

Grade - 8 Syllabus - Science

Competency & Competency level	Content	Time minutes
1.0 Observes the environment as a scientist. 1.1 Investigates the natural environment for its optimum uses.	<ul style="list-style-type: none"> • Natural aquatic environment <ul style="list-style-type: none"> • Rivers • Estuaries and lagoons • Riverine • Ocean • Reservoirs • Natural terrestrial environments <ul style="list-style-type: none"> • Forests <ul style="list-style-type: none"> • Wetland • Montane • Dry mixed • Thorn bushes and scrublands • Grasslands <ul style="list-style-type: none"> • Patana • Damana • Talawa • Villu • Wetlands 	120
1.2 Investigates the built environments for their optimum uses.	<ul style="list-style-type: none"> • Built environments <ul style="list-style-type: none"> • Agricultural • Industrial • Human settlements • Nature of these environments • Action that should be taken in relation to each environment. 	120
1.3 Focuses attention on the venomous animals that are harmful to man.	<ul style="list-style-type: none"> • Animals that are harmful to man <ul style="list-style-type: none"> • Characters of those animals • Ways of protecting from those animals • Scientific approach of minimizing damage • Significance of these animal with reference to the environment 	120
1.4 Acquires the ability to use international scientific symbols.	<ul style="list-style-type: none"> • International symbols that are used in day to day life. <ul style="list-style-type: none"> • Related to laboratories • Related to factories • Related to weather • Related to medicine • Denotation of the symbols 	120

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2.0 Inquires the compatability of properties of substances in relation to day to day requirements. 2.1 Inquires into the structure of matter in order to make human affairs/ concerns effective.	<ul style="list-style-type: none"> • Particulate nature of matter • Bulding units of matter <ul style="list-style-type: none"> • Atons • Molecules • Arrangement of particles in relation to the physical states of matter. 	120
2.2 Inquires into the usages of elements in relation to their properties.	<ul style="list-style-type: none"> • Elements that are frequently used in day to day life and their symbols. <ul style="list-style-type: none"> • Metalic - Aluminium. iron • Non - metallic - Sulphur. Carbon • Gases - Oxygen.nitrogen • Uses of elements 	120
2.3 Uses the difference in the density of substances in day to day life.	<ul style="list-style-type: none"> • Density <ul style="list-style-type: none"> • Concept • Units • Difference in density <ul style="list-style-type: none"> • Application of density • Seperating solid substances • Seperating liquids 	120
2.4 Uses the expansion of solids, liquids and gases in day to day life effectively.	<ul style="list-style-type: none"> • Expansion <ul style="list-style-type: none"> • Solids • Liquids • Gases • Applications of expansion <ul style="list-style-type: none"> • Thermometers • Bi- metal strip <ul style="list-style-type: none"> • Warning alarms • Thermostats 	120
2.5 Inquires into the usages of compounds according to their properties.	<ul style="list-style-type: none"> • Difference between elements and compounds • Molecules <ul style="list-style-type: none"> • Homo - atomic • Hetero - atomic • Compounds <ul style="list-style-type: none"> • Solid - Sodium chloride • Liquid - Water • Gas - Carbon dioxide 	120

