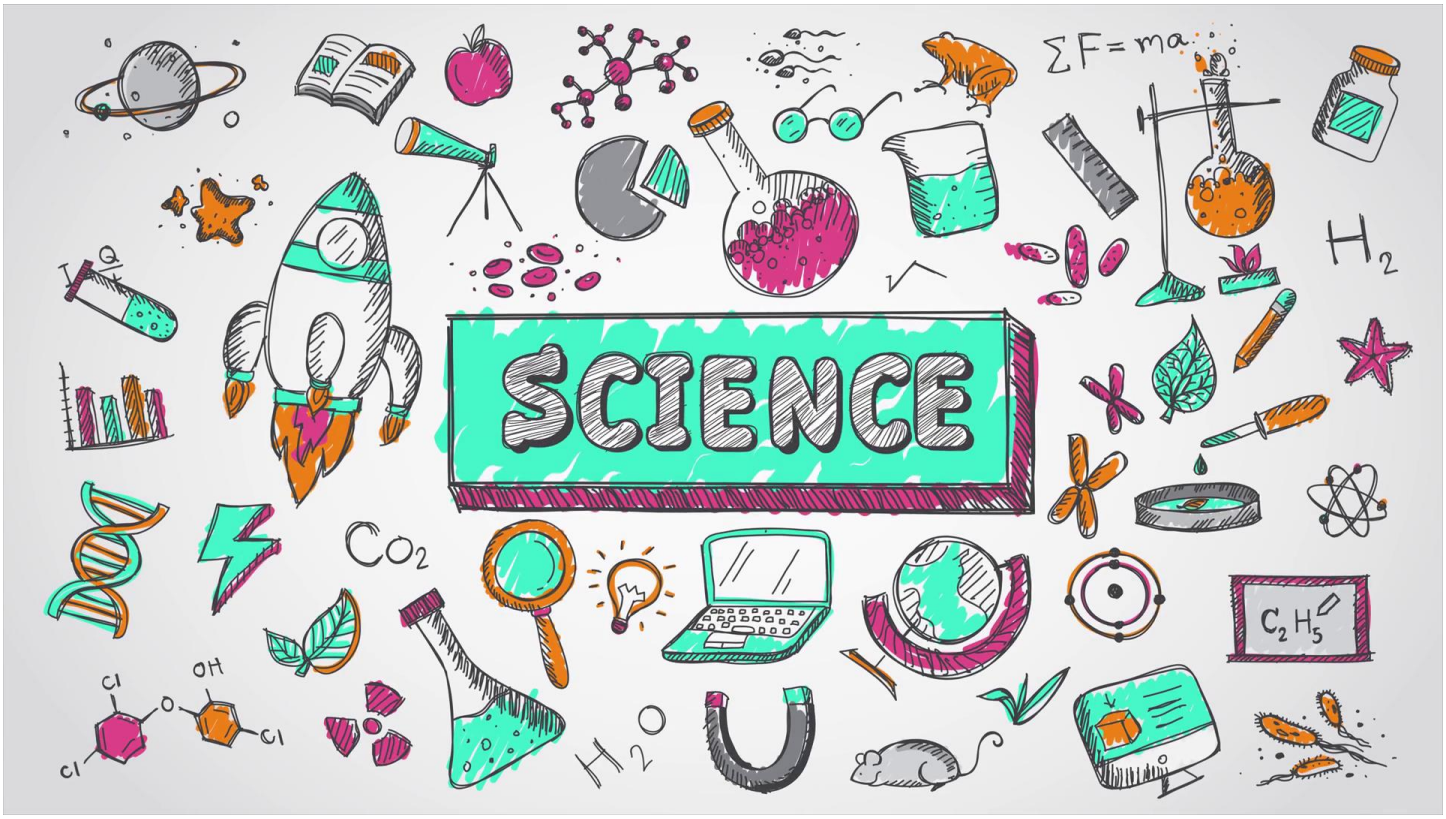

Kindergarten – Fourth Grade

KINDERGARTEN

I. Exploring the Human Body and Five Senses

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

II. Investigating Healthy Habits

a. Identifying exercise as a way to keep our bodies healthy
b. Identifying healthy snacks
c. Identifying nutritious foods: fruits, grains, and milk
d. Identifying nutritious foods: vegetables, meats, and beans
e. Identifying foods that help keep our bodies healthy
f. Identifying hand washing as a way to help keep our bodies healthy
g. Identifying oral hygiene as a way to keep our bodies healthy
h. Identifying the steps to promote oral hygiene

