

Year 7 Physics

Curriculum



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Introduction

In Year 7, students will be introduced to the foundational principles of physics. They will investigate the nature of forces and motion, explore material properties, and study how light behaves. Through both theoretical lessons and hands-on experiments.

students will gain a comprehensive understanding of these essential topics. By the end of the year, students will be able to:

- Describe the effects of forces on an object's motion.
 - -Identify various forms of energy and understand how they transform.
 - -Examine the properties of different materials and observe their behavior under changing conditions.
 - Understand the nature and properties of light.

Curriculum Content:

1. Forces and Motion

Understanding Forces:

- Define and measure force in newtons (N).
 - Comprehend weight as a type of force.
 - Distinguish between mass and weight.
 - Investigate how forces affect the movement of objects.
- **Study friction as a force that opposes motion.**
- Differentiate between balanced and unbalanced forces.
 - Introduce Newton's First and Third Laws of Motion.



2. Energy:

- Define energy and recognize its various forms (kinetic, potential, thermal, light, sound, electrical, chemical, nuclear).
- Explore how energy transfers and transformations occur.
- Gain an understanding of renewable energy sources, including solar energy.
- Understand the principle of conservation of energy.

3. Materials

Properties of Materials:

- Explore the properties of solids, liquids, and gases.
 - Understand changes in the state of matter (e.g., melting, freezing, evaporation).
 - Learn about the particle model of matter and how particles behave in different states.
- **Study the concept of density and its application.**
- Investigate the thermal properties of materials, including conduction, convection, and radiation.

4. Forces in Materials:

- Comprehend the concept of pressure and how it applies to various situations.
- Examine the effects of forces on materials, including tension, compression, bending, and twisting.
- Discover real-life applications of pressure in everyday contexts.

5. Light

Properties of Light:

- Understand light as a form of electromagnetic radiation.
- Investigate how light behaves, including reflection, refraction, and dispersion.
- Use ray diagrams to illustrate reflection and refraction of light.
- Learn about the human eye and how it processes light to enable vision.
- Study the dispersion of light and learn to represent it visually.
- Experiment with light filters to observe how light changes as it passes through different materials.
- Explore primary and secondary colors of light.

Practical Activities and Investigations:

Students will conduct practical experiments and investigations.



Assessment:

At the end of each unit, students will be assessed through a variety of methods, including quizzes, practical experiments, and problem-solving activities to evaluate their understanding and progress

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