CHAPTER	LESSON	DESCRIPTION
I. Forces	**Forces**	At the end of this activity, students should be able to know: what a force is, – the unit of force, – how to represent a force by means of a vector, – how to calculate the resultant of forces which are acting along the same line, – when we encounter forces in equilibrium.
	Addition of Forces	At the end of this activity, students should be able to: – determine the resultant of any two forces. – calculate the maximum and the minimum magnitude of the resultant of two forces. – resolve a force into two component forces.
	Force Measurement	At the end of this activity, students should be able to: – describe which property of a spring is applied in force gauges. – explain the difference between weight and mass.
	Torque	At the end of this activity, students should be able to: describe a force arm, calculate torque, indentify the unit of torque, find the equilibrium of torques.
	Equilibrium	At the end of this activity, students should be able to: – give an example to explain how to find a centre of gravity. – give the conditions necessary for a body to remain in equilibrium. – give examples to show the difference between stable, unstable, and neutral equilibrium.
	Levers and Pulleys	At the end of this activity, students should be able to: – explain how a class one lever operates. – explain how a class two lever works. – explain how a stationary pulley and a moving pulley operate. – give examples of how levers and pulleys are used.
II. Motion	**Displacement, Distance, and Velocity**	At the end of this activity, students should be able to: – explain how to describe the position of a body and define a frame of reference. – give definitions for path of motion, distance, and displacement. – calculate speed and velocity, and determine the differences and similarities between the concepts. – give examples of units of speed; note this differs form above (speed). – describe average and instantaneous velocities and give examples of each. – graphically determine the vector of resultant velocity.
	Acceleration	At the end of this activity, students should be able to: specify the types of motion, – calculate acceleration, – calculate the speed when the acceleration or the acceleration–time relationship is given.
	Graphs of Motion	At the end of this activity, students should be able to: graph changes over time for distance and speed for uniform motion, calculate the speed of a body given a distance-time graph, calculate distance given a speed-time graph.
	Accelerating Motion	At the end of this activity, students should be able to: – derive acceleration and distance from a speed-time graph, – describe how the speed changes in uniformly variable motion and represent it on a graph, – describe the changes in distance traveled by an accelerating body that had an initial speed equal to zero, – plot a distance-time graph for uniformly variable motion.
	Curvilinear Motion	At the end of this activity, students should be able to: – explain the concepts of period and frequency and name their units. – calculate speed in a circular motion when the radius of the circle and the period or frequency of rotation are given. – draw a velocity vector at any point of the path in a curvilinear motion. – calculate the speed of a body during horizontal projection.
III. Forces and Motion	**Force and Acceleration**	At the end of this activity, students should be able to: explain how the acceleration of a body is affected by the force exerted on the body and the mass of the body, state Newton's second law of motion, explain the difference between mass and weight, calculate force on the basis of Newton's second law.

CHAPTER	LESSON	DESCRIPTION
	Momentum	At the end of this activity, students should be able to: give examples to explain the principle of conservation of momentum, differentiate between elastic and inelastic collisions, explain the relationship between force, the time for which it is applied, and change in momentum, describe the concept of momentum.
	Inertia	At the end of this activity, students should be able to: describe inertia and explain why Newton's first law of motion is called the principle of inertia, give examples to explain that a force is required to change the speed and direction of a moving body, state and explain Newton's first law of motion.
	Friction	At the end of this activity, students should be able to: give examples of static friction and kinetic friction, – explain what static friction and maximum static friction depend on, – describe kinetic friction and explain what quantities its magnitude depends on, – explain the relationship between friction, initial movement, and stopping.
	Air Resistance	At the end of this activity, students should be able to: describe the factors that air resistance depends on, explain the difference between free fall in a vacuum and free fall in air.
	The Force of Reaction	At the end of this activity, students should be able to: give examples of action and reaction force pairs, explain Newton's third law of motion, explain why the forces of action and reaction cannot be in balance.
IV. Energy	**Work**	At the end of this activity, students should be able to: explain the concept of work, – calculate the work done by a force acting over a given distance, – explain when a force performs no work.
	Potential Energy	At the end of this activity, students should be able to: give the definition of potential energy and elastic potential energy, calculate the magnitude of the potential energy, understand that energy can be transferred between bodies and that it can change from one form to another.
	Kinetic Energy	At the end of this activity, students should be able to: give the definition of potential energy and elastic potential energy, calculate the magnitude of the potential energy, understand that energy can be transferred between bodies and that it can change from one form to another.
