Apex Life School

Curriculum Briefing

Course Name: Science		**Class: V**	**Term: 1 st**	**Year: 2076**	**Total Annual Working Day**: 241
Instructor: Sunita Lama		**Contact: 9860365628**	**Email: ghlaansunita@gmail.com**		**Total Working Days First Term:** 69
S. NO	**LESSON**	**COURSE OVERVIEW**	**OBJECTIVE**	**PREREQUISITES**	**SKILLS SUPPORTED**
1	Classification of animals	• Classification of invertebrates and vertebrates • Characteristics and examples of classified animals.	• Identification of different types of animals. • List the different groups of vertebrates and invertebrates. • State the main features of different classes of vertebrates and invertebrates.	• Differences between plants and animals. • Division of invertebrates and vertebrates and their features.	Critical thinking and problem solving Creativity and imagination
2	cell	Cell as basic unit of life. Differences between plant and animal cell.	• Introduction to cell as basic unit of life. • List the different parts of a cell. Differentiate between animal cell and plant cell.	Differences between living and non-living forms.	Creativity and imagination
3	Life cycle of a butterfly	Developmental changes in life cycle.	• Define life cycle. • Metamorphosis and its types. Identify and explain different stages of the life cycle of a butterfly	Insects that are beneficial and harmful.	Creativity and imagination
4	Parts of a plant	The structure and functions of different plant parts.	• Identify major parts of a plant. • Explain the functions of different parts of flowering plants. • Distinguish monocotyledons and dicotyledons.	Photosynthesis. Uses of plants.	Critical thinking Creativity and imagination

5	Life processes	Life processes in living organisms. Relationship between living and non-living things.	• Explain different life process in living organisms. • Differences between autotrophic and heterotrophic organisms. • Explain relationship between plants and animals for food.	Autotrphic and heterotrophic mode of nutrition.	Critical thinking Creativity
6	Effects of human activities on environment.	Causes, effects and preventive measures of pollution and natural disasters.	• Describe various activities of human beings that affect the environment. • Explain the causes and effects of environmental pollution. • Describe about natural disasters like flood, landslide and soil erosion.	Define environment and its components.	Critical thinking Creativity Digital literacy
7	Environment conservation	Importance and methods of environmental conservation	• Introduce importance of environment and its components. • Explain various methods of conservation of environment.	Ways to maintain environmental cleanliness	Critical thinking Creativity Digital literacy
8	States of matter	Matter and arrangement of molecules in different states of matter.	• Define matter and changes in state of matter. • Describe how particles are arranged in solids, liquids and gases. • Explain melting, freezing, sublimation, evaporation and condensation.	Things around us State of matter	Critical thinking creativity

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Course Name: Science		**Class: VI**	**Term: 1st**	**Year:** 2076	**Total Annual Working Day**: 241
Instructor: Sunita Lama		**Contact: 9860365**28	**Email: ghlaansunita@gmail.com**		**Total Working Days First Term:** 69
S. NO	**LESSON**	**COURSE OVERVIEW**	**OBJECTIVE**	**PREREQUISITES**	**SKILLS SUPPORTED**
1	Measurement	Importance of measurement. Different systems of units and numerical.	• Importance of measurement. • Introduction of local and standard systems of measurement. • Describe different systems of units in measurement. • Relation between multiples and sub-multiples of length, mass and time.	Basic mathematical operational skill.	Critical thinking Problem solving
2	Force and motion	Effects of force. Types of motion. Speed vs velocity.	• Describe force and its effects. • Types of motion. • Define speed, velocity and numerical.	Basic mathematical operational skills.	Critical thinking. Creativity. Problem solving.
3	Machine	Uses and types of machines .	• Define a simple machine and list the ways by which it makes our work easier. • Write about various simple machines with examples briefly.	Machines and their relevance in daily life.	Critical thinking creativity
9	Matter	Matter and its states. Changes in states of matter.	• Define matter and interpret its physical properties. • Demonstrate the inter-relation between different states of matter. • Demonstrate the change of states of matter and describe its uses. • Define element, compound and mixture with examples and describe their properties.	Define matter and its properties.	Critical thinking creativity

