Teda International School
Science: Kindergarten-Grade 5

Kindergarten

LS1. Learners will be able to generate questions that are important to the study of the natural world.

a. Asks questions to find answers

LS2. Learners will be able to collect and record observations and data.

a. Use nonstandard measures to estimate and compare the sizes of objects.
b. Represent information in bar graphs.
c. Construct a simple explanation by analyzing observational data.
d. Recognizes that errors can exist within experimentations.
e. Uses five senses to make and record observations
f. Observe and record daily changes in weather (e.g., clouds or air temperature).
g. Describe how weather and forecasts affect people's lives.

LS3. Learners will be able to use a range of scientific methods and techniques to develop and test ideas and explanations.

a. Record observations and thoughts in notebooks.

LS4. Learners will be able to analyse and evaluate data to explain results.

a. Makes simple comparisons

LS5. Learners will be able to explore interconnected ideas and topics.

a. Describe ways that humans influence their environment (e.g., littering, recycling, car pooling)

LS6. Learners will be able to share and justify thinking.

a. Explain why anyone can be a scientist.
b. Identify ways (e.g., create things, ask questions, make observations, figure things out) that everybody can do science.
c. Identify ways scientists work together to solve problems (e.g., share results, teamwork, investigate).

LS7. Learners will be able to use critical thinking skills to evaluate and improve progress.

U1. Learners will understand the characteristic properties of matter and the relationship of these properties to their structure and behaviour.

a. Sorts objects by simple material properties
b. Explores how the shape of objects changes
c. Identify the materials that make up an object. (e.g., desk is made up of wood and metal, bike is made up of metal, rubber, and plastic).
d. Identify the observable properties of different objects, such as color, size, shape, weight and texture.
e. Identify matter that can be a liquid or solid (e.g., water).
f. Use non-standard units of measure (e.g., string, paper clips) to compare the size and weight of non-living materials.

U2. Learners will understand that energy can be transferred usefully, stored, or dissipated, but cannot be created or destroyed

a. Classify objects in terms of their relative temperature (e.g., hotter and colder).

b. Demonstrate and identify sounds as soft or loud.
c. Understands the usefulness of electricity
d. Explores and describes familiar movement
e. Identify natural sources of light (e.g., sun, fire, lightning) and artificial sources of light (e.g., light bulbs, candles).
f. Identifies sources of light and sound
g. Describe the effects of the sun's energy on different materials.
h. Describe spatial relationships (i.e., above, below, next to, left, right, middle, center) of objects.
i. Describe the position of an object by referencing its location in relation to another object or background.
j. Assemble, take apart, and reassemble construction s using interlocking blocks, erector sets, etc.

U3. Learners will understand the origin, evolution, and structure of the universe.

a. Explain that there are more stars in the sky than anyone can easily count.
b. Identify objects in the day and night sky (e.g., moon, stars, or sun).
c. Identify that the moon and stars are usually seen at night.

U4. Learners will understand how the earth's surface is formed and the processes that affect other Earth systems.

a. Observe seasonal and weather changes throughout the school year.
b. Identify the earth materials (i.e., rocks, soil, water, air) found in aquatic and terrestrial environments.
c. Use the senses to observe and then describe the physical properties of various materials.
d. Identify the composition of Earth (including rocks, sand, soil, and water).
e. Compare temperatures (i.e., cold, cool, warm hot).

U5. Learners will understand that all life forms, at all levels of organisation, use specialised structures and similar processes to meet life's needs.

a. Distinguish between living and nonliving things.
b. Investigate how living things grow and change.
c. Sort animals and plants by observable characteristics.

U6. Learners will understand that ecosystems display patterns of organisation, change, and stability as a result of the interactions and interdependencies among the life forms and the physical components of the Earth.

a. Identifies characteristics of living things.
b. Identify basic needs of plants and animals: food, water, light, air, space.
c. Identify different environments (i.e., desert, ocean, forest) support the life of different types of plants and animals.
d. Observe how the living things in an environment change with the seasons (e.g., trees lose their leaves in the winter).