III. Identifying Characteristics of Pets

a. Identifying animals that are common pets
b. Identifying characteristics of dogs
c. Describing how to care for dogs
d. Identifying characteristics of cats
e. Describing how to care for cats
f. Identifying characteristics of birds
g. Describing how birds move
h. Identifying characteristics of fish
i. Describing how fish move
j. Identifying gerbils, guinea pigs, rabbits, and horses
k. Classifying and graphing photographs of pets
l. Identifying how animals move
m. Identifying animal body coverings
n. Describing how animals resemble their parents
o. Identifying what animals need to live

IV. Examining Characteristics of Objects

a. Exploring foam blocks
b. Identifying characteristics of foam blocks
c. Describing and comparing foam blocks
d. Identifying objects as soft or hard
e. Identifying objects as smooth or rough
f. Identifying characteristics of objects made of metal, wood, plastic, rubber, or fabric

g. Using a hand lens to observe objects
h. Examining and describing seashells
i. Using a balance to compare the masses of objects
j. Identifying objects that are buoyant
k. Identifying an object from its characteristics
l. Making and separating mixtures
m. Making and separating a mixture of sand and pebbles; Observing sand
n. Observing and describing liquids
o. Conducting an experiment
p. Observing and describing the effect of low temperatures on liquids
q. Observing and describing mixtures of liquids

V. Exploring Forces That Move Objects

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

VI. Observing the Growth of Plants

a. Observing a flowering plant
b. Identifying the parts of a plant
c. Identifying what plants need to live
d. Observing and comparing seeds
e. Planting seeds
f. Making a scientific drawing
g. Observing plants around us
h. Describing plants around us
i. Observing and recording the growth of plants from seed
j. Identifying parts of plants we eat
k. Observing and recording the growth of plants

VII. Identifying Living and Non-living Things

a. Describing living things
b. Identifying living and non-living things outside the school
c. Identifying living and non-living things in the classroom

VIII. Identifying Seasons and Weather Conditions

a. Identifying a season of the year: summer
b. Identifying the day as hot
c. Identifying a season of the year: fall
d. Identifying the day as warm
e. Identifying a season of the year: winter
f. Identifying the day as cold
g. Identifying a season of the year: spring
h. Identifying the day as cool

FIRST GRADE

I. Describing the Life Stages of Human Beings

a. Describing what scientists do
b. Ordering photographs of people from youngest to oldest
c. Identifying the characteristics of infants
d. Identifying the characteristics of toddlers
e. Identifying the characteristics of children
f. Identifying the characteristics of adolescents
g. Identifying the characteristics of adults
h. Classifying photographs according to the stages of life
i. Describing the stages of life
j. Identifying our homes as part of our habitat
k. Identifying places in our habitat
l. Identifying animals and plants in our habitat

II. Observing Trees

a. Identifying what plants need to live
b. Identifying parts of plants
c. Identifying that plants are living organisms
d. Identifying and labeling the parts of a plant
e. Identifying trees in our habitat
f. Identifying the parts of trees
g. Observing and comparing leaves
h. Identifying and labeling the parts of a tree
i. Identifying the characteristics of shrubs
j. Labeling the parts of a shrub
k. Identifying broad leaves and needles
l. Identifying deciduous and evergreen trees and shrubs
m. Identifying how deciduous trees change during the year
n. Identifying the seasons of the year
o. Identifying how an apple tree changes during the year
p. Describing how deciduous trees change during the year
q. Identifying how deciduous trees produce fruit
r. Observing and describing the seeds of broad-leaved trees
s. Observing and describing the cones and the seeds of conifers
t. Identifying the life stages of trees
u. Identifying the age of trees
v. Identifying how trees are used

III. Exploring Sunlight, Water, and Soil

a. Investigating what the Sun gives us
b. Observing how shadows are formed when sunlight is blocked
c. Observing how the rotation of Earth causes day and night
d. Identifying and describing where bodies of water are found
e. Observing how water changes state
f. Predicting and comparing the ability of containers to collect rainwater
g. Identifying and describing how human beings use water
h. Identifying ways to conserve natural resources: water
i. Observing and describing soil