10	Mixture	Uses and types of mixtures. Separation techniques.	• Introduce a mixture and describe homogeneous and heterogeneous mixtures with examples. • Demonstrate experimentally the methods of separation of components from a heterogeneous mixture. • Describe the importance of mixture.	Definition of mixture and their uses.	Critical thinking Imagination creativity
14	Plants around us	Classify animals and their features. Features of plants.	• Describe the organism found in different habitats. • Differentiate between plants and animals. • Classify plants on the basis of their habitat. • Differentiate between monocotyledonous and dicotyledonous plants. • Classify animals on the basis of their adaptation. • Briefly describe different types of animals on the basis of their habitat. • Classify invertebrates.	Differences between plants and animals.	Critical thinking Creativity
16	Classification of plants	Classification of plants.	• Classify plants on the basis of flowering and non-flowering features • Explain the characteristics with suitable example.	Features of plants	Critical thinking Creativity
17	The earth	Internal and external features of the earth	• General introduction to the earth. • Describe external and internal structure of the earth.	Features of earth	Critical thinking Creativity

21	Environment and its balance	Components of environment and its importance .	• Introduce environment and write its importance. • Describe abiotic and biotic components and their inter-relation. • Interpret importance and necessity of environmental balance to contribute to natural balance.	Environment and its components	Critical thinking creativity

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Course Name: Science	**Class: VII**	**Term: 1st**	**Year:** 2076	**Total Annual Working Day**: 241
Instructor: Sunita Lama	**Contact:9860365628**	**Email: ghlaansunita@gmail.com**		**Total Working Days First Term:** 69

S. NO	LESSON	COURSE OVERVIEW	OBJECTIVE	PREREQUISITES	SKILLS SUPPORTED
1	Measurement	Measurement and its importance. Importance of SI unit. Area and volume of regular and irregular bodies.	• Define: fundamental quantities/units and derived quantities/units, regular bodies and irregular bodies, area and volume with their SI units • Determine area and volume of irregular bodies. • Solve simple numerical problems related to area and volume.	Define measurement and its importance.	Critical thinking and problem solving
2	Force and motion	Force and its effects. Numerical.	• Describe the different types of force. • Introduce distance and displacement. • Define speed, velocity and its types and acceleration. • Solve numerical problems of speed, velocity and acceleration.	Force and its units.	Critical thinking and problem solving. creativity
3	Machine	Uses and types of machine. numericals	• Define a simple machine and list the ways by which it makes our work easier. • Identify and define different types of simple machines. • Uses of simple machines.	Uses and importance of machine	Critical thinking and problem solving

11	Elements and compounds	Describe general states and properties of matter. Define element, compound, mixture, atom, molecules, valency and radicals. Write the molecular formulae of simple compounds	• Describe general states and properties of matter. • Write the name and the symbol of elements. • Define element, compound, mixture (its types), atom, molecules, valency and radicals. • Write the molecular formulae of simple compounds • Describe physical and chemical changes in short.	Matter and its properties	Critical thinking and problem solving Creativity and imagination
12	Mixture	Types of mixture Separation techniques	• Describe and demonstrate the separation of the mixture of solids and liquids by using different methods. • Describe the uses of mixture. • Introduce a solution and distinguish between dilute and concentrated solutions. • Introduce saturateds of solutions, unsaturated and supersaturated solutions with examples and demonstrate them. • Describe the uses in our daily life.	Mixture and their uses	Critical thinking creativity
15	Vertebrates	Classify vertebrates	• Classify vertebrates. • Describe the life cycle of a frog.	Vertebrates and its classes	Critical thinking
16	Classification of plants	Classification of plants	• Classify plants on the basis of flowering and non-flowering features • Explain the characteristics with suitable example.	Features of plants	Critical thinking