U7. Learners will understand the transmission of traits in living things.

a. Describe the major stages that characterize the life cycle of the frog and butterfly as they go through metamorphosis.
b. Describe plant development and growth.
c. Describe how plants and animals usually resemble their parents.

C1. Learners will communicate effectively with teachers and classmates.

C2. Learners will contribute positively to the school learning community.

C3. Learners will appreciate and respect the diversity and unity of multicultural environments.

C4. Learners will demonstrate responsible behaviour towards society and the environment.

a. Use appropriate safety procedures.
b. Identify safety rules for school and home.

Grade 1

LS1. Learners will be able to generate questions that are important to the study of the natural world.

a. Decides how to find answers to questions

LS2. Learners will be able to collect and record observations and data.

a. Uses first-hand experience to gather data
b. Observe, identify and record changes in weather and effects on living organisms.
c. Describe weather by measurable quantities such as temperature and precipitation.

LS3. Learners will be able to use a range of scientific methods and techniques to develop and test ideas and explanations.

LS4. Learners will be able to analyse and evaluate data to explain results.

a. Compare expected and actual outcomes

LS5. Learners will be able to explore interconnected ideas and topics.

LS6. Learners will be able to share and justify thinking.

LS7. Learners will be able to use critical thinking skills to evaluate and improve progress.

U1. Learners will understand the characteristic properties of matter and the relationship of these properties to their structure and behaviour.

a. Sorts objects by property and types of material
b. Explores how objects change with external stimuli
c. Describe objects in terms of what they are made of and their physical properties.
d. Compare, sort and group objects in terms of what they are made of (e.g., clay, cloth, paper, or metal).
e. Use attributes of properties to state why objects are grouped together (e.g., things that roll, things that are rough).
f. Identify, compare, and sort objects by similar or different physical properties (e.g., size, shape, color, texture, smell, weight).

g. Identify and compare solids (e.g. have a definite shape) and liquids `(e.g. take the shape of their containers).
h. Investigate and recognize water can change from a liquid to a solid (freeze), and back again to a liquid (melt), as the result of temperature changes.
i. Use simple tools (e.g. balance scale, see-saw) to explore the property of weight.
j. Observe and sort objects that are and are not attracted to magnets.
k. Describe how the properties of certain materials can change when specific actions are applied to them, such as freezing, mixing, heating, cutting, dissolving and bending.

U2. Learners will understand that energy can be transferred usefully, stored, or dissipated, but cannot be created or destroyed.

a. Observe how energy does things (e.g., batteries, the sun, wind, electricity).
b. Identify some examples where heat is released (e.g., burning candles, rubbing hands, running).
c. Describe that heat can be produced (e.g., burning, rubbing, mixing some substances).
d. Demonstrate how sound is made in a variety of ways (e.g., singing, whispering, striking an object).
e. Demonstrate how sound can change in pitch and volume.
f. Understands simple electrical circuits
g. Understands the forces of push and pull
h. Observe and record shadows at different times of the day.
i. Identifies qualities of light/dark,
j. Identify the sun as the main source of the Earth's light and heat energy.
k. Describe and demonstrate how the position and motion of an object can be changed by applying force, such as pushing and pulling.
l. Compare the effects of force (pushes or pulls) on the motion of an object.
m. Explore the effects some objects have on others even when the two objects might not touch (e.g., magnets).
n. Describe the properties of magnetism and demonstrate how magnets can be used to move some things without touching them.
o. Describe and demonstrate that things close to the Earth drop to the ground unless something supports them.
p. Examine simple machines and the forces (pushes and pulls) involved.

U3. Learners will understand the origin, evolution, and structure of the universe.

a. Explain that the patterns in the sky remain stable but appear to move across the sky because of the Earth's motion.
b. Observe that the sun can be seen only in the daytime, but the moon can be seen sometimes at night and sometimes during the day.
c. Observe and discuss the importance of objects in the day and night sky.

