SMA YEAR PLAN

SUBJECT: Integrated Science YEAR: 2019- 2020 FORM: 5A2 - 5A4

TERM 1

WEEK NO	TOPICS/CONTENT	OBJECTIVES	SUGGESTED TEACHING AND LEARNING ACTIVITIES	RESOURCES
		Students will be able to:		
1	HEALTH and SANITATION Good personal and community hygiene Conditions that encourage the breeding of household pests and diseases Household Pests and Parasites Methods of control Lifecycle of a mosquito or housefly The implications of uncontrolled methods used to prevent food Contamination	 Discuss the need to practice good personal and community hygiene. Explain the importance of proper disposal of waste, adequate toilet and sewage disposal facilities, garbage collection and disposal. Differentiate between pests, parasites and pathogens. Cockroaches, flies, rats, mosquitoes Distinguish between Biological, chemical and mechanical control Identify the stages in the lifecycle of a housefly or mosquito Outline different types of Infections by pathogens; Ways in which food is contaminated. Differentiate between Domestic, industrial, biological, chemical and	Diseases associated with poor hygienic conditions Draw the life cycle and identify the developmental stages of a common household pest	

	Different Types of waste Ways to reduce pollution The impact of solid waste on the environment	electronic waste produced by human activities. Bio-degradable and non bio-degradable waste. Relate to Reduce, reuse, and recycle as means of reducing pollution and saving energy. Discuss ways by which Pollution of potable water, increases pest population. Predict the consequences and assess the effects of unsanitary conditions on the spread of pathogenic microorganisms and parasites.		
2 - 3	TEMPERATURE CONTROL & VENTILATION Methods of heat transfer Temperature control in household appliances Thermometers Sweat and the role it plays in keeping the body cool The need for Ventilation	Describe the methods of heat transfer and their applications. Explain the principle by which thermostatically controlled household appliances operate. Describe the types of thermometers in relation to the principles by which they work. Explain the cooling effects of evaporation. Explain the need for proper ventilation.	Simple experiment to demonstrate heat transfer in solid objects Students will identify features of the school and their homes which promote proper ventilation	

4 - 5	METALS & NONMETALS Uses and properties of Non metals The reactivity of metals Use and properties of metals	 Identify different types of non-metals used in everyday life Discuss the advantages and disadvantages of using plastic. Compare the reactivity of metals. Discuss the advantages and disadvantages of using cooking or canning utensils made of aluminum Discuss the benefits of using alloys to make household items.	 Students will discuss public awareness on issues of solid waste in the environment Observe which metals react with dilute acid and which do not; simple word equations to show their reaction.	
6	Corrosion and Rusting of Metals	discuss the conditions which cause rusting; identify the factors which affect the rate of rusting discuss the methods used to reduce or prevent rusting of iron and Steel	Controlled Experiment to show that air and Moisture are necessary for rusting	
7 - 9	ACIDS, BASES & MIXTURES Household Chemicals Acids Bases and Salts	 Discuss the uses of some common household chemicals. Distinguish among acids, bases and salts.		

	Solutions, Suspensions and Colloids Techniques used to separate Mixtures The use of disinfectants and Antiseptics Scouring Powders and Detergents Hard and Soft Water	Distinguish among solutions, suspensions and colloids. Describe various techniques used to separate mixtures. Discuss the safe and economic use of some common household chemicals. Explain the cleaning actions of scouring powders and detergents on household appliances. Distinguish between hard and soft water. Distinguish between soapy (soap) and Soapless detergents.		
10-12	TERRESTRIAL ENVIRONMENT Soil formation , functions and fertility Soil Erosion Natural Cycles; Nitrogen, Oxygen, Carbon	Discuss the factors which influence soil formation. Compare the types and functions of soils. Relate soil fertility to the physical and chemical properties of soil. Identify causes of soil erosion and methods of prevention;	Sedimentation tests. Percentage of air, pH of soils, drainage, water retention. Label diagram of soil profile	

TERM 2

WEEK NO	TOPICS/CONTENT	OBJECTIVES	SUGGESTED TEACHING AND LEARNING ACTIVITIES	RESOURCES
1	TERRESTRIAL ENVIRONMENT Air movements Earthquakes and Volcanoes Tides	Describe the oxygen, carbon, water and nitrogen cycles; Describe the various types of air masses distinguish among the four types of local fronts. Describe the characteristics of a cyclonic storm Explain the causes of the different types of volcanic eruptions discuss the relationship between earthquakes and volcanoes Describe tidal waves. Describe how tides are formed	Laboratory exercise to determine the air content of a sample of soil	
2	Planning and Design Labs			
3- 4	FORCES Types of forces The effect of force on a object The importance of the force of friction	Apply the basic principles of forces in everyday life Outline the effect of the force of gravity on objects moving in a straight line and those moving along a circular path		

	The force of gravity Center of gravity	Explain the relationship between the height of the center of gravity of an object and its stability Outline the conditions for equilibrium under parallel forces Explain the types of equilibrium	Practical exercise: Find the center of gravity for regular and irregular objects	
5 - 7	ELECTRICITY Electrical conductors Current, Voltage, Resistance Plugs and Fuses Calculating the size of a fuse Using Electrical Energy Electricity Bills Conserving Electrical Energy	Discuss the use of good and poor conductors of electricity Explain the relationship between voltage, current and resistance in circuits. Explain how a fuse works as a safety device. Calculate the amperage for fuses and flexes needed for household appliances; calculate the energy consumption of different electrical appliances Calculate electricity bills Outline energy Conservation measures	Construct electrical circuits in series and parallel Determine what materials are good conductors and which are poor conductors of electricity. Perform calculations to deduce the size of fuse to be used in circuit Calculate electricity bill given the amount of energy used and the fixed charges assigned to the bill	
7	FOSSIL FUELS & ALTERNATIVE SOURCES OF ENERGY Fossil Fuels	Identify the various types of fossil fuels;		

	Combustion and fossil fuels Environmental Problems of Burning fossil fuels Alternative sources of Energy	Identify the energy obtained petroleum as stored energy; Discuss problems associatec with the use of fossil fuels; Identify alternative sources energy. Discuss variables affecting s wind energy. Appraise the extent to whicl alternative sources of energy used in the Caribbean.		
8	CONSERVATION OF ENERGY Concept of Energy Conservation of energy Transport and Transfer of Energy Conservation of Momentum	Explain the concept and unit of energy; Discuss the inter-conversion and conservation of mass Energy. Discuss the transport and transfer of energy; Explain the principles of momentum conservation	Perform calculations to prove the principle of momentum	
8	MACHINE AND MOVEMENT Simple machines Levers Energy conversion in	Explain the functions of simple machines Compare the different types of levers Discuss the principles of mechanical advantage and energy conversion	Perform calculations on MA and Energy conversion with	

	machines The Inefficiencies of Machines	Discuss factors that contribute to the inefficiencies of machines and ways of overcoming their influences	respect to simple machines	
9 - 10	WATER & THE AQUATIC ENVIRONMENT The Role of Water in Life Water Treatment The Properties of Water Floatation Water Pollution Fishing Navigational and water safety devices used at sea	Explain the uses of water; Describe methods of purifying water Discuss the chemical and physical properties of water state the conditions for flotation Discuss the effects of water pollution on aquatic life; Describe the various methods used locally for fishing Describe the various navigational devices used at sea	Relate the use of water in the life processes; digestion, excretion Students will outline methods they used at home to treat water after the passage of the hurricane. Discussion on the extent of water pollution on St,Maarten with emphasis on the lagoon	