22	The earth and the space	Describe solar system and planets	• Describe the solar system and the sun briefly • Introduce planets and stars and differentiate between them. • Identify major constellation.	Planets and their features	Creativity and imagination
23	Environment and its balance	Components and importance of environment. Efforts to maintain balance in environment.	• Classify the natural resources into perpetual, renewable and non-renewable resources. • Describe water resources, wetlands, and water sheds with their importance, necessity and conservation means. • Describe the role of human beings to maintain the balance in nature.	Define environment. Inter-relationship between living and non-living things	Critical thinking Citizenship Creativity Problem solving

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CourseName: Science	Class:8	Term:First	Year: 2076	Total Annual Working Day: 241
Instructor: Upama K C	Contact:	Email: upamabrt@gmail.com		Total Working Days First Term: 69

S. NO	LESSON	COURSE OVERVIEW	OBJECTIVE	PREREQUISITES	SKILLS SUPPORTED
1.	PHYSICS: MEASUREMENT	This chapter introduces students to fundamental and derived quantities, standard system of Measurement and measurement of mass, weight and time	On completion of this lesson, Students will be able to: Tell the importance of measurement Define fundamental units and derived units Identify the units of mass, time and weight in different measurement systems	Students should have basic knowledge of measurement and commonly used methods of measurement.	**Collaboration and communication-** Students will be working in groups (measure the mass of different objects and suggest the appropriate unit etc.) **Problem solving**- Conversion of units (as per requirement in daily activities)
2.	PHYSICS: FORCE VELOCITY AND ACCELERATION	This chapter help students to understand uniform and non-uniform motion, uniform and non-uniform velocity, relative velocity and acceleration.	After this lesson, students will be able to: Define the reference point in relation to the position of an object Describe average velocity and relative velocity Introduce acceleration and retardation write the equations related to velocity and acceleration and use them solve simple numerical problems related to velocity and acceleration	Students should have basic concept of rest and motion.	**Critical thinking and problem solving** (Analyse the speed/velocities of different vehicles and calculate time period required to travel certain distances using equations of motion) **Communication and collaboration**
3	CHEMISTRY: MATTER	This chapter is about structure of atom. Students will learn about valency and electronic configuration of 20 elements.	After this lesson, students will be able to: Write briefly about the structure of atom and its component (electron, protons and neutrons) Define atomic number and atomic mass Define molecular weight and calculate it	Students should have basic knowledge of element and structure of atom.	**Communication and collaboration** **Leadership and Personal development** (Students will make the atomic model of different elements using available resources like mud, paper, wire, beans etc. and explain it.)

			Write briefly about electronic configuration of different elements Introduce Mendeleev's periodic table Determine valency of first 20 elements by observing their atomic structure Write the molecular formulae of compounds write and balance the chemical equations for a chemical reaction		
4	BIOLOGY LIVING BEINGS	This chapter provides brief introduction on microorganisms and explains modification of different parts of plants along with fertilization and pollination	Upon completion of this lesson, students will be able to: Introduce some microorganisms (Virus, bacteria and fungi) Demonstrate and describe the life cycle of flowering plant Demonstrate the structure of seed and tell the functions of its different parts Explain the process of dispersal of seeds Demonstrate and explain seed germination by describing the necessary conditions required for the germination of seed Describe the modification of different parts of plants and tell their functions	Students should know about parts of plants and their functions.	**Creativity and Imagination** (Students will imagine and tell a story about role of microorganisms on the basis of their existing perception regarding bacteria, virus and fungi) **Digital Literacy**- Students will click the pictures of different types of plants/ seed parts/ germination of seed (different phases and prepare a power point presentation with additional information. LABORATORY SKILL- Microscopic observation of fungi
5	GEOLOGY AND ASTRONOMY STRUCTURE OF EARTH	This chapter introduces - mineral and its properties, - main minerals of Nepal - soil formation and - soil erosion and deposition - Soil conservation	After this lesson, students will be able to: Define mineral: tell its physical properties and advantages Introduce the main minerals of Nepal like iron, copper, lead, limestone, graphite and zinc Describe the process of forming soil and show the soil profile of	Students should have basic knowledge of soil and its constituents.	**Citizenship** – Students will report about landslide or flood occurred in their locality **Leadership and personal development**- Collect the information during field visit or from secondary sources and