U4. Learners will understand how the earth's surface is formed and the processes that affect other Earth systems.

a. Observe and record seasonal and weather changes throughout the school year.
b. Use the senses to observe and describe the properties of a variety of earth materials (i.e., rock, soil, sand, water).
c. Describe the observable properties of water (including the fact that it takes the shape of its container, flows downhill, and feels wet).
d. Identify the composition of Earth (including rocks, sand, soil, and water).

e. Identify which materials are best for different uses (e.g. soils for growing plants, sand for the sand box).
f. Identify different uses (e.g. building materials, sources of fuel) of Earth's materials based on their properties.
g. Investigate and report how sunlight affects plant growth.

U5. Learners will understand that all life forms, at all levels of organisation, use specialised structures and similar processes to meet life's needs.

a. Identify the basic needs of most animals (i.e., air, water, food, shelter).
b. Observe that animals need water, air, food, and shelter/space to grow and reproduce.
c. Investigate and describe how living things grow and change.
d. Identify and compare the physical structures of a variety of plants (e.g., stem, leaves, flowers, seeds, roots).
e. Describe and classify the physical structures of a variety of animals (e.g., sensory organs, beaks, appendages, body covering).

U6. Learners will understand that ecosystems display patterns of organisation, change, and stability as a result of the interactions and interdependencies among the life forms and the physical components of the Earth.

a. Defines life cycle
b. Investigate and explain that plants need light energy from the sun to make food, while animals need to eat plants and/or other animals as their food.
c. Identify different environments (i.e., pond, forest, meadow) support the life of different types of plants and animals.
d. Identify the ways in which an organism's habitat provides for its basic needs (plants require air, water, nutrients, and light; animals require food, water, air, and shelter).

U7. Learners will understand the transmission of traits in living things.

a. Sequence the life cycle of a plant or animal when given a set of pictures.
b. Illustrate complete metamorphosis (e.g., butterfly, frog).
c. Investigate and describe how particular animals have offspring that are the same kind of animal.
d. Identify the specific functions of the physical structures of an animal (e.g. webbed feet for swimming).

C1. Learners will communicate effectively with teachers and classmates.

C2. Learners will contribute positively to the school learning community.

C3. Learners will appreciate and respect the diversity and unity of multicultural environments.

C4. Learners will demonstrate responsible behaviour towards society and the environment.

a. Follows simple instructions to control risks

Grade 2

LS1. Learners will be able to generate questions that are important to the study of the natural world.
   a. Predicts and evaluates testing procedures

LS2. Learners will be able to collect and record observations and data.
   a. Communicates findings in variety of ways
   b. Describe weather by measurable quantities such as temperature, wind direction, wind speed, precipitation and barometric pressure.
   c. Observe, measure, and record data on the basic elements of weather over a period of time (i.e., precipitation, air temperature, wind speed and direction, and air pressure).

LS3. Learners will be able to use a range of scientific methods and techniques to develop and test ideas and explanations.

LS4. Learners will be able to analyse and evaluate data to explain results.
   a. Review work and explain to others

LS5. Learners will be able to explore interconnected ideas and topics.

LS6. Learners will be able to share and justify thinking.

LS7. Learners will be able to use critical thinking skills to evaluate and improve progress.

U1. Learners will understand the characteristic properties of matter and the relationship of these properties to their structure and behaviour.
   a. Sorts objects by type and specific uses
   b. Explains how objects change with external stimuli
   c. Compare the observable physical properties of solids, liquids, or gases (air) (i.e., visible vs. invisible, changes in shape, changes in the amount of space occupied).
   d. Predict whether or not an object will be attracted to a magnet.
   e. Describe what happens when like and opposite poles of a magnet are placed near each other.
   f. Demonstrate that when some substances combine, they may retain their individual properties (e.g. salt and pepper) and that some may lose their individual properties (e.g. powdered drink in water).