	Energy Conversions	At the end of this activity, students should know: the concept of internal energy, – the concept of mechanical energy, – that an increase in temperature corresponds to an increase in internal energy, – that energy can be transferred between bodies and can change into a different form of energy, – the principle of conservation of energy.
	Power	At the end of this activity, students should be able to: understand the concept of power, – name the units of power, – calculate the value of power.
	Efficiency	At the end of this activity, students should be able to: understand the concept of 'energy losses', calculate the efficiency of the energy conversion process, calculate the efficiency of a device.
V. Gravitation	**Gravitation**	At the end of this activity, students should be able to: define the gravitational force, state the law of gravitation, explain the relationship between the force of gravity and weight, explain the difference between weight and mass.

CHAPTER	LESSON	DESCRIPTION
	Free Fall	At the end of this activity, students should be able to: state the type of motion represented by free fall, explain how the distance traveled by a freely falling body changes in subsequent equal time periods, calculate the speed of a falling body at any time, calculate the distance traveled by a falling body, explain the differences and the similarities between falling bodies on the Earth and on the Moon, describe the concept of weightlessness.
	Space Flights	At the end of this activity, students should be able to: predict the trajectories of objects launched from the Earth, – explain the meaning of escape velocities for the Sun and the Earth, – state how a rocket is provided with a required velocity, – describe the states of weightlessness and overload.
	Satellites	At the end of this activity, students should be able to: describe the conditions required to place a satellite in a specific orbit, explain the quantitative relationships between a satellite's velocity, orbital period, and the radius of a satellite's orbit, give examples of the application of satellites, explain which type of satellite is known as a geostationary satellite.
VI. Matter	**Gases, Liquids and Solids**	At the end of this activity, students should be able to: explain the concept of the state of matter, explain the concepts of a crystal, a monocrystal, a polycrystal, an amorphous body, and allotropy, describe the three common states of matter found on Earth.
	Properties of Matter	At the end of this activity, students should be able to: explain the concept of elasticity, plasticity, and brittleness, understand the concept of wetting, surface tension, and diffusion, calculate the extension of a body by applying Hooke's law.
	Density	At the end of this activity, students should be able to: explain the concepts of density and specific gravity, – explain how to calculate the density of solids and liquids, – calculate density, volume, or mass when the other two quantities are given.
	Temperature	At the end of this activity, students should be able to: explain the concepts of heat and temperature, understand the temperature scales Celsius, Fahrenheit, and Kelvin, convert the temperature from one scale into another.
	Thermal Expansion	At the end of this activity, students should be able to: explain the concepts of linear expansion and volume expansion, understand that the extension of a body depends on the increase in temperature and the initial length, calculate the extension of a body due to heating, describe the anomalous expansion of water.
	Expansion of Gases	At the end of this activity, students should be able to: explain the phenomenon of thermal expansion of gases, give examples of the effects of gas expansion, use the relationship V/T = const to calculate an increase in the volume of a gas due to an increase in its temperature.
VII. Pressure	**Pressure**	At the end of this activity, students should be able to: give definitions of pressure and strength, calculate pressure, area, or force when the other quantities are given.
	Pressure of a Liquid	At the end of this activity, students should be able to: explain the concept of pressure and thrust, state Pascal's principle, calculate hydrostatic pressure.
	Air Pressure	At the end of this activity, students should be able to: explain the relationship between pressure and altitude, – explain the concepts of negative pressure and positive pressure, – calculate the load of the atmosphere on a given surface.

CHAPTER	LESSON	DESCRIPTION
	Gas Laws	At the end of this activity, students should be able to: describe gas transformations and the relationship between volume, pressure, and temperature, calculate volume, pressure, or temperature when the two other parameters are given, describe the practical application of gas laws.
	Buoyant Force	At the end of this activity, students should be able to: understand the concept of buoyant force, describe what the buoyant force depends on, state Archimedes' principle, calculate the buoyant force when the density of a liquid and the volume of an object are given.
	Floating Bodies	At the end of this activity, students should be able to: state the conditions under which bodies can float in liquids and gases, calculate the part of a homogenous body which is submerged below the surface of a liquid, explain why bodies of a particular shape that are made of a substance denser than a liquid can still float in the liquid, explain the differences in the movements of a ship and a submarine.
