

Physics

Year 8

(70 hrs, 2 hrs/week)

| Table of contents | |
|---|---|
| 1 | <p>Thermal phenomena</p> <p>Molecules movement and thermal state of a body. Temperature. Thermometers. Temperature scale. Temperature equilibrium. Dependence of sizes of physical bodies on the temperature. Aggregate states of substance. Physical features of solid bodies, liquids, and gases. Internal energy. Types of thermal exchange. Quantity of warmth. Calculating the quantity of warmth during heating/cooling of the body. Crystal and amorphous bodies. Melting point. Steam generation and condensing. Calculation of the heat quantity during steam generation/condensation. Boiling. Thermal balance equation. Fuel burning</p> |
| 2 | <p>Electric phenomena. Electric current.</p> <p>Electric phenomena. Electrification of bodies. Electric charge. Interaction between the charged bodies. Coulomb's law. Law of conservation of electric charge. Electric field. Electric current. Conductors, semiconductors, and dielectrics. Current in metals. Sources of electric current. Electric circle and its main elements. Current power. Amperemeter. Electric voltage. Voltmeter. Electric resistance. Rheostats. Cycle section Ohm's law. Work and capacity of the electric current. Joule–Lenz law. Electric heating devices. Nature of electric current in solutions and melts of electrolytes. Faraday's laws of electrolysis. Electric current in gases. Safe work with electric devices and appliances</p> |
| <p>Expected results</p> <p>Pupil:</p> <ul style="list-style-type: none"> understands the features of thermal movement; the peculiarities of movement of atoms and molecules of substance in different aggregate states of substances; physical properties of solid bodies, fluids, and gases; knows the concepts and can phrase the definition of a physical value (temperature, inner energy, heat amount, specific heat, specific melting heat, steam generation, and fuel burning) and their values; knows the principles of temperature measuring; the principles of building a Celsius temperature scale; two ways of changing the internal body energy; the principles of thermal exchange; and types of heat engines; | |

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- explains the graphs of heat processes (heating/cooling, melting/hardening, steam generation / condensing); the dependence of the size of physical bodies on the temperature;
- understands the nature of electric current in different media;
- defines physical value (current, voltage, conductor resistance, work and capacity of electric current, electrochemical equivalent) and their units;
- defines the Coulomb's laws, law of conservation of electric charge, cycle section Ohm's law, Joule–Lenz law, and Faraday's laws of electrolysis;
- knows the electric current triggering events;
- distinguishes between the types of electric charge in gases.