Year 8 Overview 2023-24 - Physics

Units Studied & Learning Outcomes	Key Concepts & Assessment

Overview of Unit/No. lessons

Electricity and Magnetism/ 14 lessons

- Lesson **Sequence** of Content:

Lesson 1- Introduction to Electricity
Lesson 2- Series and Parallel Circuits
Lesson 3- Current in Series
Lesson 4- Current in Parallel
Lesson 5- Voltage in Series
Lesson 6- Voltage in Parallel
Lesson 7- Resistance
Lesson 8- Magnets
Lesson 9- Magnetic Fields
Lesson 10- Electromagnetism
Lesson 11- DC Motors
Lesson 12- Static Electricity
Lesson 13- Quick quiz assessment and Application
Lesson 14- Long answer question

Prior	Current	Next
Year 6- •Making simple circuits •Drawing circuit diagrams	•Current Electricity •Magnetic fields and basic magnetism •Introduction to electromagnetism and DC motors •Introduction to static electricity	Year 10 – •Electromagnetism and motor effect •Applications of electromagnetism in devices Year 11- •Series and parallel circuit rules •Circuit calculations •Control in circuits

		•Fleming's LH rule & electric motors (H) •Induced potential transformers •Static Electricity Year 12 – •Resistivity •Parallel resistance •EMF & internal resistance •Ideal ammeters and voltmeters.

- **GW**: Draw circuit diagrams using symbols and be able to recall definitions for key terms current, voltage and resistance. Describe the difference between parallel and series circuits and what happens to voltage and current in them.
- **BI:** Describe what resistance is and how it is calculated. Be able to draw magnetic fields around bar magnets and know the impact of Earth's magnetic field.
- **EW:** Describe the magnetic effect of a current and how this is applied to Electromagnets and D.C. motors. Explain static electricity in terms of separation of positive or negative charges when objects are rubbed together via transfer of electrons.

Overview of Unit/No. lessons

Waves & Light/ 11 lessons

- Lesson **Sequence** of Content:

Lesson 1- Luminous & non-luminous objects
Lesson 2- Transparent, translucent & opaque
Lesson 3- Shadows
Lesson 4- Reflection
Lesson 5- Refraction
Lesson 6- The eye
Lesson 7- Dispersion and Colour
Lesson 8- Coloured light and filters
Lesson 9- Water waves and superposition
Lesson 10- Quick quiz
Lesson 11- Long answer

Prior	Current	Next
• Year 6 – reflection, shadows and how light travels	• Understand how we see objects • Understand reflection, refraction & dispersion • Understand the difference between primary & secondary colours • Also links to P6: Sound	Y9: key definitions of waves; core practical Y10: ray diagrams; Wave front diagrams (H); Reflection, Sound waves, Uses of waves, Lenses & light, Black body radiation Y12: Travelling & stationary waves; diffraction, superposition, interference

- **GW:** state how we see objects, state what reflection, refraction and dispersion are
- **BI:** Describe how we see different objects, describe reflection, refraction & dispersion. Describe how shadows form
- **EW**: explain reflection, refraction & dispersion. Explain what coloured filters do. Explain water waves using terms wavelength, frequency & amplitude

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Overview of Unit/No. lessons

Sound/9 lessons

- Lesson **Sequence** of Content:

Sound

Lesson 1- Introduction to Sound
Lesson 2- Describing sound waves
Lesson 3- Measuring the speed of sound
Lesson 4- How sound travels through materials
Lesson 5- Reflection and absorption of sound
Lesson 6- The Ear
Lesson 7- Uses of sound waves
Lesson 8- Quick quiz
Lesson 9- Long answer

Prior	Current	Next
Observation of slinkies	• Understand how sound travels • Understand how we hear • Link to P5: waves	Y10: Sound waves Y12: Travelling & stationary waves; diffraction, superposition, interference

- **GW:** state how sound travels
- **BI:** Describe how sound travels and describe parts of a wave
- **EW:** explain how sound travels and how we hear. Explain how sound waves can be used.

Overview of Unit/No. lessons

Calculations in Physics/ 7 lessons

- Lesson **Sequence** of Content:

Calculations in Physics

Lesson 1- Moments
Lesson 2- Work Done
Lesson 3- Pressure in a solid calculations
Lesson 4- Pressure in a gas theory

Lesson 5- Pressure in a liquid theory
Lesson 6- Power
Lesson 7- Energy costs in the home

Prior	Current	Next
Year 7 – Forces Year 7– Energy transfers	Calculations Fuel Costs Pressure in fluids Work done and energy changes Moments	Year 9 – power equation. Energy stores with qualitative transfers Year 10 –Work done. Energy stores with quantitative transfers Year 11: *Moments, levers, gears.* *Pressure in fluids.* *Pressure in a gas linked to kinetic theory.* *Work to increase pressure/temperature of a gas (H)* Y12/13 – Turning points in physics

- **GW**: Identify units for calculations.
- **BI**: Substitute in values to perform calculations. Convert units.
- **EW**: Apply and rearrange the appropriate equations. Apply calculations to real-world contexts.