

Standard 4 –Science Elementary

For an alphabetical listing of all the curriculum units shown here, with links to detailed descriptions and purchasing information, please see

<http://www.lhsgems.org/gemsguides.html>

Physical Setting

1. The Earth and celestial phenomena can be described by principles of relative motion and perspective.

Students:

- **describe patterns of daily, monthly, and seasonal changes in their environment.**

Earth, Moon & Stars, Hot Water and Warm Homes From Sunlight, Investigating Artifacts, Moons of Jupiter, On Sandy Shores, Schoolyard Ecology, Space Science Sequence for Grades 3-5, Terrarium Habitats, Tree Homes

2. Many of the phenomena that we observe on Earth involve interactions among components of air, water, and land.

Students:

- **describe the relationships among air, water, and land on Earth.**

On Sandy Shores, Stories in Stone

3. Matter is made up of particles whose properties determine the observable characteristics of matter and its reactivity.

Students:

- **observe and describe properties of materials using appropriate tools.**

Bubble Festival, Crime Lab Chemistry, Eggs Everywhere, Electric Circuits, Investigating Artifacts, Involving Dissolving, Liquid Explorations, Microscopic Explorations, Moons of Jupiter, Mystery Festival, Of Cabbages and Chemistry, On Sandy Shores, Oobleck, Penguins and Their Young, Secret Formulas, Sifting Through Science, Stories in Stone, Terrarium Habitats

- **describe chemical and physical changes, including changes in states of matter.**

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Crime Lab Chemistry, Involving Dissolving, Liquid Explorations, Mystery Festival, Of Cabbages and Chemistry, Oobleck, Penguins and Their Young, Secret Formulas, Sifting Through Science, Stories in Stone

4. Energy exists in many forms, and when these forms change energy is conserved.

Students:

- **describe a variety of forms of energy (e.g., heat, chemical, light) and the changes that occur in objects when they interact with those forms of energy.**

Hot Water and Warm Homes From Sunlight, Microscopic Explorations, Stories in Stone

- **observe the way one form of energy can be transformed into another form of energy present in common situations (e.g., mechanical to heat energy, mechanical to electrical energy, chemical to heat energy).**

Hot Water and Warm Homes From Sunlight

5. Energy and matter interact through forces that result in changes in motion.

Students:

- **describe the effects of common forces (pushes and pulls) on objects, such as those caused by gravity, magnetism, and mechanical forces.**

Earth, Moon & Stars, Eggs Eggs Everywhere, Electric Circuits, Moons of Jupiter, Sifting Through Science, Space Science Sequence for Grades 3-5

- **describe how forces can operate across distances.**

Moons of Jupiter, Space Science Sequence for Grades 3-5

The Living Environment

1. Living things are both similar to and different from each other and nonliving things.

Students:

- **describe the characteristics of and variations between living and nonliving things.**

Animal Defenses, Ant Homes Under the Ground, Aquatic Habitats, Buzzing a Hive, Eggs Eggs Everywhere, Elephants and Their Young, Hide a Butterfly, Ladybugs, Microscopic Explorations, Mother Opossum and Her Babies, On Sandy Shores, Penguins and Their Young, Schoolyard Ecology, Terrarium Habitats, Tree Homes

- **describe the life processes common to all living things.**

Animal Defenses, Ant Homes Under the Ground, Aquatic Habitats, Buzzing a Hive, Eggs Eggs Everywhere, Elephants and Their Young, Hide a Butterfly, Ladybugs, Mother Opossum and Her Babies, On Sandy Shores, Penguins and Their Young, Schoolyard Ecology, Terrarium Habitats, Tree Homes

2. Organisms inherit genetic information in a variety of ways that result in continuity of structure and function between parents and offspring.

Students:

- **recognize that traits of living things are both inherited and acquired or learned.**

Ant Homes Under the Ground, Aquatic Habitats, Buzzing a Hive, Eggs Eggs Everywhere, Elephants and Their Young, Ladybugs, Mother Opossum and Her Babies, Penguins and Their Young, Tree Homes

- **recognize that for humans and other living things there is genetic continuity between generations.**

Ant Homes Under the Ground, Buzzing a Hive, Eggs Eggs Everywhere, Elephants and Their Young, Ladybugs, Mother Opossum and Her Babies, Penguins and Their Young, Tree Homes

3. Individual organisms and species change over time.

Students:

- **describe how the structures of plants and animals complement the environment of the plant or animal.**

Animal Defenses, Ant Homes Under the Ground, Aquatic Habitats, Buzzing a Hive, Eggs Eggs Everywhere, Elephants and Their Young, Hide a Butterfly, Ladybugs, Mother Opossum and Her Babies, On Sandy Shores, Penguins and Their Young, Schoolyard Ecology, Terrarium Habitats, Tree Homes

- **observe that differences within a species may give individuals an advantage in surviving and reproducing.**

Animal Defenses, Ant Homes Under the Ground, Aquatic Habitats, Buzzing a Hive, Eggs Eggs Everywhere, Elephants and Their Young, Hide a Butterfly, On Sandy Shores, Penguins and Their Young, Schoolyard Ecology, Tree Homes

4. The continuity of life is sustained through reproduction and development.

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Students:

- **describe the major stages in the life cycles of selected plants and animals.**

Ant Homes Under the Ground, Aquatic Habitats, Buzzing a Hive, Eggs Eggs Everywhere, Elephants and Their Young, Ladybugs, Mother Opossum and Her Babies, Penguins and Their Young, Tree Homes

- **describe evidence of growth, repair, and maintenance, such as nails, hair, and bone, and the healing of cuts and bruises.**

Ant Homes Under the Ground, Aquatic Habitats, Buzzing a Hive, Eggs Eggs Everywhere, Elephants and Their Young, Ladybugs, Mother Opossum and Her Babies, Penguins and Their Young, Terrarium Habitats, Tree Homes

5. Organisms maintain a dynamic equilibrium that sustains life.

Students:

- **describe basic life functions of common living specimens (guppy, mealworm, gerbil).**

Ant Homes Under the Ground, Aquatic Habitats, Buzzing a Hive, Eggs Eggs Everywhere, Elephants and Their Young, Ladybugs, Mother Opossum and Her Babies, Penguins and Their Young, Schoolyard Ecology, Terrarium Habitats, Tree Homes

- **describe some survival behavior of common living specimens.**

Animal Defenses, Ant Homes Under the Ground, Aquatic Habitats, Buzzing a Hive, Eggs Eggs Everywhere, Elephants and Their Young, Hide a Butterfly, Ladybugs, Mother Opossum and Her Babies, On Sandy Shores, Penguins and Their Young, Schoolyard Ecology, Terrarium Habitats, Tree Homes

6. Plants and animals depend on each other and their physical environment.

Students:

- **describe how plants and animals, including humans, depend upon each other and the nonliving environment.**

Ant Homes Under the Ground, Aquatic Habitats, Buzzing a Hive, Eggs Eggs Everywhere, Elephants and Their Young, Hide a Butterfly, Investigating Artifacts, Ladybugs, Moons of Jupiter, Mother Opossum and Her Babies, On Sandy Shores, Penguins and Their Young, Schoolyard Ecology, Terrarium Habitats, Tree Homes

- **describe the relationship of the sun as an energy source for living and nonliving cycles.**

Aquatic Habitats, Moons of Jupiter, On Sandy Shores, Terrarium Habitats, Tree Homes

7. Human decisions and activities have had a profound impact on the physical and living environment.

Students:

- **identify ways in which humans have changed their environment and the effects of those changes.**

Elephants and Their Young, Ladybugs, On Sandy Shores