



THE רשי  
RASHI  
SCHOOL

# SCIENCE

## KINDERGARTEN

*Students will be able to...*

- Sort objects by observable properties such as size, shape, color, weight, and texture.
- Differentiate between living and nonliving things and group both living and nonliving things according to the characteristics that they share.
- Identify the senses of sight, hearing, touch, smell and taste and describe how they are employed as people and animals interact with their world.
- Recognize that animals (including humans) and plants are living things that grow, reproduce, and need food, air, and water.
- 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).
- Recognize changes in appearance that plants and animals go through as the seasons change.
- Identify types of weather and recognize changes in weather patterns during the course of the year.
- Explain the relationship between the Earth and the sun and identify effects of the sun's energy (in the form of heat and light).
- Recognize that light is made up of many colors, which appear in a specific order when light is refracted (by raindrops, bubbles or prisms).
- Describe and show how secondary colors can be created from the primary colors of red, blue and yellow.
- Identify sources of force and describe the effect of force on a variety of objects.
- Apply information gleaned from trial and error to improve the design of a structure.
- Record observations with descriptions and drawings that include realistic details.
- Describe or show the proper way to use scientific tools (hand lenses, droppers and balances) for observation exploration.
- Identify healthy behaviors outlined in the Kindergarten level of *The Great Body Shop* curriculum.

# GRADE ONE

## *Students will be able to....*

- Identify events around us that have cycles, including the seasons of the year, and the lives of plants and animals.
- Recognize that under some conditions, objects can be balanced.
- Identify the ways in which an organism's habitat provides for its basic needs (shelter, food, air, water, light).
- Describe the weather changes from day to day and over the seasons.
- Identify and describe the safe and proper use of tools and materials to construct simple structures.
- Sort objects by observable properties such as size, shape, color, weight, and texture using a Venn diagram and other graphic organizers.
- Record information through observational drawings, labeled diagrams, and illustrations over time.
- Describe how people keep their bodies safe, healthy, and fit, based on *The Great Body Shop* Grade 1 curriculum.
- Recognize how the human body reacts to input through our five senses.
- Recognize that plants are living things that grow, reproduce, change with the seasons, and need food, air, sunlight, and water.
- Identify and describe characteristics and uses of natural and human-made materials.
- Recognize that fossils provide us with information about living things that inhabited the earth years ago.

## GRADE TWO

### *Students will be able to....*

- Recognize that water and a variety of rocks, soils and living organisms are found on, above, and below the earth's surface.
- Identify and describe the water cycle and erosion as events around us that have repeating patterns; explain the role each plays in our environment.
- Recognize that the sun supplies heat and light and is necessary for the movement of water on, above, and below the earth.
- Identify materials as solid, liquid, and gas; recognize the properties of each state.
- Recognize the special chemical properties of water; describe how water changes from one state to another.
- Recognize that animals, including humans, are living things that need food, air, shelter, and water.
- Describe the characteristics of natural materials; identify possible uses for natural resources in meeting basic needs.
- Describe how people keep their bodies safe, healthy, and fit based on the Grade 2 level of *The Great Body Shop* curriculum.
- Create scientific illustrations to record observations, incorporating labels, measurements and captions.
- Demonstrate that water can be used to apply force that can change the motion of an object.
- Work with a partner or team to use a simple five-step engineering process (Ask, Imagine, Plan, Create, Improve) to design, test and improve a simple tool.
- Sort and identify objects and organisms by observable properties such as size, shape, color, weight, and texture using a dichotomous key.
- Recognize the ways in which a river animal's habitat provides for its basic needs of food, shelter, water, and air.
- Describe how river animals use parts of the body to meet basic needs (e.g., a beaver's teeth for cutting logs for a beaver lodge and the use of the tail to tamp down mud for same).
- Describe how energy derived from the sun is used by plants to form sugars and is transferred from organism to organism in the food chain.

# GRADE THREE

## *Students will be able to....*

- Recognize that the Earth is part of a system called the “solar system” that includes the sun (a star), planets, and many moons, and that the earth is the third planet from the sun in our solar system.
- Understand the earth's rotation on its axis, and make connections between the rotation of the Earth and day/night, and the apparent movement of the sun, moon, and stars across the sky.
- Describe the changes that occur in the observable shape of the moon over the course of a month.
- Describe different ways in which data can be represented, e.g., sketches, diagrams, graphic organizers, and lists.
- Identify the basic forms of energy (light, sound, heat, electrical, and magnetic) and recognize that energy is the ability to cause motion or create change.
- Recognize that sound is produced by vibrating objects and requires a medium through which to travel; relate the rate of vibration to the pitch of the sound.
- Recognize that light travels in a straight line until it strikes an object or travels from one medium to another, and that light can be reflected, refracted, and absorbed.
- Recognize that electricity in circuits requires a complete loop through which an electrical current can pass, and that electricity can produce light, heat, and sound.
- Identify and classify objects and materials that conduct electricity and objects and materials that are insulators of electricity.
- Give examples of how change in the environment causes plants and animals to die or migrate.
- Understand that an organism's patterns of behavior are related to the nature of that organism's environment.
- Classify plants and animals according to characteristics shared.
- Recognize that organisms can survive harsh environments due to adaptations/migration.
- Describe examples of how inherited characteristics change over time (adaptations).
- Differentiate between observed characteristics of plants and animals that are inherited versus those affected by environment.
- Describe how people keep their bodies safe, healthy, and fit based on the Grade 3 level of *The Great Body Shop* curriculum