U2. Learners will understand that energy can be transferred usefully, stored, or dissipated, but cannot be created or destroyed
   a. Explain that energy comes from different sources, such as electricity and water, and is utilized in many common objects.
   b. Understands the use of a switch
   c. Recognizes causes/changes of direction/speed
   d. Identify contact/non-contact forces that affect motion of an object (e.g., gravity, magnetism and collision).
   e. Use observations of magnets in relation to other objects to describe the properties of magnetism (i.e., attract or repel certain objects or has no effect).
   f. Describe the effect of retarding forces such as friction on the motion of objects.
   g. Perform experiments with simple machines to demonstrate the relationship between forces and distance.

U3. Learners will understand the origin, evolution, and structure of the universe.

U4. Learners will understand how the earth's surface is formed and the processes that affect other Earth systems.
   a. Describe land features (including volcanoes, mountains, valleys and islands) by using pictures, diagrams, and maps.
   b. Describe, compare, and sort rocks, soils, and minerals by similar or different physical properties (e.g. size, shape, color, texture, smell, weight, temperature, hardness, composition, reaction to vinegar).
   c. Use the physical properties of hardness, color luster, and reaction to vinegar (weak acid) to identify common minerals (quartz, fluorite, calcite, and gypsum).
   d. Identify the importance of minerals, ores, and fossil fuels as Earth's resources on the basis of their properties.
   e. Describe the observable properties of water (including the fact that it takes the shape of its container).
   f. Provide examples of how sunlight affects people and animals by providing heat and light.

U5. Learners will understand that all life forms, at all levels of organisation, use specialised structures and similar processes to meet life's needs.
   a. Observe, identify, and record external features of humans and other animals.
   b. Identify and compare the physical structures of a variety of animals (e.g., sensory organs, beaks, appendages, body covering).

U6. Learners will understand that ecosystems display patterns of organisation, change, and stability as a result of the interactions and interdependencies among the life forms and the physical components of the Earth.
   a. Links life processes to known environment
   b. Explain that all organisms require a form of energy to survive and that they obtain energy and materials from other living things.
   c. Describe how animals interact with the environment through their sense of sight, hearing, touch, smell, and taste in order to survive.

U7. Learners will understand the transmission of traits in living things.
   a. Recognize that plants and animals go through predictable life cycles that include birth, growth, development, reproduction, and death.
   b. Compare the life cycles of different animals including birth to adulthood, reproduction and death (e.g., egg-tadpole-frog, egg-caterpillar chrysalis-butterfly).
   c. Illustrate incomplete metamorphosis (e.g., grasshoppper).
   d. Investigate and describe how particular plants have seeds that produce the same kind of plant.
   e. Identify the specific functions of the physical structures of a plant (e.g. roots for water) that allow it to survive.

C1. Learners will communicate effectively with teachers and classmates.
C2. Learners will contribute positively to the school learning community.
C3. Learners will appreciate and respect the diversity and unity of multicultural environments.
C4. Learners will demonstrate responsible behaviour towards society and the environment.
   a. Follows instructions to control risks

Grade 3

LS1. Learners will be able to generate questions that are important to the study of the natural world.
   a. Establishes link between cause and effect

LS2. Learners will be able to collect and record observations and data.
   a. Communicates findings in variety of ways
   b. Graph recorded weather data to show daily and seasonal patterns in weather.
   c. Identify and use the tools of a meteorologist (e.g., measure rainfall using rain gauge, measure air pressure using barometer, measure temperature using a thermometer, measure wind speed using an aneometer).
   d. Predict weather and justify prediction with observable evidence.
   e. Describe the weather that accompanies cumulus, cumulonimbus, cirrus and stratus clouds.
   f. Predict temperature and precipitation changes associated with the passing of various fronts.

LS3. Learners will be able to use a range of scientific methods and techniques to develop and test ideas and explanations.

LS4. Learners will be able to analyse and evaluate data to explain results.
   a. Compares and identifies simple patterns

LS5. Learners will be able to explore interconnected ideas and topics.

LS6. Learners will be able to share and justify thinking.

LS7. Learners will be able to use critical thinking skills to evaluate and improve progress.

