

# Science

G R A D E 3

At the end of the school year, students will be able to...

## GOAL 11 Inquiry

*(Integrated into the whole year) Understand the processes of scientific inquiry and technological design to investigate questions, conduct experiments and solve problems.*

### STANDARD A

**Know and apply the concepts, principles and processes of scientific inquiry.**

- \_\_\_\_\_ Formulate a question on a specific science topic and describe what you would do to answer the question.
- \_\_\_\_\_ Collect data for investigations using a variety of process skills.
- \_\_\_\_\_ \*Construct simple charts, graphs and visualizations of data.
- \_\_\_\_\_ Use data to explain results in his/her own words.
- \_\_\_\_\_ Compare observations of individual and group results.

### STANDARD B

**Know and apply the concepts, principles and processes of technological design.**

- \_\_\_\_\_ Formulate a design problem and describe how to solve the problem.
- \_\_\_\_\_ Describe the plan, identifying simple constraints and considering them in the design process.
- \_\_\_\_\_ \*Build a prototype of the design using available tools and materials.
- \_\_\_\_\_ Test the design using suitable instruments, techniques and measurements.
- \_\_\_\_\_ Assess test results and the effectiveness of solutions using given criteria and noting limitations in procedures.
- \_\_\_\_\_ Report the design, and test results in relation to established criteria.

## GOAL 12 Concepts

*Understand the fundamental concepts, principles and interconnections of the life, physical and earth/space sciences.*

### STANDARD A

**Know and apply concepts that explain how living things function, adapt and change.**

### STANDARD B

**Know and apply concepts that describe how living things interact with each other and with their environment.**

#### UNIT A1 HOW PLANTS LIVE and GROW

- \_\_\_\_\_ Describe characteristics and functions of plant leaves, stems and roots.
- \_\_\_\_\_ \*Describe the function of seeds, flowers and cones.
- \_\_\_\_\_ Describe how a seed grows into a plant.

#### UNIT A2 HOW ANIMALS GROW and CHANGE

- \_\_\_\_\_ Describe how animals grow from eggs and have characteristics of parents.
- \_\_\_\_\_ Describe the life cycle of animals (e.g., insects, spiders, fishes, frogs, mammals).
- \_\_\_\_\_ \*Identify the basic divisions of animals and common characteristics.
- \_\_\_\_\_ Describe how babies learn.

#### UNIT A3 LIVING THINGS and THEIR ENVIRONMENTS

- \_\_\_\_\_ Know that the world contains many kinds of environments and that plants and animals adapt to their environment.
- \_\_\_\_\_ \*Identify basic classifications of animals based on how they interact with their environment (e.g. diurnal, nocturnal, warm blooded, herbivores, carnivores, and omnivores).

#### UNIT A4 CHANGING ENVIRONMENTS

- \_\_\_\_\_ Explain the concept of food chains and webs and the related classification of plants and animals (e.g. producers, decomposers, consumers, herbivores and carnivores).
- \_\_\_\_\_ Describe how changes in environments and habitats affect organisms.
- \_\_\_\_\_ Describe why some organisms are endangered or extinct.
- \_\_\_\_\_ Describe ways that people affect plants and animals.
- \_\_\_\_\_ \*Identify ways that food and other products come from plants and animals.

## STANDARD C

Know and apply concepts that describe properties of matter and energy and the interactions between them.

### UNIT B1 MATTER and HOW IT CHANGES

- \_\_\_\_\_ Identify properties of matter.
- \_\_\_\_\_ \*Identify physical and chemical changes in matter

### UNIT B3 ENERGY IN YOUR WORLD

- \_\_\_\_\_ Describe how energy can be stored or changed.
- \_\_\_\_\_ Identify how heat is produced, moves and is measured.
- \_\_\_\_\_ Describe how matter is heated.
- \_\_\_\_\_ Identify how light travels and what lenses do.
- \_\_\_\_\_ Describe how light can be broken into the colors of the rainbow by means of a prism.
- \_\_\_\_\_ \*Describe how electricity flows in a circuit.

