed from a surface. Know that blood contains red blood cells, white blood cells, platelets and plasma. Recall that the main blood groups are A, B, AB and O and know how chromatography can be used to separate colours in ink.

Knowledge/Key Skills:

- Know that anyone present at a crime scene will leave some evidence behind.
- Understand why crime scene investigators wear special clothing to avoid leaving evidence at a crime scene.
- Know how an investigator collects evidence at a crime scene – in precisely labelled evidence bags
- Know fingerprints are left on a surface because oils from the skin are deposited.
- Know how dusting a surface with a special powder can make fingerprints show up.
- Know how fingerprints can be removed from a surface.
- Know how to make a record of a person's fingerprints.
- Understand that innocent people have their fingerprints taken for elimination.
- Recognise loop, arch and whorl as features of fingerprints.
- Know that no two people have identical fingerprints – not even identical twins.
- Know that blood contains red blood cells, white blood cells, platelets and plasma.
- Recall that the main blood groups are A, B, AB and O.
- Know how chromatography can be used to separate colours in ink.
- Understand how the results of separating colours can identify a particular ink as being used e.g. to write a forged cheque.

	● Know that DNA is inherited from parents. ● Know that identical twins have identical DNA but otherwise DNA is unique ● Interpret data from a crime scene and decide whether or not it confirms a suspect's presence
Language and/or communication skills:	● Crime scene ● Investigation ● Fingerprint ● Evidence ● Cells ● Blood Groups ● Chromatography ● DNA
Curricular Links	This specification provides opportunities for the development of the Key Skills of Communication, Application of Number, Information Technology, Working with Others, Improving Own Learning and Performance and Problem Solving