U1. Learners will understand the characteristic properties of matter and the relationship of these properties to their structure and behaviour.
   a. Compare qualities of rocks and soils.
   b. Describes changes when materials are mixed
   c. Describe features of the object or material that are only visible with the use of the magnifier.
   d. Explain that all matter is composed of minute particles called atoms; and explain that all substances are composed of atoms, each arranged into different groupings.
   e. Describe the physical properties of magnets.
   f. Determine the relative strength of various magnets (e.g. size, number of paper clips attracted, etc.)
   g. Describe how energy has the ability to create change.

U2. Learners will understand that energy can be transferred usefully, stored, or dissipated, but cannot be created or destroyed
   a. Describe how energy produces changes (e.g., heat melts ice, gas makes car go uphill, electricity makes TV work).

b. Explain that thermal energy (heat) moves more rapidly in thermal conductors (e.g. metal pan) than in insulators (e.g. plastic handle)
c. Describe the effectiveness of different insulating and conducting materials with respect to thermal energy (heat) flow.
d. Classify a variety of materials on whether they conduct heat (conductors) or do not conduct heat (insulators).
e. Classify a variety of materials on whether they conduct electricity (conductors) or do not conduct electricity (insulators).
f. Constructs simple circuit
g. Explains forces of repulsion/attraction
h. Identify the use of electricity.
i. Construct and explain a simple electric circuit.
j. Demonstrate that electricity flowing in circuits can produce light, heat, sound, and magnetic effects.
k. Explain that electrically charged material pulls on all other materials and can attract or repel other charged materials.
l. Explain that just as electric currents can produce magnetic forces, magnets can cause electric currents.

U3. Learners will understand the origin, evolution, and structure of the universe.
a. Identify the characteristics of the solar system.
b. Explain that stars are like the sun, some being smaller and some larger, but so far away that they look like points of light.
c. Investigate and describe how distance affects the brightness of any light source.
d. Describe Earth's position and movement in the solar system.
e. Use models to demonstrate how the rotation of the Earth on its axis every 24 hours produces the night-and-day cycle.

U4. Learners will understand how the earth's surface is formed and the processes that affect other Earth systems.
a. Identify the processes of physical weathering that break down rocks at Earth's surface (i.e., water movement, freezing, plant growth, wind).
b. Distinguish between weathering (i.e. wearing down and breaking of rock surfaces) and erosion (i.e. the movement of materials).
c. Investigate local landforms and how wind, water, or ice have shaped and reshaped them (e.g. severe weather).
d. Describe movements of a carbon atom from the atmosphere through a plant, animal, and decomposer, and back into the atmosphere.
e. Construct a compass and explain how it works using Earth's magnetic field.
f. Compare Earth's magnetic field to the magnetic field of a magnet.
g. Investigate and record temperature data to show the effects of heat energy on changing the states of water.

U5. Learners will understand that all life forms, at all levels of organisation, use specialised structures and similar processes to meet life's needs.
a. Predict and investigate the growth of plants when growing conditions are altered (e.g., dark vs. light, water vs. no water).
b. Identify the structures in plants (leaves, roots, flowers, stem, bark, wood) that are responsible for food production, support, water transport, reproduction, growth, and protection.
c. Identify the relationships between the physical structures of plants and the function of those structures (e.g., absorption of water, absorption of light energy, support, reproduction).
d. Demonstrate that living things are made up of different parts.

U6. Learners will understand that ecosystems display patterns of organisation, change, and stability as a result of the interactions and interdependencies among the life forms and the physical components of the Earth.
   a. Classification/adaptation
   b. Explain that all organisms require a form of energy to survive and that humans and other animals obtain energy and materials from food.
   c. Categorize organisms as predator or prey in a given ecosystem.
   d. Describe how people and other animals interact with the environment through their sense of sight, hearing, touch, smell, and taste.
   e. Identify examples where human activity has had a beneficial or harmful effect on other organisms (e.g., feeding birds, littering vs. picking up trash).

