



## **K – 4 Curriculum**

# Science K

## A: Exploring the Human Body and Five Senses

- Identifying what scientists do
- Identifying the day as sunny, cloudy, rainy, or snowy
- Identifying parts of the human body: head, neck, torso, arm, leg, foot, hand, finger, and toe
- Identifying parts of the human body: shoulder, elbow, wrist, knee, ankle, heel, and shin
- Identifying parts of the human body: forehead, cheek, chin, waist, hip, abdomen, chest, and buttocks
- Exploring the senses of sight, hearing, and smell
- Identifying parts of the body used to see, hear, and smell
- Exploring the sense of taste
- Identifying foods as salty, sweet, sour, or bitter
- Identifying parts of the body used to touch
- Identifying the five senses
- Identifying how senses are used
- Describing how the five senses are used each day
- Describing how the five senses are used each day

## B: Investigating Healthy Habits

- Identifying exercise as a way to keep our bodies healthy
- Identifying healthy snacks
- Identifying nutritious foods: fruits, grains, and milk
- Identifying nutritious foods: vegetables, meats, and beans
- Identifying foods that help keep our bodies healthy
- Identifying hand washing as a way to help keep our bodies healthy
- Identifying oral hygiene as a way to keep our bodies healthy
- Identifying the steps to promote oral hygiene

## C: Identifying Characteristics of Pets

- Identifying animals that are common pets
- Identifying characteristics of dogs
- Describing how to care for dogs
- Identifying characteristics of cats
- Describing how to care for cats
- Identifying characteristics of birds
- Describing how birds move
- Identifying characteristics of fish
- Describing how fish move
- Identifying gerbils, guinea pigs, rabbits, and horses
- Classifying and graphing photographs of pets
- Identifying how animals move

- Identifying animal body coverings
- Describing how animals resemble their parents
- Identifying what animals need to live

## D: Examining Characteristics of Objects

- Exploring foam blocks
- Identifying characteristics of foam blocks
- Describing and comparing foam blocks
- Identifying objects as soft or hard
- Identifying objects as smooth or rough
- Identifying characteristics of objects made of metal, wood, plastic, rubber, or fabric
- Using a hand lens to observe objects
- Examining and describing seashells
- Using a balance to compare the masses of objects
- Identifying objects that are buoyant
- Identifying an object from its characteristics
- Making and separating mixtures
- Making and separating a mixture of sand and pebbles; Observing sand
- Observing and describing liquids
- Conducting an experiment
- Observing and describing the effect of low temperatures on liquids
- Observing and describing mixtures of liquids

## E: Exploring Forces That Move Objects

- Identifying how objects can be moved by pushing or pulling
- Identifying how the amount of force used affects the movement of an object
- Identifying that round objects and objects with wheels require less force to move
- Exploring how the Earth's gravity pulls objects toward Earth
- Identifying objects that can be pulled by a magnet
- Identifying wind as a force that pushes objects

## F: Observing the Growth of Plants

- Observing a flowering plant
- Identifying the parts of a plant
- Identifying what plants need to live
- Observing and comparing seeds
- Planting seeds
- Making a scientific drawing
- Observing plants around us
- Describing plants around us
- Observing and recording the growth of plants from seeds
- Identifying parts of plants we eat
- Observing and recording the growth of plants

## G: Identifying Living and Non-living Things

- Describing living things
- Identifying living and non-living things outside the school
- Identifying living and non-living things in the classroom

## H: Identifying Seasons and Weather Conditions

- Identifying a season of the year: summer
- Identifying the day as hot
- Identifying a season of the year: fall
- Identifying the day as warm
- Identifying a season of the year: winter
- Identifying the day as cold
- Identifying a season of the year: spring
- Identifying the day as cool

# ***Science 1***

## **A: Describing the Life Stages of Human Beings**

- Describing what scientists do
- Ordering photographs of people from youngest to oldest
- Identifying the characteristics of infants
- Identifying the characteristics of toddlers
- Identifying the characteristics of children
- Identifying the characteristics of adolescents
- Identifying the characteristics of adults
- Classifying photographs according to the stages of life
- Describing the stages of life
- Identifying our homes as part of our habitat
- Identifying places in our habitat
- Identifying animals and plants in our habitat

## **B: Observing Trees**

- Identifying what plants need to live
- Identifying parts of plants
- Identifying that plants are living organisms
- Identifying and labeling the parts of a plant
- Identifying trees in our habitat
- Identifying the parts of trees
- Observing and comparing leaves
- Identifying and labeling the parts of a tree
- Identifying the characteristics of shrubs
- Labeling the parts of a shrub
- Identifying broad leaves and needles
- Identifying deciduous and evergreen trees and shrubs
- Identifying how deciduous trees change during the year
- Identifying the seasons of the year
- Identifying how an apple tree changes during the year
- Describing how deciduous trees change during the year
- Identifying how deciduous trees produce fruit
- Observing and describing the seeds of broad-leaved trees
- Observing and describing the cones and the seeds of conifers
- Identifying the life stages of trees
- Identifying the age of trees
- Identifying how trees are used