VIII. Heat	**Specific Heat**	At the end of this activity, students should be able to: explain the concept of specific heat, determine the specific heat of a substance, calculate the amount of the heat absorbed or emitted by a body.
	Thermal Transfer	At the end of this activity, students should be able to: explain the concept of heat conduction, convection, and radiation, calculate the heat penetrating through a partition due to the mechanisms of conduction.
	Melting and Freezing	At the end of this activity, students should be able to: explain the concept of the melting point of a substance, explain the concept of the heat of fusion, determine the heat of fusion of a substance, calculate the amount of heat absorbed and emitted during melting or freezing.
	Evaporation and Condensation	At the end of this activity, students should be able to: state and differentiate between the concepts of evaporation and boiling, explain the concept of the heat of vaporization, determine the heat of vaporization of a substance, explain the relationship between the boiling point of water and pressure
	Sources of Heat	At the end of this activity, students should be able to understand: the concept of the heat of combustion, – the concept of a heat engine, – how to calculate the heat obtained due to combustion, – the concept of a heat pump.
	Efficiency and Economy	At the end of this activity, students should be able to: explain the reasons for heat loss and the methods for limiting the phenomenon, explain the consequences of the balance (or lack of balance) between the heat provided and the heat lost.
IX. Electrostatics	**Charging Objects**	At the end of this activity, students should be able to: explain the concepts of electron, proton, electric charge, and elementary charge, state the methods used to charge objects, describe the interaction of charged bodies, explain the effect of grounding.
	Conductors and Insulators	At the end of this activity, students should be able to: describe the concepts of an insulator and a conductor, – explain the concepts of electric field and field lines, – explain the concept of voltage, – state the relationship between voltage and the flow of charge across a conductor.
	Capacitors	At the end of this activity, students should be able to: explain the concepts of capacitor and capacitance, describe the structure of a capacitor, calculate the charge of a capacitor of known capacitance and voltage, state the uses of a capacitor.

CHAPTER	LESSON	DESCRIPTION
	Application of Static Electricity and the Threats It Poses	At the end of this activity, students should be able to: explain the concept of a spark discharge, describe the mechanism of discharging, state the reasons for and the results of atmospheric discharges, explain the threats posed by static electricity, describe how a photocopier operates.
X. Direct Current	**Cells and Batteries**	At the end of this activity, students should be able to: describe a cell and an electrode, describe the structure of a cell, explain the difference between a capacitor and a cell, describe the operation of a battery and an accumulator.
	Electric Current	At the end of this activity, students should be able to: explain the concept of electric current, – apply the relationship between charge, current and time, – explain how current flows, – describe the differences in the flow of current through solids and liquids.
	Ohm's Law	At the end of this activity, students should be able to: know how to study the relationship between current and voltage, be able to calculate resistance and know the unit of resistance, be able to calculate resistance, given the graph I(U), know Ohm's Law.
	Direct Current Circuit	At the end of this activity, students should be able to: explain the concept of total resistance, differentiate between series and parallel connections, state Kirchhoff's law, calculate the voltage and the current in simple electrical circuits.
	Variable Resistors and Nonlinear Resistors	At the end of this activity, students should be able to: explain the concepts of a resistance wire and a thermistor, – describe the way in which a resistor of variable resistance works, – state how a change in resistance affects the current flowing through a circuit, – describe the relationship between the resistance and the dimensions of a conductor, – describe the qualitative relationship between resistance and temperature for different materials.
	Work and Power of Current	At the end of this activity, students should be able to: explain the concept of work and power of a current, calculate the work and power of a current, describe the work done by a current, explain the concept of the power and efficiency of an electrical device, describe energy transformation in an electrical circuit.
XI. Magnetism	**Magnetic Field**	At the end of this activity, students should be able to: give examples of the application of magnets – present methods to demonstrate the presence of magnetic fields – describe the shape of a magnetic field around a bar magnet – explain the concept of magnetic flux density and name its unit – describe the shape of the magnetic field around the Earth.
	Electromagnets	At the end of this activity, students should be able to: describe a magnetic field around a rectilinear conductor, a circular loop and a coil – give examples of the application of electromagnets.
	Electromagnetic Force	At the end of this activity, students should be able to: describe an electromagnetic force – determine the direction of operation of an electromagnetic force – explain how the position of the conductor in relation to the magnetic field lines affects the magnitude of the electromagnetic force – state the relationship between the magnitude of the magnetic force and the flux density, the length of the conductor, and the strength of the field – describe the interaction of current-carrying conductors placed close together.