IV. Investigating Animals and Their Habitats

a. Identifying animals from photographs
b. Sorting animals by land and water habitats

c. Identifying animals that live in land habitats: forest, desert, and grassland
d. Identifying animals that live in water habitats: pond, ocean, and ice
e. Identifying how animals use camouflage
f. Identifying what animals need to live
g. Classifying animals as herbivores, carnivores, or omnivores
h. Identifying how animals adapt to seasonal changes
i. Identifying mammals and their characteristics

V. Discovering What Is Inside of Our Bodies

a. Identifying parts of the human body
b. Identifying the function of parts of the human body
c. Identifying the function of the skeletal system
d. Identifying bones in the skeletal system
e. Identifying the joints and their functions
f. Identifying the function of muscles
g. Identifying the function of skin
h. Examining and comparing fingerprints
i. Identifying the function and parts of the digestive system
j. Identifying the function and parts of the respiratory system
k. Identifying the function and parts of the circulatory system
l. Identifying the function of the brain
m. Identifying ways to keep our bodies healthy

VI. Examining the Characteristics and Life Cycles of Insects

a. Identifying the number of legs on insects
b. Identifying and observing butterflies in the second stage of life
c. Identifying characteristics of butterflies and moths
d. Identifying the life cycles of butterflies and moths
e. Identifying and observing ladybird beetles in the second stage of life
f. Identifying the characteristics of ladybird beetles
g. Identifying the life cycles of ladybird beetles
h. Describing the characteristics and life cycles of grasshoppers
i. Identifying and describing the parts of insects' bodies
j. Describing the characteristics of spiders
k. Describing the life cycles of spiders
l. Comparing, sorting, and graphing insects and spiders

SECOND GRADE

I. Investigating the Physical Properties of Matter

a. Describing what scientists do
b. Classifying matter as living or non-living
c. Identifying human-made and natural objects
d. Sorting objects by the material from which they are made
e. Observing and naming solids, liquids, and gases
f. Describing the characteristics of solids
g. Describing the color, luster, and texture of solids
h. Describing the hardness, flexibility, and buoyancy of solids
i. Measuring the mass of a solid
j. Identifying and describing the properties of liquids
k. Identifying and describing the properties of gases
l. Observing how matter changes state
m. Describing the transparency of matter
n. Identifying matter attracted to magnets; Exploring magnetic attraction
o. Identifying different types of magnets
p. Identifying and naming the magnetic poles of magnets
q. Demonstrating that like poles repel and unlike poles attract

II. Observing Rocks and Minerals

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

III. Investigating Forces and Work

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

IV. Examining Simple Machines

a. Identifying how inclined planes make work easier
b. Describing the characteristics of wedges
c. Describing the characteristics of screws
d. Comparing nails and screws
e. Identifying the function of screws
f. Demonstrating how first-class levers function
g. Identifying the parts of levers

h. Identifying the fulcrum, load, and effort of levers
i. Identifying how second- and third-class levers function
j. Describing the characteristics of wheels and axles
k. Demonstrating how pulleys function
l. Identifying and describing machines people use
m. Identifying ways to conserve paper and plastic

V. Exploring Sound and Light

a. Identifying what causes sound
b. Identifying what causes loud and soft sounds
c. Describing the loudness of sounds
d. Identifying how the environment affects the sounds we hear
e. Describing how human beings hear sounds
f. Describing the pitch of sound
g. Making an instrument that produces various pitches
h. Identifying sources of light
i. Identifying how light travels
j. Identifying the colors in the light spectrum
k. Identifying what determines the colors of objects

VI. Investigating Birds

a. Identifying prior knowledge of birds
b. Identifying the characteristics of birds
c. Identifying how birds move
d. Identifying the characteristics of birds' bodies
e. Identifying the characteristics of birds' legs and feet
f. Identifying sounds birds make
g. Identifying what birds eat by the shape of their bills
h. Observing birds
i. Using a bird identification guide to identify birds
j. Describing the function and design of birds' nests
k. Describing the characteristics of birds' eggs
l. Describing the characteristics of chicks
m. Describing the characteristics of owls
n. Observing what an owl eats by examining an owl pellet
o. Using reference tools and resources to locate and report information about a bird

