

SYLLABUS FOR NSF JSC SCIENCE (GRADES 1, 2 AND 3)
(Adapted from SCIENCE – A CLOSER LOOK, Books 1, 2 and 3)

LIFE SCIENCES

I. Plants:

What are the different parts of a plant? How many kinds (deciduous, evergreen etc.) of plants do you know? How are plants alike and different? What do plants need to survive? Terms to understand: Plant Life Cycle, Germination, Photosynthesis, and Pollination.

II. Animals:

How are animals and animal groups identified? How are animals classified (mammals, reptiles, amphibians, fish, birds, insects etc)? How do animals grow and change? What tactics do animals use to stay alive and survive? Terms to understand: Herbivore, Omnivore, Carnivore, and Scavenger; Endangered species; Extinct Animals – dinosaurs, ammonites, Trilobites

III. Ecosystems:

What are different types of Ecosystems, Food Chains and Food Webs? How does weather impact plants and animals? How do plants and animals adapt (beak, wing etc.)? Terms to understand: Interaction with Environment, Predators, Prey, Camouflage and Mimicry, Energy Pyramid, Hibernation.

IV. Habitats

What are the various plant and animal habitats (Desert, Arctic, Pond, Woodland Forest, Wetlands, Coral Reef etc.)? How and why do habitats change?

V. Human Body and Health

Terms to understand: Permanent Teeth, Skeleton, Bones, Muscles, Heart, Lungs, Heart Rate, Digestion, Saliva, Stomach, Intestine, Brain, Nerves, Sensory, Body Care, Cleanliness, Exercise, Germs, Illness, Prevention

EARTH SCIENCES

I. Geology:

- a.** Rotation and Revolution: What are the concepts underlying Day, Night, Sunrise, Sunset, Seasons, Year? Terms to understand: Latitudes, Longitudes, Tilt
- b.** Landforms: Terms to understand: Plains, Islands, Barrier islands, Peninsula, Mountains, Valleys, Plateaus, Cliff, Bay, Canyon, Glaciers, Mesa, Bank, Coast, Delta, Estuary, Lake, Pond, River, Hill, Loess, Archipelago

- c. Topography: Terms to understand: Core, Mantle, Crust, Volcanoes, Magma, Lava, Geysers, Earthquakes, Erosion and weathering, Types of rocks-Metamorphic, Igneous, Sedimentary; Types of soil – Sandy, Clay, Topsoil, Humus, Loam, Boulder, Bedrock; Role of earthworms;
- d. Resources: What are Renewable and non renewable resources? How do we conserve: Air, Water, and Minerals? Terms to understand: The 3 Rs of Conservation – reuse, reduce and recycle
- e. Fuels and fossils, Paleontologist

II. Weather:

Terms to understand: The Water Cycle , Changes in Weather, Atmosphere, Evaporation, Condensation, Precipitation, Water Vapor, Temperature, Clouds – stratus, cirrus, cumulus, cumulonimbus; Drought, Storms, Tsunamis, Wind, Meteorologist, Weather Instruments – thermometer, wind vane, anemometer

III. Space

Terms to understand: Planets, Moons, Stars, Natural Satellites, Asteroids, Comets, Constellations, Lunar eclipse, Solar eclipse, Phases of moon, Telescope

PHYSICAL SCIENCES

I. Matter

- a. Physical properties: Mass, Solid, Liquid, Gas, Hardness, Mixtures, Reversible, Irreversible, Combustion, Physical change, Chemical Change
- b. Composition: atoms, elements, molecules, compounds
- c. Measurements: How are solids and liquids measured? Terms to understand: Ruler, Balance, Distance, Units (gram, kilogram, inches, centimeters, feet, meters, pounds, ounces, gallon, quarts), temperature (thermometer), Volume.

II. Force and Motion

- a. Position, motion, gravity. How are motion, speed and work measured?
- b. Simple Machines – Inclined Plane, Wheel and Axle, Lever, Screw, Wedge, Pulley

III. Energy

- a. What are Potential and Kinetic Energy? What are different forms of Energy (Sound, Light, Thermal, Magnetic, Electrical)?
- b. Electricity and Magnetism: What are magnets? Terms to understand: concept of North and South poles, Attraction and Repulsion; Compass, Circuit, Current, Battery, Switch, Light Bulb, Conductors, Insulators, Electrons, Electromagnet, Static Electricity – Wool, Balloon, Comb;
- c. Sound: How does sound travel? How are sounds made and heard? Terms to understand: Vibration, Loudness, Pitch, Sonar, and Music.

- d. Light: What is a mirror? Terms to understand: Reflection, Refraction, Absorption, Shadow, Transparent, Translucent, Opaque, Spectrum, and Prism.
- e. Heat: Terms to understand: Evaporation, Condensation. What is Heat? How is it transferred through Conduction, Convection, and Radiation?

SCIENTIFIC ENQUIRY

Terms to understand: Scientific Methods, Hypothesis, Experiment, Observation, Bar Graph, Line Graph, Data Table, Conclusion, Fact Vs Opinion, Evidence, Measuring, Organize Data, Mass, Length, Temperature, Weight, Bar Graph, Pictograph; Personalities - Thomas Edison, Louis Pasteur, Rachel Carson, Edward Jenner, Isaac Newton, Galileo Galilei