## **C: Exploring Sunlight, Water, and Soil**

- Investigating what the Sun gives us
- Observing how shadows are formed when sunlight is blocked
- Observing how the rotation of Earth causes day and night
- Identifying and describing where bodies of water are found

- Observing how water changes state
- Predicting and comparing the ability of containers to collect rainwater
- Identifying and describing how human beings use water
- Identifying ways to conserve natural resources: water
- Observing and describing soil

## D: Investigating Animals and Their Habitats

- Identifying animals from photographs
- Sorting animals by land and water habitats
- Identifying animals that live in land habitats: forest, desert, and grassland
- Identifying animals that live in water habitats: pond, ocean, and ice
- Identifying how animals use camouflage
- Identifying what animals need to live
- Classifying animals as herbivores, carnivores, or omnivores
- Identifying how animals adapt to seasonal changes
- Identifying mammals and their characteristics

## E: Discovering What Is Inside of Our Bodies

- Identifying parts of the human body
- Identifying the function of parts of the human body
- Identifying the function of the skeletal system
- Identifying bones in the skeletal system
- Identifying the joints and their functions
- Identifying the function of muscles
- Identifying the function of skin
- Examining and comparing fingerprints
- Identifying the function and parts of the digestive system
- Identifying the function and parts of the respiratory system
- Identifying the function and parts of the circulatory system
- Identifying the function of the brain
- Identifying ways to keep our bodies healthy

## F: Examining the Characteristics and Life Cycles of Insects

- Identifying the number of legs on insects
- Identifying and observing butterflies in the second stage of life
- Identifying characteristics of butterflies and moths
- Identifying the life cycles of butterflies and moths
- Identifying and observing ladybird beetles in the second stage of life
- Identifying the characteristics of ladybird beetles
- Identifying the life cycles of ladybird beetles
- Describing the characteristics and life cycles of Grasshoppers
- Identifying and describing the parts of insects' bodies
- Describing the characteristics of spiders
- Describing the life cycles of spiders
- Comparing, sorting, and graphing insects and spiders

# Science 2

## A: Investigating the Physical Properties of Matter

- Describing what scientists do
- Classifying matter as living or non-living
- Identifying human-made and natural objects
- Sorting objects by the material from which they are made
- Observing and naming solids, liquids, and gases
- Describing the characteristics of solids
- Describing the color, luster, and texture of solids
- Describing the hardness, flexibility, and buoyancy of solids
- Measuring the mass of a solid
- Identifying and describing the properties of liquids
- Identifying and describing the properties of gases
- Observing how matter changes state
- Describing the transparency of matter
- Identifying matter attracted to magnets; Exploring magnetic attraction
- Identifying different types of magnets
- Identifying and naming the magnetic poles of magnets
- Demonstrating that like poles repel and unlike poles attract

## B: Observing Rocks and Minerals

- Classify rocks by size; Observe and describe the physical properties of a rock
- Describing the physical properties of minerals
- Comparing the hardness of minerals
- Observing the crystal structure of the mineral halite
- Identifying the minerals in granite

## C: Investigating Forces and Work

- Demonstrating how the mass of an object affects the amount of force needed to move the object
- Demonstrating how the strength and the direction of a force affects the movement of the object
- Identifying gravity as a force
- Observing and describing the effect of friction on the movement of objects
- Describing and demonstrating how a lubricant affects friction between two objects
- Describing and demonstrating work
- Observing how rollers and wheels make work easier
- Observing the function of wheels and axles
- Observing how large wheels make it easier to move over an obstacle
- Investigating the effects of friction on movement down an inclined plane
- Investigating how the steepness of an inclined plane affects the distance a toy car travels
- Investigating what happens when objects of different masses travel down an inclined plane

## D: Examining Simple Machines

- Identifying how inclined planes make work easier
- Describing the characteristics of wedges
- Describing the characteristics of screws
- Comparing nails and screws
- Identifying the function of screws
- Demonstrating how first-class levers function
- Identifying the parts of levers
- Identifying the fulcrum, load, and effort of levers
- Identifying how second- and third-class levers function
- Describing the characteristics of wheels and axles
- Demonstrating how pulleys function
- Identifying and describing machines people use
- Identifying ways to conserve paper and plastic

## E: Exploring Sound and Light

- Identifying what causes sound
- Identifying what causes loud and soft sounds
- Describing the loudness of sounds
- Identifying how the environment affects the sounds we hear
- Describing how human beings hear sounds
- Describing the pitch of sound
- Making an instrument that produces various pitches
- Identifying sources of light
- Identifying how light travels
- Identifying the colors in the light spectrum
- Identifying what determines the colors of objects