THIRD GRADE

I. Exploring Our Solar System

a. Describing what scientists do
b. Identifying objects in our solar system
c. Describing characteristics of the Sun
d. Showing the Earth's movement on its axis
e. Identifying the cause of day and night on Earth
f. Describing and showing the Earth's movement around the Sun
g. Identifying the causes of the Earth's seasons
h. Describing and showing the Moon's movement around Earth
i. Describing the characteristics of the Moon
j. Identifying characteristics of the Moon
k. Identifying the role of astronauts in outer space exploration
l. Identifying and describing a new and a full Moon
m. Identifying the phases of the Moon
n. Identifying and describing the planets in our solar system
o. Comparing the number of moons of each planet
p. Comparing the amount of time it takes each planet to rotate once
q. Identifying the inner and outer planets
r. Describing asteroids and the asteroid belt
s. Describing the relative distances of the planets from the Sun
t. Identifying characteristics of terrestrial planets and gas giants
u. Comparing terrestrial planets and gas giants
v. Comparing the amount of time it takes each planet to orbit the Sun
w. Identifying characteristics of comets
x. Identifying the characteristics of meteoroids, meteors, and meteorites
y. Identifying the effects of meteors on Earth

II. Investigating Elements and Compounds

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

III. Observing Physical Changes

a. Observing and comparing physical and chemical changes
b. Describing the characteristics of matter
c. Measuring the mass of solids
d. Measuring the volume of solids and liquids
e. Describing physical properties of matter
f. Describing the characteristics of solids, liquids, and gases
g. Describing and demonstrating the movement of molecules in solids, liquids, and gases
h. Measuring temperature using a thermometer
i. Observing and measuring the changes in temperatures of hot water and ice water over time

IV. Making a line graph to record data

a. Drawing conclusions from data shown on a line graph
b. Exploring the equalization of temperatures
c. Observing and describing a physical change: melting and freezing
d. Observing and describing a physical change: vaporization
e. Conducting an evaporation experiment
f. Observing and describing a physical change: condensation

V. Investigating Changes in Our Atmosphere

a. Identifying what meteorologists do
b. Identifying the composition of the planets' atmospheres
c. Identifying the layers of the Earth's atmosphere and the characteristics of each
d. Describing the water cycle
e. Identifying and describing types of clouds
f. Identifying wind direction
g. Estimating wind speed
h. Collecting and recording weather data
i. Describing the characteristics of tornadoes
j. Describing the characteristics of hurricanes and typhoons
k. Identifying sources of water and air pollution
l. Identifying ways to avoid polluting the environment

VI. Exploring the Earth's Structure

a. Identifying the characteristics of the Earth's surface
b. Identifying and describing the layers of Earth
c. Exploring the theory of plate tectonics
d. Describing how tectonic plates move
e. Identifying tectonic plates and their movements
f. Identifying the causes and effects of earthquakes
g. Identifying the causes and effects of volcanoes
h. Identifying how igneous, sedimentary, and metamorphic rocks are formed
i. Describing and identifying igneous, sedimentary, and metamorphic rocks
j. Identifying the effects of weathering and erosion
k. Describing and identifying clay, silt, and sand
l. Observing and demonstrating how water moves through sand and silt
m. Identifying and describing characteristics of soil
n. Identifying the layers of soil on the Earth's surface

VII. Examining the Structure and Function of Parts of Seed Plants

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

VIII. Investigating Amphibians and Reptiles

a. Identifying amphibians and reptiles
b. Describing the dependence of animals on plants
c. Identifying amphibians and their habitats
d. Identifying the characteristics of amphibians
e. Describing the life cycles of amphibians
f. Identifying the characteristics of reptiles
g. Describing the life cycles of reptiles

h. Comparing amphibians and reptiles

FOURTH GRADE

I. Exploring the Characteristics of Cells

a. Identifying biology as the study of life.
b. Identifying characteristics of organisms.
c. Identifying a cell as the smallest unit of an organism
d. Using a microscope to observe a specimen
e. Identifying parts of a microscope
f. Using a microscope to observe a cheek cell
g. Identifying the nucleus of a cheek cell
h. Describing the functions of structures in animal cells
i. Describing the functions of structures in plant cells
j. Describing fungus cells
k. Comparing and contrasting animal, plant, and fungus cells
l. Identifying characteristics of eukaryotic cells
m. Identifying organisms with eukaryotic cells
n. Using a microscope to observe protists
o. Identifying characteristics of prokaryotic cells
p. Identifying organisms with prokaryotic cells
q. Classifying organisms as single-celled or multi-celled
r. Classifying organisms into domains
s. Identifying kingdoms of eukaryotes