			their locality Describe erosion and deposition and tell the measures of soil conservation		suggest the future preventive measures. **Communication and collaboration**
6	ENVIRONMENT AL SCIENCE ENVIRONMENT AND ITS BALANCE	This chapter is about natural resources and human dependency on them and also introduce national parks, wildlife reserves and wildlife conservation area.	Students will be able to: Describe the human dependency on food, habitats, medicinal herbs and other natural resources Introduce national parks, wildlife reserves and wildlife conservation area by making a list with their short description Describe the present status of forest in Nepal, its importance and necessity Describe timber trees and important medicinal herbs and tell about protected forest products Tell the importance and necessity of animals and birds of Nepal and make a list of the endangered animals and birds Introduce some protected animals	Students should have basic concept of forests and wildlife	**Communication and collaboration**, **Digital literacy**- Students will watch a documentary about wildlife reserves/ national park of Nepal **Communication and collaboration** (Discuss about natural resources and rare animals in groups.)
7	PHYSICS SIMPLE MACHINE	This chapter introduce lever and provide short description of mechanical advantage, velocity ratio and efficiency.	Students will be able to: Introduce lever and describe its working principle Define mechanical advantage (MA), velocity ratio (VR) and Efficiency on the basis of lever Solve simple numerical problems related to MA, VR and efficiency of lever. .	Students should have basic concept of simple machine.	**Creativity and imagination**- Construction of own lever model using available resources. **Critical thinking and problem solving** **Communication**

8	CHEMISTRY	This chapter introduces steam distillation and fractional distillation as well as chromatography	Upon completion of this lesson, students will be able to: Introduce steam distillation and fractional distillation Demonstrate steam distillation and fractional distillation Describe and demonstrate the process of chromatography	The students should have basic concept of separation of compounds	**Collaboration** LABORATORY skills- Separation of different colours by chromatography in laboratory **Critical thinking**
9	BIOLOGY	This chapter introduces types of tissues and explain the interrelationship between cells , tissue and organs	Upon completion of this lesson, students will be able to: Describe the type of tissues (epithelial tissue and meristematic tissue) Tell the interrelationship between cells, tissues and organs	Students should have basic knowledge of cell and tissue	**Communication and collaboration** LABORATORY SKILL- Microscopic observation of animal tissues and plant tissues. **Digital literacy**

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CourseName: Science	Class:9	Term:First	Year: 2076	Total Annual Working Day: 241
Instructor: Upama K C	Contact:	Email: upamabrt@gmail.com		Total Working Days First Term: 69

S. NO	LESSON	COURSE OVERVIEW	OBJECTIVE	PREREQUISITES	SKILLS SUPPORTED
1.	PHYSICS: MEASUREMENT	This lesson extends the knowledge of measurement units and its application	On completion of this lesson, Students will be able to: Define fundamental and derived units and give an example each Explain SI unit with examples Show the interrelation between fundamental units and derived units	Students should have basic knowledge of measurement units	**Critical thinking and problem solving** (Use of appropriate units in daily life) **Analytical skill** (traditional methods of measurement)
2.	PHYSICS: FORCE	This lesson is about Inertia and equations of motion	After this lesson, students will be able to: Describe the uses and effects of force on the objects at rest and the objects in motion both. Define inertia of rest and inertia of motion. Explain both of them. Introduce uniform and non-uniform speed. Describe acceleration and retardation with examples. Explain the equation of motion and solve simple mathematical problems. Explain Newton's laws of motion with examples.	Students should have basic concept of rest and motion as well as equations of motion	**Critical thinking and problem solving** **Reasoning skills** (and relate it to real life experiences like jerk in outward direction when a bus suddenly stops) **Communication and Collaboration**
3.	CHEMISTRY: CLASSIFICATION OF ELEMENTS	This lesson helps students to understand valency and chemical bonds.	After this lesson, students will be able to: Define valency as a combining capacity of elements. Explain the structure of atom and its electronic configuration Describe radicals, ions and their types Write the molecular formulae of some simple compounds	Students should have basic knowledge of elements and their valency.	**Communication and collaboration** (group work for preparation of molecular model of water and methane using available resources) **Digital literacy**