## F: Investigating Birds

- Identifying prior knowledge of birds
- Identifying the characteristics of birds
- Identifying how birds move
- Identifying the characteristics of birds' bodies
- Identifying the characteristics of birds' legs and feet
- Identifying sounds birds make
- Identifying what birds eat by the shape of their bills
- Observing birds
- Using a bird identification guide to identify birds
- Describing the function and design of birds' nests
- Describing the characteristics of birds' eggs
- Describing the characteristics of chicks
- Describing the characteristics of owls
- Observing what an owl eats by examining an owl pellet
- Using reference tools and resources to locate and report information about a bird



# Science 3

## A: Exploring Our Solar System

- Describing what scientists do
- Identifying objects in our solar system
- Describing characteristics of the Sun
- Showing the Earth's movement on its axis
- Identifying the cause of day and night on Earth
- Describing and showing the Earth's movement around the Sun
- Identifying the causes of the Earth's seasons
- Describing and showing the Moon's movement around Earth
- Describing the characteristics of the Moon
- Identifying characteristics of the Moon
- Identifying the role of astronauts in outer space exploration
- Identifying and describing a new and a full Moon
- Identifying the phases of the Moon
- Identifying and describing the planets in our solar system
- Comparing the number of moons of each planet
- Comparing the amount of time it takes each planet to rotate once
- Identifying the inner and outer planets
- Describing asteroids and the asteroid belt
- Describing the relative distances of the planets from the Sun
- Identifying characteristics of terrestrial planets and gas giants
- Comparing terrestrial planets and gas giants
- Comparing the amount of time it takes each planet to orbit the Sun
- Identifying characteristics of comets
- Identifying the characteristics of meteoroids, meteors, and meteorites
- Identifying the effects of meteors on Earth

## B: Investigating Elements and Compounds

- Identifying the building blocks of the universe: elements
- Locating information on the Periodic Table of the Elements
- Classifying elements on the Periodic Table of the Elements as solids, liquids, or gases
- Identifying elements our bodies require to be healthy
- Identifying mineral nutrients in packaged foods and drinks
- Identifying the seven most common elements in the universe
- Identifying the characteristics of a compound
- Identifying the elements that combine to make a compound
- Identifying the characteristics of atoms and molecules
- Identifying the number of atoms of each element in a Compound
- Observing how heat creates a chemical change

## C: Observing Physical Changes

- Observing and comparing physical and chemical changes
- Describing the characteristics of matter
- Measuring the mass of solids
- Measuring the volume of solids and liquids
- Describing physical properties of matter
- Describing the characteristics of solids, liquids, and gases
- Describing and demonstrating the movement of molecules in solids, liquids, and gases
- Measuring temperature using a thermometer
- Observing and measuring the changes in temperatures of hot water and ice water over time
- Making a line graph to record data
- Drawing conclusions from data shown on a line graph
- Exploring the equalization of temperatures
- Observing and describing a physical change: melting and freezing
- Observing and describing a physical change: vaporization
- Conducting an evaporation experiment
- Observing and describing a physical change: condensation

## D: Investigating Changes in Our Atmosphere

- Identifying what meteorologists do
- Identifying the composition of the planets' atmospheres
- Identifying the layers of the Earth's atmosphere and the characteristics of each
- Describing the water cycle
- Identifying and describing types of clouds
- Identifying wind direction
- Estimating wind speed
- Collecting and recording weather data
- Describing the characteristics of tornadoes
- Describing the characteristics of hurricanes and typhoons
- Identifying sources of water and air pollution
- Identifying ways to avoid polluting the environment

## E: Exploring the Earth's Structure

- Identifying the characteristics of the Earth's surface
- Identifying and describing the layers of Earth
- Exploring the theory of plate tectonics
- Describing how tectonic plates move
- Identifying tectonic plates and their movements
- Identifying the causes and effects of earthquakes
- Identifying the causes and effects of volcanoes
- Identifying how igneous, sedimentary, and metamorphic rocks are formed
- Describing and identifying igneous, sedimentary, and metamorphic rocks
- Identifying the effects of weathering and erosion
- Describing and identifying clay, silt, and sand

- Observing and demonstrating how water moves through sand and silt
- Identifying and describing characteristics of soil
- Identifying the layers of soil on the Earth's surface

## F: Examining the Structure and Function of Parts of Seed Plants

- Identifying what seeds need to germinate
- Classifying plants
- Describing the function of parts of plants
- Dissecting a bean seed
- Observing the embryo of a bean seed
- Describing how plants make their own food by photosynthesis
- Observing the germination of grass seed
- Analyzing data and writing conclusions for a one-variable experiment