	Electric Motor	At the end of this activity, students should be able to: describe the structure of an electric motor – name the basic elements of a motor and explain their function – give some examples of the application of electric motors.

CHAPTER	LESSON	DESCRIPTION
	CRT and an Oscilloscope	At the end of this activity, students should be able to: describe the movement of a charged particle in an electric and a magnetic field, determine the direction of the Lorentz force, describe the key elements of an oscilloscope and a cathode ray tube (CRT).
XII. Alternating Current	**Electromagnetic Induction**	At the end of this activity, students should be able to: explain the phenomenon of electromagnetic induction, – give an example to explain Lenz's Law, – describe eddy currents, – explain the phenomena of mutual induction and self-induction, – give examples of the application of induction.
	Alternating Current and a Generator	At the end of this activity, students should be able to: explain the concept of heat conduction, convection, and radiation – calculate the heat penetrating through a partition due to the mechanisms of conduction.
	Transformer	At the end of this activity, students should be able to: describe the structure and the application of a transformer, – explain the concept of turns ratio, – explain how the number of turns in the primary and secondary coils affects the magnitude of the voltage and current in the secondary coil, – describe the operation of a car ignition system.
	Transfer of Electrical Energy	At the end of this activity, students should be able to: describe the concept of power demand – explain how electricity is transmitted – explain the significance of transformers in the transfer of electric energy – describe the elements of the National Grid system.
	Current in a Household	At the end of this activity, students should be able to: name the parts of a household electric mains system – describe the characteristics of the type of connection used in a household mains system – explain the concepts of overload and short-circuit – describe the methods of protection against overload and short-circuit – name the conductors that form a household circuit and state the colours with which they are marked.
	Electric Energy and Methods of Energy Saving	At the end of this activity, students should be able to: describe the work parameters of an electrical appliance, – calculate the energy absorbed by a given device when its power and working time are given, and estimate the cost of the energy, – read and interpret the data displayed by an electricity meter, – determine the power of a device given the readings of the electricity meter, – interpret the information on the energy consumption label of a given device.
XIII. Electronics	**Diode**	At the end of this activity, students should be able to: explain how substances can be divided into conductors, insulators and semiconductors – describe the doping of semiconductors – explain the difference between n-type and p-type semiconductors – describe a p-n junction – state the properties of a semiconductor diode.
	Power Supply Units and Rectifiers	At the end of this activity, students should be able to: explain the rectifying operation of a diode – state the basic methods of rectifying an alternating current – describe the general structure of a DC power supply.
	Light and Current	At the end of this activity, students should be able to: describe a light-dependent resistor and give examples of its application – describe an LED diode and give examples of its application – recognise the symbols for LDR and LED – connect an LED diode in forward bias – describe the structure of digital and alphanumeric display devices.
	Transistor	At the end of this activity, students should be able to explain the operation and application of a transistor, describe the ways in which a transistor may be open or closed, use the concept of a voltage divider to explain how to control the opening and closing of a transistor, give examples of a transistor switch and provide a short description of its operation, and describe the amplifying property of a transistor and give examples of the application of this feature.

CHAPTER	LESSON	DESCRIPTION
	Logic Gates	At the end of this activity, students should be able to: describe the operation of NOT, AND, OR, NAND, and NOR logic gates and prepare truth tables for them – explain the operation of a flip-flop.
	Digital Systems	At the end of this activity, students should be able to: describe analogue and digital signals, – explain the methods of encoding signals – give examples which demonstrate the conversion of an analogue signal into a digital one – describe different methods of recording and transferring signals.
XIV. Oscillations and Mechanical Waves	**Oscillations**	At the end of this activity, students should be able to: explain the concepts of: amplitude, period, frequency, and phase of oscillation – describe harmonic oscillations – explain the movement of a pendulum – state the relationship between the period of oscillation of a pendulum and its length – explain the addition of oscillations in two mutually perpendicular directions.
	Resonance	At the end of this activity, students should be able to: describe the conversion of energy during oscillation – explain the concepts of free, damped and forced oscillations – describe the phenomenon of resonance – give examples of the threats related to resonance.