U7. Learners will understand the transmission of traits in living things.
   a. Compare the life cycle of different plants including germination, maturity, reproduction and death.
   b. Compare and contrast complete and incomplete metamorphosis.
   c. Identify likenesses between parents and offspring that are inherited (e.g. flower color).
   d. Explain that every organism requires a set of instructions that specifics its traits. Heredity is the passage of these instructions from one generation to another.
   e. Describe plant behaviors, such as the way seedlings' stems grow toward light and their roots grow downward to gravity.

C1. Learners will communicate effectively with teachers and classmates.
C2. Learners will contribute positively to the school learning community.
C3. Learners will appreciate and respect the diversity and unity of multicultural environments.
C4. Learners will demonstrate responsible behaviour towards society and the environment.
   a. Uses systematic observations to control risk

Grade 4

LS1. Learners will be able to generate questions that are important to the study of the natural world.
   a. Explains link between cause and effect

LS2. Learners will be able to collect and record observations and data.
   a. Uses more complex forms of data collection
   b. Identify and describe short- and longer-term patterns of events (including weather and seasons) that occur on the Earth and in the sky.
   c. Relate weather forecast accuracy to evidence or tools used to make the forecast (e.g., feels like rain vs. barometer is dropping).

LS3. Learners will be able to use a range of scientific methods and techniques to develop and test ideas and explanations.

LS4. Learners will be able to analyse and evaluate data to explain results.
   a. Uses observations to draw conclusions

LS5. Learners will be able to explore interconnected ideas and topics.

LS6. Learners will be able to share and justify thinking.

LS7. Learners will be able to use critical thinking skills to evaluate and improve progress.

U1. Learners will understand the characteristic properties of matter and the relationship of these properties to their structure and behaviour.
   a. Evaluating the quality of usefulness of common materials
   b. Describes reversible/non-reversible processes

U2. Learners will understand that energy can be transferred usefully, stored, or dissipated, but cannot be created or destroyed
   a. Identify the various forms of energy, such as electrical, light, heat, and sound.
   b. Describe the usefulness of some forms of energy (e.g., electricity, sound) and how energy (e.g., heat, light) can affect common objects (e.g., sunlight warms dark objects, heat melts candles).
   c. Classify a variety of materials as those that can reflect or absorb light.
   d. Compare and contrast the change in length, tension, or thickness of a vibrating object on the frequency of vibration (e.g., string, wire, or rubber band).
   e. Demonstrate that the pitch of a sound is dependent on the frequency of the vibration producing it.
   f. Represents series with conventional symbols
   g. Explains forces of gravity
   h. Identify natural sources of light (e.g., sun, fireflies, deep sea creatures, fire, lightning) and artificial sources of light (e.g., light bulbs, matches, candles).
   i. Investigate the properties of transparent and opaque objects (e.g., plastic wrap and aluminum foil).
   j. Describe how light can be reflected by a mirror, bent by a lens, or absorbed by the object.
   k. Describe ways light can interact with matter, such as transmission (which includes refraction), absorption, and scattering (which includes reflection).
   l. Explores and describes the qualities and effects of light and sound
   m. Describe the effects of the sun's energy on different materials.
   n. Identify the sun as the main source of the Earth's light and heat energy.
   o. Describe the ways things can be made to move (e.g. straight, zigzag, up and down, round and round, back and forth, or fast and slow).
   p. Describe an objects position by locating it relative to another object or the background.
   q. Demonstrate a variety of ways to make things move and describe what causes them to change speed, direction and/or stop.
   r. Describe an objects motion by tracing and measuring its position over time. (measuring speed).
   s. Explain that the strength of a force and mass of an object influence the amount of change in an object's motion.
   t. Describe the effects of variables on an object's motion (e.g., incline angle, friction, gravity, applied forces).
   u. Illustrate quantitatively mechanical advantage of simple machines.

U3. Learners will understand the origin, evolution, and structure of the universe.

