

GRADE 7 SCIENCE SYLLABUS

| Competency & competency level | Content | Time minutes |
|---|--|--------------|
| <p>1.0 Explores the dynamic nature of the environment.</p> <p>1.1 Investigates the interactions between organisms.</p> | <ul style="list-style-type: none"> ● Mutual interactions that ensure the existence of organisms. <ul style="list-style-type: none"> ● Interactions based on food <ul style="list-style-type: none"> ● Plant-plant ● Plant-animal ● Animal-animal ● Food chains and food webs ● Interactions based on protection <ul style="list-style-type: none"> ● Caring for the young ● Camouflage ● Protective behaviour and strategies | 120 |
| <p>1.2 Investigates the interactions between organisms and abiotic environment.</p> | <ul style="list-style-type: none"> ● Interactions between organisms and the abiotic environment that ensure the existence of organisms. <ul style="list-style-type: none"> ● Interactions based on habitat <ul style="list-style-type: none"> ● related to plants ● related to animals ● Interactions based on the need for substances and energy <ul style="list-style-type: none"> ● soil, water and air ● light and heat ● Interactions based on the change in environmental factors <ul style="list-style-type: none"> ● hibernation ● migration | 120 |
| <p>1.3 Investigates the mutual interactions between organisms and abiotic environment with time.</p> | <ul style="list-style-type: none"> ● Environmental succession <ul style="list-style-type: none"> ● Establishment of organisms in a barren environment with time ● Establishment of organisms in a cleared environment with time ● Establishment of organisms in the surroundings of a reservoir with time | 120 |
| <p>1.4 Investigates the interactions in abiotic environment.</p> | <ul style="list-style-type: none"> ● Interactions in the abiotic environment <ul style="list-style-type: none"> ● Weathering of rocks ● Decomposition of organic matter ● Soil erosion | 120 |

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| <p>2.0 Focusses attention on the environment quantitatively.</p> <p>2.1 Uses the measurements of volume to describe the materials and objects in the environment.</p> | <ul style="list-style-type: none"> ● Concept of volume and units <ul style="list-style-type: none"> ● Volume of a liquid ● Volume of a regular object ● Volume of an irregular object | 120 |
| <p>2.2 Uses the measurements of density to describe the materials and objects in the environment appropriately.</p> | <ul style="list-style-type: none"> ● Concept of density and units ● Changes in mass of equal volumes <ul style="list-style-type: none"> ● Density in terms of mass and volume | 120 |
| <p>2.3 Uses the measurements of speed to describe the phenomena in the environment appropriately.</p> | <ul style="list-style-type: none"> ● Concept of speed and units ● Speed in terms of distance and time ● Measuring speed | 120 |
| <p>2.4 Uses the concept of rate to describe the phenomena in the environment appropriately.</p> | <ul style="list-style-type: none"> ● Concept of rate ● Measuring rate | 120 |
| <p>3.0 Investigates the organizational patterns in the bodies of organisms.</p> <p>3.1 Investigates the patterns in the organization of animal body to perform life functions.</p> | <ul style="list-style-type: none"> ● General plan of organization in the animal body <ul style="list-style-type: none"> ● Head, thorax, abdomen and appendages ● Various systems which constitute the human body, their basic parts and major functions. <ul style="list-style-type: none"> ● Respiratory ● Digestive ● Excretory ● Blood circulatory ● Nervous ● Reproductive ● Tissues and cells | 120 |

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| 3.2 Investigates the patterns in the organization of plant body to perform life functions. | <ul style="list-style-type: none"> ● General plan of organization of the plant body <ul style="list-style-type: none"> ● Shoot system <ul style="list-style-type: none"> ● Stem, leaves, flowers and fruits ● Root system <ul style="list-style-type: none"> ● Roots ● Tissues and cells | 120 |
| 4.0 Makes inquiry to identify the nature of earth and space. 4.1 Investigates on the components of lithosphere. | <ul style="list-style-type: none"> ● Major strata of the earth's interior <ul style="list-style-type: none"> ● Crust ● Mantle ● Core ● Lithosphere, the uppermost stratum of the crust containing rocks and minerals. <ul style="list-style-type: none"> ● Rocks ● Minerals ● Soil ● Uses of rocks, minerals and soil | 120 |
| 4.2 Utilizes soil while conserving its quality effectively. | <ul style="list-style-type: none"> ● Diversity of soil according to its constitution and properties <ul style="list-style-type: none"> ● Clayey soil ● Sandy soil ● Loam soil ● Soil erosion <ul style="list-style-type: none"> ● Occurrence ● Effects ● Soil conservation | 120 |
| 4.3 Investigates on the solar system. | <ul style="list-style-type: none"> ● Celestial bodies belonging to the solar system and their characteristics. <ul style="list-style-type: none"> ● Sun ● Planets and moons ● Dwarf planets ● Small objects in the solar system | 120 |