	Mechanical Waves	At the end of this activity, students should be able to: explain how waves carry energy, explain the concept of a mechanical wave, wavelength, frequency and amplitude, calculate the wavelength (of a specific frequency) in a specific medium when the velocity of wave propagation in this medium is given, describe the behaviour of a wave when it passes from one medium to another.
	Reflection and Refraction of Waves	At the end of this activity, students should be able to: explain the phenomena of wave reflection and wave refraction, – explain the concepts of the angle of incidence and the angle of refraction of a wave, – state the Laws of Reflection and Refraction of a Wave, – explain the phenomena of wave absorption and wave dispersion.
	Seismic Waves	At the end of this activity, students should be able to: explain the nature of seismic waves, define body seismic waves and surface seismic waves, describe the propagation of seismic waves inside the Earth, and describe a tsunami.
	Diffraction and Interference of Mechanical Waves	At the end of this activity, students should be able to: define diffraction and interference – explain the phenomenon of wave diffraction – describe a standing wave.
XV. Sounds	**Sound**	At the end of this activity, students should be able to: define an acoustic wave, – calculate the wavelength of an acoustic wave given its speed and frequency, – explain why the speed of sound depends on the medium in which it propagates and understand why, when the medium is air, it also depends on the temperature, – describe the phenomena of echo, reverberation, and acoustic resonance, – describe the wavefront of an object moving at supersonic speed.
	Infrasound and Ultrasound	At the end of this activity, students should be able to: describe the structure and the functioning of the human ear, – list the properties of infrasound and ultrasound, – state the audibility range of the human ear, – describe the functioning of an ultrasound scanner, – give examples of the application of ultrasound.
	Interference of Sound Waves	At the end of this activity, students should be able to: describe the oscillations of a string, – explain the theory of fundamental frequency and harmonic frequencies, – explain the concept of the sound spectrum, – describe and explain the phenomenon of beats.

CHAPTER	LESSON	DESCRIPTION
	Sounds in Music	At the end of this activity, students should be able to: explain the structure of a musical scale – define an octave, perfect pitch, timbre – describe the principle of construction of stringed and wind instruments.
	Sound Intensity	At the end of this activity, students should be able to: state the definition of sound intensity, – define a decibel, – give examples of the problems caused by noise and the methods of protection against them.
	Doppler Effect	At the end of this activity, students should be able to: know on what the Doppler effect depends in the case of acoustic waves – be able to predict the frequency of the perceived sound in relation to the frequency of emitted sound in a given situation – realise that the Doppler effect also occurs with other types of waves.
XVI. Electromagnetic Waves	**Electromagnetic Waves**	At the end of this activity, students should be able to: define an electromagnetic wave – explain why light is an electromagnetic wave – state the relationship between wavelength and wave frequency – give the approximate speed of an electromagnetic wave in a vacuum – realise that the speed of light is the fastest rate of information transfer.
	Laser	At the end of this activity, students should be able to: define: monochromaticity and coherence – state the difference between laser light and light emitted by other sources – give examples of laser applications.
	Diffraction and Interference	At the end of this activity, students should be able to: recognise and describe the phenomena of the diffraction and interference of light, – describe interference fringes, – explain the theory of the interference of light which has passed through a diffraction grating.
	The Ranges of Electromagnetic Waves	At the end of this activity, students should be able to: state the ranges of electromagnetic waves, – give examples of the different properties of waves from particular ranges, – give examples of the application of waves from different ranges.
	Threats Related to Electromagnetic Waves	At the end of this activity, students should be able to: understand how radiation absorption rate is related to wavelength and the type of material, – know the application of microwaves, – understand the concept of greenhouse effect and its causes, – understand the concept of ozone hole, – understand the concept of ionisation.
	Application of Waves for Communication	At the end of this activity, students should be able to: explain the concepts of AM and FM modulation – give examples of the application of electromagnetic waves in communication
XVII. Light	**Reflection of Light**	At the end of this activity, students should be able to: explain the concept of a ray of light – give examples and describe the formation of umbra and penumbra – state the Law of Reflection – explain how an image is formed in a mirror – explain what happens to a ray when it has been reflected at two or three mirrors which are perpendicular to each other.
	Spherical Mirrors	At the end of this activity, students should be able to: explain the theory of concave and convex spherical mirrors – define principal focus and virtual focus – describe the properties of images formed by spherical mirrors – produce appropriate drawings.