U4. Learners will understand how the earth's surface is formed and the processes that affect other Earth systems.
   a. Identify types of fossils (including molds, casts, and preserved parts of plants and animals).
   b. Identify features of fossils that can be used to compare them to living organisms that are familiar (e.g. shape, size and structure of skeleton, patterns of leaves).
   c. Explain how fossils can be used to make inferences about past life, climate, geology, and environments.
   d. Cite two scientific explanations for the extinction of dinosaurs and other prehistoric organisms.
   e. Summarize the processes of the water cycle (including evaporation, condensation, precipitation, and runoff).
   f. Summarize the processes of the water cycle (including evaporation, condensation, precipitation, and runoff).
   g. Identify the sun as the source of energy that evaporates water from the surface of Earth.

U5. Learners will understand that all life forms, at all levels of organisation, use specialised structures and similar processes to meet life's needs.
   a. Explain how each type of cell, tissue, and organ has a distinct structure and set of functions that serve the organism as a whole.
   b. Investigate and describe how plants and animals have features that help them live in various environments.
   c. Identify the relationships between the physical structures of plants and animals and the degree to which the plant or animal has adapted to the environment.
   d. Explore the cell structure in plants using a microscope.
   e. Identify cells as the building blocks of organisms.

U6. Learners will understand that ecosystems display patterns of organisation, change, and stability as a result of the interactions and interdependencies among the life forms and the physical components of the Earth.
   a. Explain that all living things have structures that provide the basic needs for survival.
   b. Associate specific structures with their functions in the survival of an organism.
   c. Explain that all living things have structures that provide the basic needs for survival.
   d. Investigate and describe the roles of plants as producers and animals as consumers and how living things may depend on each other.
   e. Identify the ways a specific organism may interact with other organisms or with the environment (e.g., pollination, shelter, seed dispersal, camouflage, migration, hibernation, defensive mechanism).
   f. Identify examples where human activity has had a beneficial or harmful effect on other organisms (e.g., hunting/conservation of species, paving/restoring green space).
   g. Observe, record, and describe changes in the health of behavior of an organism as a result of changes in its environment.
   h. Act our or construct simple diagrams (pictures or words) that show a simple food web.
   i. Use information about a simple food web to determine how basic needs (e.g. shelter and water) are met by the habitat-environment.
   j. Demonstrate in a food web that all animals' food begins with the sun.

k. Explain the way that plants and animals in a habitat depend on each other.
l. Use information about organisms to design a habitat and explain how the habitat provides for the needs of the organisms that live there.

U7. Learners will understand the transmission of traits in living things.
a. Identifying and explain how the physical structure/characteristic of an organism allows it to survive and defend itself.
b. Analyze the structures needed for survival of populations of plants and animals in a particular habitat/environment (e.g. populations of desert plants and animals require structures that enable them to obtain/conserve/retain water).
c. Give examples of how inherited characteristics may change over time as adaptations to changes in the environment that enable organisms to survive, e.g., shape of beak or feet, placement of eyes on head, length of neck, shape of teeth, color.
d. Give examples of how changes in the environment (drought, cold) have caused some plants and animals to die or move to new locations (migration).

C1. Learners will communicate effectively with teachers and classmates.
C2. Learners will contribute positively to the school learning community.
C3. Learners will appreciate and respect the diversity and unity of multicultural environments.
C4. Learners will demonstrate responsible behaviour towards society and the environment.
a. Takes action to control risk

Grade 5

LS1. Learners will be able to generate questions that are important to the study of the natural world.
a. Tests ideas by changing one specific factor

LS2. Learners will be able to collect and record observations and data.
a. Uses more complex forms of data collection
b. Describe how temperature and precipitation determine climatic zones (biomes) (e.g., desert, grasslands, forests, tundra and alpine).

LS3. Learners will be able to use a range of scientific methods and techniques to develop and test ideas and explanations.

LS4. Learners will be able to analyse and evaluate data to explain results.
a. Reviews to describe significance/limitations

LS5. Learners will be able to explore interconnected ideas and topics.

LS6. Learners will be able to share and justify thinking.