4	CHEMICAL REACTIONS	This lesson helps students understand Physical and chemical change, chemical reactions and equation	Describe the types of chemical bonds in brief Upon completion of this lesson, students will be able to: Define physical and chemical change Define a chemical equation and its components Represent chemical reaction in the form of chemical equations and methods of their balancing	Students should have basic concept of chemical equation	**Critical thinking and problem solving** **Communication and collaboration** **Analytical skill**
5	BIOLOGY CLASSIFICATION OF PLANTS AND ANIMALS	This lesson introduces classification of animals and plants and lifecycle of mosquito	After this lesson, students will be able to: Classify plants up to subdivision and explain their characters with suitable examples. Classify animals up to class and explain their characters with suitable examples Describe the structure and lifecycle of mosquitoes with diagrams prepare a list of adverse effects of mosquitoes on human beings	Students should have basic concept of classification of animals and plants	**Communication and collaboration** Observation, identification and classification **Analytical skill**
6	NATURE AND ENVIRONMENT	This lesson introduces ecosystem and climate change	After this lesson, students will be able to: Identify the factors of ecosystem Introduce Ecosystem Define autotrophism and heterotrophism Describe the impact of climate change Interpret the dependence of human beings on other organisms (Food, cloth and shelter).	Students should have basic knowledge of ecosystem	**Critical thinking and problem solving** **Report writing** (water bodies like lake, pond etc. and their ecosystem)

7	PHYSICS MACHINE	This lesson will help students to understand simple machine and law of moment	Students will be able to: Describe mechanical advantage, Velocity ratio and efficiency of a simple machine (lever,pulley, wheel and axle and inclined plane) Solve numerical problems related to mechanical advantage, velocity ratio and efficiency of the simple machines Describe the law of moment in lever with examples.	Students should have basic concept of simple machines	**Critical thinking and problem solving** **Communication and Collaboration**
8	CHEMISTRY (SOLUBILITY)	This lesson introduces solubility, solution and crystallization	Students will be able to: Define solution and its types Prepare saturated and unsaturated solution Define solubility of a substance Define supersaturated solution Define the relation between solubility of a substance and temperature Describe crystallization.	Students should have basic concept of solution	**Analytical skill** **Laboratory skill** (Obtaining crystals from Copper sulphate solution) **Collaboration**
9	BIOLOGY Adaptation of Organisms	This lesson will help students understand adaptation of organism	Upon completion of this lesson, students will be able to: Describe the adaptational characters of animals and plants of different habitats with examples Introduce microorganisms (virus, bacteria, fungi and protozoa) and make a list of disease caused by them	Students should have basic knowledge about adaptation and habitat of organisms	**Critical thinking and problem solving** **Laboratory skill**: Microscopic observation of fungi and protozoa **Communication and collaboration**

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CourseName: Science	**Class:10**	**Term:First**	**Year: 2076**	**Total Annual Working Day**: 241
Instructor: Upama K C	**Contact:**	**Email: upamabrt@gmail.com**		**Total Working Days First Term:** 69

S. NO	LESSON	COURSE OVERVIEW	OBJECTIVE	PREREQUISITES	SKILLS SUPPORTED
1.	PHYSICS: FORCE	This lesson will help students understand about gravitation, gravity, free fall and weightlessness	After this lesson, students will be able to: Explain Newton's law of gravitation and its application Differentiate between gravity and gravitation differentiate between mass and weight Express the units of mass and weight Explain free fall and weightlessness	Students should have basic concept of gravity	Critical thinking and problem solving Reasoning skills Digital literacy
2.	CHEMISTRY: CLASSIFICATION OF ELEMENTS	This lesson helps the students to enhance their knowledge on periodic table and the position of elements in table	After this lesson, students will be able to: Interpret the periodic table Explain the position of elements in periodic table	Students should have basic knowledge of periodic table	Critical thinking and problem solving Digital literacy
3.	CHEMICAL REACTIONS	This lesson help the students understand chemical reactions and chemical equation	Upon completion of this lesson, students will be able to: Classify the different types of chemical reactions Translate chemical reactions to chemical equations	Students should have basic knowledge of chemical reactions	Analytical skill Memorization Communication and collaboration
4	BIOLOGY INVERTEBRATE	This lesson will help students understand life cycle of silk worm and honey bee	After this lesson, students will be able to: Explain the external structure of silk moth and honeybee create a presentation on life cycle of silk worm and honey bee Learn the uses of silkworm and	Students should have basic knowledge of insects	Critical thinking and problem solving Communication and collaboration