	Refraction of Light	At the end of this activity, students should be able to: describe how speed, wavelength and frequency of light change when light passes from one medium to another – explain Fermat's principle – calculate the refractive index – give examples to explain the Law of Refraction – describe the passage of light through a transparent plate – list the conditions for total internal refraction and give examples of its application.

CHAPTER	LESSON	DESCRIPTION
	A Lens	At the end of this activity, students should be able to: identify different types of lenses, – describe the properties of images formed by lenses and draw ray diagrams to show how those images form, – calculate the enlargement and the optical power of a lens.
	Optical Instruments	At the end of this activity, students should be able to: explain the concepts of visual angle, and optimum viewing distance – describe the operation of a magnifying glass, a microscope, a camera, refracting telescope, binoculars, and a reflecting telescope.
	The Eye	At the end of this activity, students should be able to: describe the structure of the eye and explain the functions of its particular elements – define short-sightedness and long-sightedness and explain how these defects can be corrected with glasses.
	Colors	At the end of this activity, students should be able to: name the colors found in white light.– explain the processes of light mixing and paint mixing to obtain a desired color, provide a short description of color blindness and explain the significance of cones for color perception, describe the Purkinje effect.
XVIII. Nuclear Physics	**Structure of an Atom**	At the end of this activity, students should be able to: give short descriptions of models of the atom according to Thomson and Rutherford – name the components of the nucleus and determine their charges – describe spectrum analysis – state Bohr's postulates – calculate the radius of the n-th orbit in an atom of hydrogen, given the radius of the first orbit – calculate the energy (in electronvolts) of an electron located in the n-th orbit and the energy emitted or absorbed when the electron moves from one orbit to another – explain the symbolic notation of a nucleus – give the definition of an isotope.
	Nuclear Radiation	At the end of this activity, students should be able to: describe nuclear radiation, – provide characteristics of α, β and γ radiation, – describe β+ radiation, – explain the concept of a radioactive series.
	Decay Law	At the end of this activity, students should be able to: explain the concept of half-life – describe the decay of radioactive isotopes – explain the concept of radioactivity, state its unit and state the factors that determine its value.
	Effect of Radiation on Live Organisms	At the end of this activity, students should be able to describe the operation of a scintillation counter, a Geiger-Müller counter, and a Wilson cloud chamber, explain the concepts of absorbed dose and dose equivalent and state the units of the two quantities, name the main sources of radiation in the surrounding environment and give examples of the effects of radiation.
	Application of Radioactivity	At the end of this activity, students should be able to: describe the tracer method – explain the concepts of: isotope therapy, radiocarbon dating, rock dating, and isotope sterilisation – give examples of the application of nuclear radiation in industry.
	Nuclear Fission	At the end of this activity, students should be able to: explain the concepts of mass defect and binding energy – describe the reaction of fission – explain the concepts: fissile material, chain reaction, avalanche reaction, critical mass – state the main effects of an atomic explosion.
	Nuclear Energy	At the end of this activity, students should be able to: state the conditions that need to be satisfied for a fusion reaction to occur – describe the structure and operation of a nuclear reactor – explain the advantages and disadvantages of nuclear power engineering in comparison with conventional power engineering.

CHAPTER	LESSON	DESCRIPTION
	Nuclear Fusion	At the end of this activity, students should be able to: explain thermonuclear fusion – describe a proton cycle – describe the construction of an H-bomb – explain the methods of conducting a controlled fusion reaction.
XIX. Earth and the Universe	**The Solar System**	At the end of this activity, students should be able to: name and provide a short description of the main components of the Solar System, – describe Kepler's Laws.
	The Moon	At the end of this activity, students should be able to: describe the movement of the Moon around the Earth – explain the lunar phases – describe the structure of the Moon.
	Eclipses	At the end of this activity, students should be able to: describe a lunar eclipse and a solar eclipse, – name the different types of eclipses, – describe the course of an eclipse.
	The Structure and the Evolution of Stars	At the end of this activity, students should be able to: describe the structure of the Sun, – explain the method of division of stars into spectral classes, – describe an H-R diagram, – discuss the basic stages in the evolution of stars dependent on their initial mass.
	Galaxies	At the end of this activity, students should be able to: explain the structure of the Galaxy, – describe the characteristics of star clusters, – describe the classification of galaxies.
	The Universe	At the end of this activity, students should be able to: describe the methods of observation of the Universe, – state Hubble's Law, – explain the concept of CMB radiation, – provide a short characteristic of the Big Bang concept and describe the cosmological models.