LS7. Learners will be able to use critical thinking skills to evaluate and improve progress.

U1. Learners will understand the characteristic properties of matter and the relationship of these properties to their structure and behaviour.

a. Recognizes the difference between forms of matter
b. Separates and recovers liquids
c. Describe how the properties of certain materials can change when specific actions are applied to them, such as freezing, mixing, heating, dissolving and bending.
d. Demonstrate that when some substances combine, they may retain their individual properties (e.g. salt and pepper) and that some may lose their individual properties (e.g. powdered drink in water).
e. Investigate and explain that not all materials react the same way when an action is applied to them.
f. Differentiate between a physical change, such as melting, and a chemical change, such as rusting.

U2. Learners will understand that energy can be transferred usefully, stored, or dissipated, but cannot be created or destroyed

a. Constructs series circuit from drawings
b. Explains force of friction

U3. Learners will understand the origin, evolution, and structure of the universe.

a. Explain that stars are not scattered evenly and they are not always the same brightness and color.
b. Explain that the patterns in the sky remain stable but appear to move across the sky because of the Earth's motion.
c. Identify the sun, moon, and the Earth as components of our solar system.
d. Observe and describe properties, locations, and movements of the sun, moon, stars, and clouds.
e. Describe Earth's position and movement in the solar system.
f. Use models to demonstrate how the revolution of the Earth around the sun produces the yearly cycle.
g. Observe and describe the changes of the moon's appearance over a month.
h. Describe the relative movement of the Earth and moon in relation to the sun.
i. Demonstrate the phases of the moon by showing the alignment of the earth, moon, and sun.

U4. Learners will understand how the earth's surface is formed and the processes that affect other Earth systems.

a. Model erosion of Earth materials and collection of these materials as part of the process that leads to soil (e.g., water moving sand in a playground area and depositing this sand in another area).
b. Explain how physical and chemical weathering leads to erosion and the formation of soils and sediments.
c. Use or build models to simulate the effects of how wind and water shape and reshape the land (e.g., erosion, sedimentation, deposition, glaciation).
d. Identify sudden and gradual changes that affect the Earth (e.g. sudden change = flood; gradual change = erosion caused by oceans).
e. Describe land features (including volcanoes, mountains, valleys, canyons, caverns, and islands) by using pictures, diagrams, and maps.
f. Describe changes in Earth's surface that are due to slow processes (including weathering, erosion, and deposition).
g. Describe changes in Earth's surface that are due to rapid processes (including volcanic eruptions, floods, and earthquakes).
h. Explain how wind, water, and glacier movement shape and reshape the Earth's land surface by eroding rock and sand in some areas, and depositing them in other areas.
i. Determine and support explanations of the uses of Earth's materials (e.g., best soils to grow plants).

U5. Learners will understand that all life forms, at all levels of organisation, use specialised structures and similar processes to meet life's needs.
   a. Describe the hierarchical organization of multicellular organisms from organs to systems.
   b. Investigate, compare, and contrast the different structures of organisms that serve different functions for growth, reproduction, and survival.
   c. Identify the relationships between the physical structures of animals and the function of those structures (e.g., taking in water, support, movement, obtaining food, reproduction).

U6. Learners will understand that ecosystems display patterns of organisation, change, and stability as a result of the interactions and interdependencies among the life forms and the physical components of the Earth.
   a. Explain how energy is transferred through food chains and food webs in an ecosystem.

U7. Learners will understand the transmission of traits in living things.
   a. Illustrate embryonic development (e.g. chicken).
   b. Differentiate between complete metamorphosis, incomplete metamorphosis and embryonic development.
   c. Identify likenesses between parents and offspring that are inherited (e.g. eye color). Explain that other likenesses, such as table manners, are learned.

C1. Learners will communicate effectively with teachers and classmates.

C2. Learners will contribute positively to the school learning community.

C3. Learners will appreciate and respect the diversity and unity of multicultural environments.

C4. Learners will demonstrate responsible behaviour towards society and the environment.
   a. Takes action to control risk