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2.6 Inquires into the domestic usages of chemicals.	<ul style="list-style-type: none"> • Domestic chemical usage <ul style="list-style-type: none"> • Washing agents • Paints and dyes • Food additives • Cosmetics • Disinfectants and Pharmaceuticals 	120
2.7 Uses parallel and series connections of electrical appliances in human needs.	<ul style="list-style-type: none"> • Connecting cells and bulbs <ul style="list-style-type: none"> • Parallel • Series • Circuits that include cells and bulbs <ul style="list-style-type: none"> • Electric torch • Domestic circuits • Decorations 	120
2.8 Uses magnets in day to day life	<ul style="list-style-type: none"> • Types of magnets <ul style="list-style-type: none"> • Permanent magnets • Electro magnets • Characters associated with magnets <ul style="list-style-type: none"> • Magnetic fields • Magnetic poles • Instances of magnet usage <ul style="list-style-type: none"> • Compass • Electromagnetic cranes • Geomagnetism 	120
3.0 Explores the dynamic nature of environment. 3.1 Observes the interactions based on life cycles.	<ul style="list-style-type: none"> • Major stages of life cycles <ul style="list-style-type: none"> • Concept of metamorphosis • Animals that exhibit metamorphosis <ul style="list-style-type: none"> • Mosquito • Butterfly • House fly • Frog 	120
3.2 Controls different stages of life cycles of animals for the benefit of man.	<ul style="list-style-type: none"> • Methods of controlling different stages of a life cycle • Advantages of controlling life cycles <ul style="list-style-type: none"> • Control diseases • Pest control 	120

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3.3 Manipulates the factors affecting survival of crops to obtain optimum benefit.	<ul style="list-style-type: none"> • Traditional cultivations • Cultivations under specific conditions <ul style="list-style-type: none"> • Greenhouse cultivation • Mushroom cultivation • Ornamental plant cultivation • Hydroponics 	120
3.4 Investigates into the biotic factors affecting the perpetuation of natural environment.	<ul style="list-style-type: none"> • Biotic factors affecting on the survival of a natural eco system <ul style="list-style-type: none"> • Diversity of organisms • Competition • Predation • Parasitism 	120
3.5 Investigates into the abiotic factors affecting the perpetuation of natural environment.	<ul style="list-style-type: none"> • Abiotic factors <ul style="list-style-type: none"> • Temperature • Light • Water • Soil 	120
4.0 Makes inquiry to identify the glare of earth and space. 4.1 Investigates into the constituents of the atmosphere in order to make human affairs concerns effective.	<ul style="list-style-type: none"> • Major layers of the atmosphere functioned by the layers of atmosphere. 	120
4.2 Acts to maintain optimum composition of the atmosphere.	<ul style="list-style-type: none"> • Composition of the atmosphere in terms of major constituents. • Functions of the atmosphere • Factors that affect the changing of optimum composition of atmosphere • Measures taken to conserve the optimum composition of atmosphere 	120
4.3 Uses natural resources obtained from the earth effectively.	<ul style="list-style-type: none"> • Characteristics that distinguish rocks from minerals • Rocks and minerals found in Sri Lanka <ul style="list-style-type: none"> • Limestone • Apatite • Jomore • Mineral sands • Clay • Uses of rocks and minerals 	120

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5.0 Uses the concepts, principles and theories related energy, work and force effectively. 5.1 Inquires into the use of phenomena related to pressure in day to day life.	<ul style="list-style-type: none"> • Concept of pressure <ul style="list-style-type: none"> • Units • Solid,liquid and gas pressure • Manometers <ul style="list-style-type: none"> • Barometer • Sphygmo manometer • Usages <ul style="list-style-type: none"> • Pressure cooker • Hydraulic press • Hydraulic jack 	120
5.2 Inquires into the effect of center of gravity on the equilibrium of an object, with relation to life experiences.	<ul style="list-style-type: none"> • Center of gravity <ul style="list-style-type: none"> • A brief description • Position of the center of gravity of some regular objects. <ul style="list-style-type: none"> • Uniform bar • Circular plate • Globe • Cylinder • Effect of center of gravity on equilibrium <ul style="list-style-type: none"> • Balance • Revolving of <i>rabanas</i> 	120
5.3 Uses work, energy and power in human concerns/needs.	<ul style="list-style-type: none"> • Work <ul style="list-style-type: none"> • Brief description • Unit • Energy <ul style="list-style-type: none"> • Brief description • Unit • Power <ul style="list-style-type: none"> • Brief description • Unit • Events related to energy transformations <ul style="list-style-type: none"> • Energy transfor mations related to a motor car in motion. • Energy transfor mations in a power station. 	120