### UNIT B4 SOUND

- \_\_\_\_\_ \*Describe how sound is made and how to change pitch and volume.
- \_\_\_\_\_ Describe how sound travels.
- \_\_\_\_\_ Identify how living things make, hear and use sound.

## STANDARD D

Know and apply concepts that describe force and motion and the principles that explain them.

### UNIT B2 FORCE, MACHINES and WORK

- \_\_\_\_\_ \*Describe the effect of forces on an object (e.g., friction, gravity, magnetism).
- \_\_\_\_\_ Identify simple machines and what they do.

## STANDARD E

Know and apply concepts that describe the features and processes of the Earth and its resources.

## STANDARD F

Know and apply concepts that explain the composition and structure of the universe and the Earth's place in it.

### UNIT C1 CHANGES in the EARTH'S SURFACE

- \_\_\_\_\_ \*Describe how volcanoes and earthquakes change the Earth.
- \_\_\_\_\_ Identify landforms on the Earth's surface.
- \_\_\_\_\_ Describe how water and wind change the Earth's surface.
- \_\_\_\_\_ Describe how living things affect the Earth's surface.

### UNIT C2 MATERIALS of the EARTH

- \_\_\_\_\_ \*Describe materials (minerals, rocks and fossils) that come from the Earth.
- \_\_\_\_\_ Explain what soil is made from and compare types of soil.
- \_\_\_\_\_ Describe how to reduce, reuse and recycle.

### UNIT C3 THE SUN, PLANETS and MOON

- \_\_\_\_\_ \*Describe the planets and position of objects in the solar system.
- \_\_\_\_\_ Describe how the sun affects the Earth (e.g., day and night, seasons).
- \_\_\_\_\_ Describe how the moon moves and what causes phases.
- \_\_\_\_\_ Identify ways scientists learn about the sun, moon, and planets.

### UNIT C4 CLOUDS and STORMS

- \_\_\_\_\_ Describe how clouds form and clues they give us.
- \_\_\_\_\_ \*Identify what happens to water in clouds, types of precipitation and stages in the water cycle.
- \_\_\_\_\_ Identify what causes storms.

## GOAL 23 Human Body

*Understand human body systems and factors that influence growth and development*

### STANDARD A

Describe and explain the structure and functions of the human body systems and how they interrelate.

### STANDARD B

Explain the effects of health-related actions on the body system.

### STANDARD C

Describe factors that affect growth and development.

#### UNIT D1 THE BODY'S SYSTEMS

\_\_\_\_\_ \*Identify basic body systems and their functions (e.g. skeletal, circulatory and nervous systems).

\_\_\_\_\_ Describe how bones and muscles work.

#### UNIT D2 STAYING HEALTHY

\_\_\_\_\_ Identify ways to stay healthy (e.g., nutrition, exercise, rest).

\_\_\_\_\_ \*Identify what germs are and how they are harmful.

\_\_\_\_\_ Describe the effect of substances like medications, alcohol, tobacco and illegal drugs on the body.

## GOAL 13 Connections

*Understand the relationship among science, technology and society in historical and contemporary contexts.*

### STANDARD A

Know and apply the accepted practices of science.

\_\_\_\_\_ Demonstrate basic safety rules and procedures for science activities.

\_\_\_\_\_ \*Describe why investigation results may vary.

\_\_\_\_\_ Record data accurately on a data table.

### STANDARD B

Know and apply concepts that describe the interaction between science, technology and society.

\_\_\_\_\_ Describe how technology is used in science for a variety of purposes.

\_\_\_\_\_ Describe how major scientific discoveries have caused changes in the way people live.

\_\_\_\_\_ \*Identify science and technology related careers.

\_\_\_\_\_ Describe the benefits and limitations of reducing, reusing and recycling.

\_\_\_\_\_ Describe ways that technology changes an ecosystem.

\_\_\_\_\_ Describe the history of technological advancements.