			honeybee		
5	ENVIRONMENTAL POLLUTION AND ITS MANAGEMENT	This lesson introduces types of pollution and forest conservation	After this lesson, students will be able to: Describe the causes, effect and preventive measures of air pollution, water pollution and land pollution enlist the pollutants Suggest and implement the ways of forest conservation and management Describe the ways to conserve and manage the sources of water	Students should have prior knowledge of pollution and its types	Communication and collaboration (Class discussion on pollution and ways to prevent it) Digital literacy (Presentation)
6	PHYSICS PRESSURE	This lesson introduces Liquid pressure, up thrust and floatation	Students will be able to: Demonstrate liquid pressure with an experiment Verify Pascal's Law Interpret the application of Archimedes' principle in our daily life with examples Demonstrate the law of floatation Describe atmospheric temperature and its use (Barometer, Syringe, Water pump and air pump).	Students should have basic knowledge of pressure	Analytical and scientific reasoning skill Communication and collaboration
7	CHEMISTRY ACID, BASE AND SALT	This lesson will help students understand about acid, base and salt	Students will be able to: Define acid, base and salt Explain the general characteristics of acid, base and salt Identify the uses of acid, base and salt. .	Students should have basic concept of acid, base and salt	Information retrieval Scientific writing Analytical skill
8	BIOLOGY Human Nervous and Glandular system	This lesson introduces Nervous and glandular system	Upon completion of this lesson, students will be able to: explain the importance of hormones in human body explain the importance of nervous system and reflex	Students should have basic knowledge of organ system of body	Analytical skill Data presentation (Digital literacy) Communication and collaboration

			action in short Interpret the functions and interrelate the brain and nervous system		
9	HISTORY OF EARTH	This lesson will help students understand about rocks and fossilization process	Upon completion of this lesson, students will be able to: Explain the history of the earth studying rocks and fossils Describe the evolution of living beings on the basis of the evidence of fossils interpret the mechanism of fossilization and formation of fossil fuels Describe the importance of mineral fuel	Students should have basic concept of rocks and fossils	Creativity and imagination Communication and collaboration Digital literacy
10	PHYSICS (ENERGY)	This lesson introduces sources of energy and energy crisis as well as alternative sources of energy	As a result of this lesson, students will be able to: • Explain energy /fuel with examples • Describe the sources of energy and their importance • Explain the Sun as the ultimate source of energy • Identify the chief factors of energy crisis and ways to mini mize energy crisis • Identify and describe the alternative sources of energy in our daily life • Describe the measures of energy conservation with examples	Students should have basic knowledge of sources of energy	Critical thinking and problem solving Communication and collaboration Digital literacy
11	CHEMISTRY (SOME GASES)	This lesson will help students understand properties and preparation of Carbon dioxide and	Students will be able to • Describe the laboratory preparation, manufacture, properties and uses of carbon dioxide and Ammonia	Students should have basic knowledge of ammonia and carbon dioxide gas	Practical skill (laboratory) Communication and collaboration

		ammonia gases			Digital literacy
12	BIOLOGY (BLOOD CIRCULATION IN HUMAN BODY	This lesson will help students understand about circulatory system	Upon completion of this lesson, students will be able to: Write the functions of the blood and its composition Describe blood circulation with diagram Introduce blood pressure, blood sugar and uric acid	Students should have basic knowledge of blood circulation	Understanding system of body Communication and collaboration Digital literacy