

Year 9 Physics

Curriculum



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Introduction

In Year 9, students will continue to develop their understanding of physics through the study of forces, motion, energy, and waves. They will apply their knowledge to real-world scenarios and develop their problem-solving skills.

By the end of the year, students will be able to:

- Apply Newton's laws of motion to solve problems.
- Understand the concepts of work, energy, and power.
- Investigate the behaviour of waves, including reflection, refraction, and diffraction.
- Explore the applications of physics in technology and everyday life.

Curriculum Content:

1. Energy

Energy Transfer

- ·Different forms of energy (kinetic, potential, thermal, electrical, light, sound)
- ·Energy conservation
- ·Sankey diagrams

Energy Resources

- ·Renewable and non-renewable resources
- ·Energy efficiency
- ·Environmental impact of energy generation

2. Forces and Motion

Forces

- ·Newton's laws of motion
- ·Mass, weight, and gravity
- ·Friction

Motion

- ·Speed, velocity, acceleration
- ·Graphs of motion
- ·Terminal velocity



3. Work and Power

Work

- ·Definition of work
- ·Work done by a constant force

Power

- ·Definition of power
- ·Calculations involving work, power, and time

4. Waves

Properties of Waves

- Wavelength, frequency, amplitude, speed
- Longitudinal and transverse waves

Sound

- Speed of sound
- Sound waves
- Human hearing

Light

- Speed of light
- Reflection and refraction
- The electromagnetic spectrum

5. Electricity

Static Electricity

- Charging objects
- Electric fields
- Electrostatic phenomena

Electric Circuits

- Components of circuits
- Series and parallel circuits
- Ohm's law

·Learn direct and alternating current

- Study about electrical safety
- Electrical power



Practical Activities and Investigations:

- Conduct experiments to investigate energy transfer and conservation.
- Explore the relationship between force, mass, and acceleration.
- Calculate work done and power.
 - Investigate the properties of waves, including sound and light.
 - Study the behaviour of static electricity and electric circuits.

Assessment:

- Regular quizzes and tests
- Practical assessments
- Project work (e.g., researching renewable energy sources or designing an electric circuit)

Resources

- A range of resources will be used to support students' learning, including:
 - Textbooks
 - Equipment for experiments, such as circuit components
 - Digital resources

Evaluation and Review

The curriculum will be reviewed annually to ensure its effectiveness. Feedback from students, teachers, and parents will be considered in the review process.

Updated August 2024

Next review: August 2025