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5.4 Acts towards overcoming energy crisis.	<ul style="list-style-type: none"> • Factors affecting the energy crisis. <ul style="list-style-type: none"> • Limitations of energy resources • Depletion of energy resources. • Solutions for energy crisis <ul style="list-style-type: none"> • Thrifty use • Conservation of energy resources • Alternative energy resources 	120
6.0 investigates in to the diversity of plants. 6.1 Conducts explorations to identify the morphological diversity of leaves.	<ul style="list-style-type: none"> • Shapes of leaves • Leaf margin • Leaf apex • Leaf base • Phyllotaxy • Venation 	120
6.2 Investigates the functions related to the diversity of plant stems.	<ul style="list-style-type: none"> • Common functions of stems • Other functions served by stems <ul style="list-style-type: none"> • Perennation and vegetative reproduction • Photosynthesis • Climbing 	120
6.3 Investigates the functions related to the diversity of roots.	<ul style="list-style-type: none"> • Common functions of roots • Roots differentiated to perform different functions <ul style="list-style-type: none"> • Still roots • Buttress roots • Aerial roots • Respiratory roots • Storage roots • Clinging roots 	120

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6.4 Uses plant related products with a view to make human affairs/ concerns effective.	<ul style="list-style-type: none"> • Plant relates products <ul style="list-style-type: none"> • Food and beverages • Medicines • Fibers • Timber and timber associated products • Ornaments 	120
7.0 Uses properties of waves to accomplish day to day needs. 7.1 Uses properties of light in human needs.	<ul style="list-style-type: none"> • Luminous objects • Sun, filamentous bulbs, Fluorescent lamps • Non - luminous object • Nature of light rays <ul style="list-style-type: none"> • Linear path • Clour - combina tion • Properties of light rays <ul style="list-style-type: none"> • Reflection • Refraction • Uses of reflection <ul style="list-style-type: none"> • Kaleidoscope • Periscope • Mirrors • Occurence of refraction <ul style="list-style-type: none"> • Through a glass block/water container • Through a prism 	120
7.2 Uses generation and propagation of sound in producing musical instrument.	<ul style="list-style-type: none"> • Sound generation <ul style="list-style-type: none"> • Vibration • Auditory limits • Sound propagation <ul style="list-style-type: none"> • Need of a medium • Change in the speed with medium • Sources of sound <ul style="list-style-type: none"> • Generation of sound by vibrating a string • Generating of sound by vibrating a membrane • Generation of ound by vibrating an air column 	

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7.3 Explores the scientific basis of modern communication equipment.	<ul style="list-style-type: none"> • Communication methods <ul style="list-style-type: none"> • Telephone • Fax • Telegraph • Internet • Linal • Significance of communication methods 	
8. Exhibits the preparedness in management of natural disasters and associated risks. 8.1 Contributes to minimize the risks associated with cyclones.	<ul style="list-style-type: none"> • Types of cyclone <ul style="list-style-type: none"> • Hurricane • Typhoon • Tornado • Scientific factors resulting in the occurrence of eyeclones. • Scientific approach for the management of risks associated with eyeclones. <ul style="list-style-type: none"> • Before the disaster • Weather forecasts, previous experiences and observations. • During the disaster • Predicting the circumstances that can occur on available data and information. • Scientific meas ures that can be taken to minimize the damages to life and property. • After the disaster • Sanitary measures Effective man agement of newly emerged environmental conditions. 	
8.2 Contributes to minimize the risks associated with lightning and thunder.	<ul style="list-style-type: none"> • Scientific factors result ing in the occurrence of lightning and thunder. • Scientific approach for the management of risks associated with lightening and thunder. <ul style="list-style-type: none"> • Before the disast. • Weather forecasts, previous experiences and observations. • During the disaster • Predicting the circumstances that can occur on available data and information. • Scientific meas ures that can be taken to minimize the amages to l ife and property. 	