II. Examining and Classifying Plants

a. Describing the function of vascular tissues
b. Identifying vascular and nonvascular plants
c. Describing how plants make their own food through the process of photosynthesis
d. Describing ways plants reproduce
e. Conducting a one-variable experiment
f. Identifying the steps in the scientific method
g. Describing gymnosperms; Describing leaves of gymnosperms
h. Using a resource book to locate information about gymnosperms
i. Describing the life cycle of gymn
j. Describing angiosperms
k. Describing the structure and function of flowers
l. Describing seed development in angiosperms
m. Describing the life cycle of angiosperms; Describing leaves of angiosperms
n. Using a dichotomous key to identify trees

III. Investigating Characteristics of Animals

a. Identifying vertebrates and invertebrates
b. Identifying characteristics of vertebrates; Classifying vertebrates
c. Identifying characteristics of classes of vertebrates
d. Describing the life cycles of vertebrates
e. Identifying animals that are invertebrates
f. Identifying and describing annelids, cnidarians, and echinoderms
g. Identifying and describing mollusks
h. Identifying characteristics of arthropods
i. Identifying characteristics of insects
j. Describing the metamorphosis of insects
k. Observing the larva of an insect
l. Identifying characteristics of arachnids and other arthropods
m. Classifying animals according to what they eat

n. Describing how animals obtain energy

IV. Examining Ecosystems

a. Identifying characteristics of ecosystems
b. Describing producers, consumers, and decomposers in an ecosystem
c. Identifying producers and consumers in a food chain
d. Describing food webs; Identifying food chains in a food web
e. Describing symbiotic relationships between organisms
f. Identifying inherited physical characteristics of plants and animals
g. Identifying inherited behaviors of plants
h. Conducting two experiments to observe plant behavior
i. Identifying inherited and learned behaviors of animals
j. Identifying physical adaptations of animals
k. Describing physical and behavioral adaptations of plants
l. Describing physical and behavioral adaptations of predators and prey
m. Identifying how an adaptation benefits an organism
n. Identifying extinct and endangered animals
o. Recording and Analyzing Data from Experiments

V. Exploring Energy

a. Describing energy
b. Describing kinetic energy
c. Comparing the kinetic energy of objects
d. Describing potential energy
e. Describing gravitational potential energy
f. Observing the conversion of energy
g. Identifying characteristics of sound
h. Describing how musical instruments produce sounds
i. Comparing the pitch of sounds
j. Describing radiant energy
k. Describing visible light
l. Observing how light waves are reflected
m. Identifying opaque, transparent, translucent matter
n. Observing shadows
o. Describing how the Earth's rotation causes shadows
p. Describing the refraction of light waves
q. Describing heat
r. Observing and describing the transfer of heat by radiation and conduction
s. Identifying good conductors and insulators of heat
t. Observing and describing the transfer of heat by convection
u. Identifying renewable and non-renewable energy resources
v. Earth Day Lesson: April 22
w. Describing ways to help the environment by recycling, reducing, and reusing

VI. Investigating Electricity

a. Identifying sources of electricity
b. Describing how electricity is used
c. Describing static and current electricity
d. Identifying and describing open and closed circuits
e. Observing and describing a dry cell battery and electrical wire
f. Identifying conductors and insulators of electric current
g. Examining an incandescent light bulb
h. Making a closed circuit
i. Tracing the path of an electric current through a closed circuit

j. Making a closed circuit to observe how the number of batteries affects the brightness of a light bulb
k. Testing materials to determine if they are conductors or insulators of electric current
l. Using a switch to open and close a circuit
m. Reading a circuit diagram
n. Identifying characteristics of a series circuit
o. Making a series circuit
p. Identifying characteristics of a parallel circuit
q. Making a parallel circuit
r. Making an electromagnet