## G: Investigating Amphibians and Reptiles

- Identifying amphibians and reptiles
- Describing the dependence of animals on plants
- Identifying amphibians and their habitats
- Identifying the characteristics of amphibians
- Describing the life cycles of amphibians
- Identifying the characteristics of reptiles
- Describing the life cycles of reptiles
- Comparing amphibians and reptiles

# Science 4

## A: Exploring the Characteristics of Cells

- Identifying biology as the study of life
- Identifying characteristics of organisms
- Identifying a cell as the smallest unit of an organism
- Using a microscope to observe a specimen
- Identifying parts of a microscope
- Using a microscope to observe a cheek cell
- Identifying the nucleus of a cheek cell
- Describing the functions of structures in animal cells
- Describing the functions of structures in plant cells
- Describing fungus cells
- Comparing and contrasting animal, plant, and fungus cells
- Identifying characteristics of eukaryotic cells
- Identifying organisms with eukaryotic cells
- Using a microscope to observe protists
- Identifying characteristics of prokaryotic cells
- Identifying organisms with prokaryotic cells
- Classifying organisms as single-celled or multi-celled
- Classifying organisms into domains
- Identifying kingdoms of eukaryotes

## B: Examining and Classifying Plants

- Describing the function of vascular tissues
- Identifying vascular and nonvascular plants
- Describing how plants make their own food through the process of photosynthesis
- Describing ways plants reproduce
- Conducting a one-variable experiment
- Identifying the steps in the scientific method
- Describing gymnosperms; Describing leaves of gymnosperms
- Using a resource book to locate information about gymnosperms
- Describing the life cycle of gymnosperms
- Describing angiosperms
- Describing the structure and function of flowers
- Describing seed development in angiosperms
- Describing the life cycle of angiosperms; Describing leaves of angiosperms
- Using a dichotomous key to identify trees

## C: Investigating Characteristics of Animals

- Identifying vertebrates and invertebrates
- Identifying characteristics of vertebrates; Classifying vertebrates
- Identifying characteristics of classes of vertebrates
- Describing the life cycles of vertebrates

- Identifying animals that are invertebrates
- Identifying and describing annelids, cnidarians, and echinoderms
- Identifying and describing mollusks
- Identifying characteristics of arthropods
- Identifying characteristics of insects
- Describing the metamorphosis of insects
- Observing the larva of an insect
- Identifying characteristics of arachnids and other arthropods
- Classifying animals according to what they eat
- Describing how animals obtain energy

## D: Examining Ecosystems

- Identifying characteristics of ecosystems
- Describing producers, consumers, and decomposers in an ecosystem
- Identifying producers and consumers in a food chain
- Describing food webs; Identifying food chains in a food web
- Describing symbiotic relationships between organisms
- Identifying inherited physical characteristics of plants and animals
- Identifying inherited behaviors of plants
- Conducting two experiments to observe plant behavior
- Identifying inherited and learned behaviors of animals
- Identifying physical adaptations of animals
- Describing physical and behavioral adaptations of plants
- Describing physical and behavioral adaptations of predators and prey
- Identifying how an adaptation benefits an organism
- Identifying extinct and endangered animals
- Recording and Analyzing Data from Experiments

## E: Exploring Energy

- Describing energy
- Describing kinetic energy
- Comparing the kinetic energy of objects
- Describing potential energy
- Describing gravitational potential energy
- Observing the conversion of energy
- Identifying characteristics of sound
- Describing how musical instruments produce sounds
- Comparing the pitch of sounds
- Describing radiant energy
- Describing visible light
- Observing how light waves are reflected
- Identifying opaque, transparent, translucent matter
- Observing shadows
- Describing how the Earth's rotation causes shadows
- Describing the refraction of light waves
- Describing heat
- Observing and describing the transfer of heat by radiation and conduction

- Identifying good conductors and insulators of heat
- Observing and describing the transfer of heat by convection
- Identifying renewable and non-renewable energy resources
- Earth Day Lesson: April 22
- Describing ways to help the environment by recycling, reducing, and reusing

## F: Investigating Electricity

- Identifying sources of electricity
- Describing how electricity is used
- Describing static and current electricity
- Identifying and describing open and closed circuits
- Observing and describing a dry cell battery and electrical wire
- Identifying conductors and insulators of electric current
- Examining an incandescent light bulb
- Making a closed circuit
- Tracing the path of an electric current through a closed circuit
- Making a closed circuit to observe how the number of batteries affects the brightness of a light bulb
- Testing materials to determine if they are conductors or insulators of electric current
- Using a switch to open and close a circuit
- Reading a circuit diagram
- Identifying characteristics of a series circuit
- Making a series circuit
- Identifying characteristics of a parallel circuit
- Making a parallel circuit
- Making an electromagnet