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| 4.4 Investigates on the space explorations. | <ul style="list-style-type: none"> ● Space travel <ul style="list-style-type: none"> ● Space crafts ● Challenges faced in space travel ● Ways of overcoming challenges ● Historical development of space exploration | 120 |
| 5.0 Inquires on the properties, uses and interactions of matter. 5.1 Classifies matter using various criteria. | <ul style="list-style-type: none"> ● Physical states <ul style="list-style-type: none"> ● Solids, liquids and gases ● Constitution <ul style="list-style-type: none"> ● Mixtures (homogenous and heterogenous) ● Compounds and elements ● Rocks ● Metals and non-metals | 120 |
| 5.2 Inquires on the interactions of various substances with water, acids and bases. | <ul style="list-style-type: none"> ● Interactions with water <ul style="list-style-type: none"> ● Dissolving ● Hydration ● Chemical reactions ● Interactions with acids ● Interactions with bases | 120 |
| 5.3 Uses the concept of specific gravity in day to day pursuits. | <ul style="list-style-type: none"> ● Relative density ● Phenomena related to Relative density <ul style="list-style-type: none"> ● Floating, floating by sinking and sinking ● Upthrust | 120 |
| 5.4 Inquires on the changes in properties of substances subjected to heat. | <ul style="list-style-type: none"> ● Combustion <ul style="list-style-type: none"> ● Conditions necessary for combustion ● Products of combustion ● Fuels ● Manipulating combustion effectively ● Thermal decomposition <ul style="list-style-type: none"> ● Decomposition temperature ● Applications of thermal decomposition ● Manipulating thermal decomposition effectively ● Thermal degradation <ul style="list-style-type: none"> ● Incidence of thermal degradation ● Control of thermal degradation | 120 |

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| 5.5 Uses thermal properties of substances effectively. | <ul style="list-style-type: none"> ● Thermal properties and their uses <ul style="list-style-type: none"> ● Heat transfer ● Conductors and insulators ● Expansion ● Solids, liquids and gases <ul style="list-style-type: none"> ● Change of state ● Melting point/freezing point ● Boiling point ● Sublimation | 120 |
| 5.6 Explores the nature and effects of static electricity. | <ul style="list-style-type: none"> ● Electrostatic charges ● Generating static electricity <ul style="list-style-type: none"> ● Positive and negative charges ● Identifying positive and negative charges ● Lightning | 120 |
| 5.7 Selects appropriate materials to manipulate the electric current according to the situation. | <ul style="list-style-type: none"> ● Conduction of electricity <ul style="list-style-type: none"> ● Conductors ● Insulators ● Semi-conductors ● Superconductors ● Electrical resistance | 120 |
| 5.8 Develops simple electric circuits | <ul style="list-style-type: none"> ● Sources of electricity <ul style="list-style-type: none"> ● Dynamo ● Cell ● Electric current ● Potential difference ● Simple electric circuit accessories <ul style="list-style-type: none"> ● Ammeter ● Voltmeter ● Switch ● Electric appliances <ul style="list-style-type: none"> ● Bulb ● Motor | 120 |
| 5.9 Conducts experiments to identify the chemical nature of substances that are in day to day use. | <ul style="list-style-type: none"> ● Domestically used chemicals <ul style="list-style-type: none"> ● Acidic substances ● Basic substances ● Neutral substances ● Indicators used for identification of substances | 120 |