# GRADE FOUR

## *Students will be able to....*

- Explain how air temperature, moisture, wind speed and direction, and precipitation make up the weather in a particular place and time.
- Describe how water on earth cycles in different forms and in different locations, including underground and in the atmosphere.
- Distinguish among the various forms of precipitation (rain, snow, sleet, and hail) and make connections to the weather in a particular place and time.
- Give examples of how the cycling of water, both in and out of the atmosphere, has an effect on climate.
- Differentiate between weather and climate.
- Describe how water can be changed from one state to another by adding or taking away heat.
- Recognize that magnets have poles that repel and attract each other.
- Identify and classify objects and materials that a magnet will and will not attract.
- Give a simple explanation of what a mineral is and some examples, e.g., quartz, mica.
- Identify the three categories of rocks (metamorphic, igneous, and sedimentary) based on how they are formed, and explain the natural and physical processes that create these rocks.
- Identify the physical properties of minerals (hardness, color, luster, cleavage, and streak) and explain how minerals can be tested for these different physical properties.
- Explain and give examples of the ways in which soil is formed (the weathering of rock by water and wind and from the decomposition of plant and animal remains).
- Describe how people keep their bodies safe, healthy, and fit based on the Grade 4 level of *The Great Body Shop* curriculum

# GRADE FIVE

## *Students will be able to....*

- Recognize that plants and animals go through predictable life cycles that include birth, growth, development, reproduction, and death.
- Identify the structures in plants (leaves, roots, flowers, stem, bark, wood) that are responsible for food production, support, water transport, reproduction, growth, and protection.
- Recognize that some behaviors are instinctive and others learned.
- Describe how organisms meet their needs by using behaviors.
- Recognize plant behaviors.
- Describe how energy derived from the sun is used by plants to produce sugars (photosynthesis) and is transferred within a food chain from producers (plants) to consumers to decomposers.
- Classify plants and animals according to characteristics shared.
- Explain and give examples of ways in which soil is formed (weathering of rock and from decomposition of plant and animal remains).
- Describe different ways in which a problem can be represented (e.g., sketches, diagrams, graphic organizer, and lists).
- Identify and explain differences between simple and complex machines.
- Identify a problem that reflects the need for shelter, storage, or convenience.
- Identify relevant design features for building a prototype of a solution to a given problem.
- Compare natural systems with mechanical systems that are designed to serve similar purposes, e.g., bird's wings as compared to an airplane's wings.
- Develop bar and line graphs from data collected creating own axes.
- Name and describe forces at work in simple machines.
- Describe how people keep their bodies safe, healthy, and fit based on the Grade 5 level of *The Great Body Shop* curriculum

# GRADE SIX

## *Students will be able to....*

- Follow lab directions and use equipment correctly.
- Explain the roles and relationships among producers, consumers and decomposers in the process of energy transfer in a food web.
- Explain and give examples of ways in which organisms interact and have different functions in an ecosystem.
- Determine how animals are broken down by other living organisms and how this process contributes to the system as a whole.
- Understand how human behavior impacts the environment.
- Relate the survival of a species to its ability to adapt.
- Recognize that all organisms are composed of cells and that in one-celled organisms the cell must carry out all of the basic functions of life.
- Compare and contrast plant and animal cells, including major organelles.
- Classify organisms into the currently recognized kingdoms according to the characteristics that they share.
- Describe the hierarchal organization of multi-cellular organisms from cells to tissues to organs to systems to organisms.
- Explain the function of male and female reproductive organs.

# GRADE SEVEN

## *Students will be able to....*

- Follow lab directions and use equipment correctly.
- Use the scientific method to answer questions, including creating data tables, making appropriate graphs, and drawing conclusions related to various experiments.
- Differentiate between length, mass, volume and weight; choose the appropriate measurement tool and units.
- Explain and give examples of how motion of an object can be described by its position, direction, and speed.
- Demonstrate the application of Newton's Laws of Motion.
- Recognize and understand various forms of energy including light, sound and heat.
- Identify and compare examples of various transportation systems.
- Recognize that gravity is a force that pulls all things on and near Earth toward the center of Earth.
- Compare and contrast properties and conditions of objects in the solar system.
- Describe observed moon phases, tides, and lunar and solar eclipses.
- Identify and explain the steps of the engineering design process and apply the knowledge to build a prototype.
- Explain how design features such as size, shape, mass, function, and cost limitations would affect the construction of a given prototype.

# GRADE EIGHT

## *Students will be able to....*

- Describe and give examples of ways in which the Earth's surface is built up and torn down by natural processes.
- Differentiate and give examples of elements and molecules.
- Differentiate between physical and chemical changes.
- Draw and describe the parts of an atom.
- Explain and give examples of how physical evidence, such as fossils and surface features of glaciation, support theories that the Earth has evolved over geologic time.
- Explain how design features such as size, shape, mass, function, and cost limitations would affect the construction of a given prototype.
- Explain how the movements of the Earth's crustal plates cause both slow and rapid changes in the Earth's surface.
- Follow lab directions and use equipment correctly.
- Identify and explain the steps of the engineering design process and can apply the knowledge to build a prototype.
- Identify specific organs of a frog; understands how human body systems work together.
- Understand the properties of acids and bases; explain the chemical reactions between them.
- Use the Periodic Table of Elements to determine properties of elements.
- Use the scientific method to answer questions, including creating data tables, making appropriate graphs, and drawing conclusions related to various experiments.