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| <p>6.0 Uses the concepts, principles and theories related to energy, work and force effectively.</p> <p>6.1 Effectively manipulates force at appropriate instances.</p> | <ul style="list-style-type: none"> ● Force as a vector <ul style="list-style-type: none"> ● Magnitude ● Direction ● Units of force ● Ways of representing forces ● Factors to be considered when exerting force <ul style="list-style-type: none"> ● Magnitude of the force ● Direction of the force ● <i>Point of action of force</i> | 120 |
| <p>6.2 Investigates on various forces and their applications.</p> | <ul style="list-style-type: none"> ● Contact forces and their applications <ul style="list-style-type: none"> ● Impulsive force ● Friction force ● Tension ● Thrust ● Distant forces and their applications <ul style="list-style-type: none"> ● Gravitational force ● Magnetic force ● Electro-static force | 120 |
| <p>6.3 Investigates on types of motions and their applications.</p> | <ul style="list-style-type: none"> ● Movements of an object when a force is exerted ● Types of motion <ul style="list-style-type: none"> ● Rectilinear motion ● Circular motion ● Rotational motion ● Oscillation/vibration ● Calculations related to rectilinear motion ● Speed | 120 |
| <p>6.4 Uses machines to do work at ease.</p> | <ul style="list-style-type: none"> ● Making work easy <ul style="list-style-type: none"> ● Simple machines <ul style="list-style-type: none"> ● Levers ● Inclined planes ● Pulleys ● Wheel and axle ● Machines | 120 |

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| 6.5 Generates energy by various sources. | <ul style="list-style-type: none"> ● Sun as the primary source of energy ● Naturally stored energy <ul style="list-style-type: none"> ● Food ● Fuel ● Wind, oceanic waves and flow of water ● Artificially stored energy <ul style="list-style-type: none"> ● Electro-chemical cells ● Changing the position of an object ● Changing the form of an object ● Solar cells | 120 |
| 6.6 Uses strategies for transmission of mechanical energy according to the circumstances. | <ul style="list-style-type: none"> ● Need for transmission ● Means of transmission <ul style="list-style-type: none"> ● Belts (endless) ● Chains (endless) ● Cog-wheels ● Shaft ● Fluid/hydraulic ● Air/pneumatic | 120 |
| 6.7 Employs strategies to use energy effectively. | <ul style="list-style-type: none"> ● Utilization of energy and its economical usage <ul style="list-style-type: none"> ● Domestic ● Institutional and industrial ● Transport and public places ● Problems encountered in utilization ● Alternate energies <ul style="list-style-type: none"> ● Solar energy ● Alcohol | 120 |
| 7.0 Discovers the values of marvels in the environment. 7.1 Discovers the information on marvels in the world of plants. | <ul style="list-style-type: none"> ● Plants that exhibit mysterious characters | 120 |
| 7.2 Discovers the information on marvels in the world of animals. | <ul style="list-style-type: none"> ● Animals that exhibit mysterious characters | 120 |

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| 7.3 Discovers the information on marvels of earth and space. | <ul style="list-style-type: none"> ● Information related to water ● Information related to land ● Information related to space | 120 |
| 7.4 Discovers the information related to marvels of human creations. | <ul style="list-style-type: none"> ● Excellent creations and inventions ● Scientists who contributed for new inventions | 120 |
| <p>8.0 Exhibits the preparedness in management of natural disasters and associated risks.</p> <p>8.1 Contributes to minimize the risks associated with floods.</p> | <ul style="list-style-type: none"> ● Scientific factors based on the occurrence of floods <ul style="list-style-type: none"> ● Short term ● Long term ● Scientific approach for the management of risks associated with floods. <ul style="list-style-type: none"> ● Before the disaster <ul style="list-style-type: none"> ● Weather forecasts, previous experiences and observations. ● During the disaster <ul style="list-style-type: none"> ● Predicting the circumstances that can occur on available data and information. ● Scientific measures that can be taken to minimize the damages to life and property. <ul style="list-style-type: none"> ● After the disaster <ul style="list-style-type: none"> ● Sanitary measures ● Effective management of newly emerged environmental conditions. | 120 |

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| 8.2 Contributes to minimize the risks associated with landslides. | <ul style="list-style-type: none"> ● Scientific factors based on the occurrence of landslides <ul style="list-style-type: none"> ● Short term ● Long term ● Scientific approach for the management of risks associated with landslides. <ul style="list-style-type: none"> ● Before the disaster <ul style="list-style-type: none"> ● Weather forecasts, previous experiences and observations. ● During the disaster <ul style="list-style-type: none"> ● Predicting the circumstances that can occur on available data and information. ● Scientific measures that can be taken to minimize the damages to life and property. <ul style="list-style-type: none"> ● After the disaster <ul style="list-style-type: none"> ● Sanitary measures ● Effective management of newly emerged environmental conditions. | 120 |
| <p>NB:-</p> <p>Number of periods per week - 05</p> <p>Number of periods per year (approximately) - 150 (100 hours)</p> <p>Number of activities - 36</p> <p>Suggested time in hours allocated for activities - 72</p> <p>Plan the programs for extended learning by using the extra time accordingly.</p> | | |
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