## Grade 2
### Life Science
#### Basics of Life

**Living Things and Their Needs**

- Learn the difference between living and nonliving things.
- Learn about the basic needs of living things.
- Learn how to group plants and animals based on characteristics.

Unit 2, Lesson 1, pages T51-T57, T66-T70, T80-T89, “Ants! They are hard workers!”
Unit 2, Lesson 3, pages T248-T249, “Meet the Bats”
Unit 2, Lesson 5, pages T401-T407, T416-T422, T434-T439, T448-T453, “Tell Me, Tree”

#### Organisms Are Living Things

- Recognize the basic needs of organisms.
- Learn that resources are limited and organisms compete for resources.
- Understand that the amount of resources an organism needs is dependent on the size of the organism.
- Learn that plants and animals are grouped by structural characteristics.

Unit 2, Lesson 1, pages T51-T57, T66-T70, T80-T89, “Ants! They are hard workers!”
Unit 2, Lesson 3, pages T248-T249, “Meet the Bats”
Unit 2, Lesson 5, pages T401-T407, T416-T422, T434-T439, T448-T453, “Tell Me, Tree”

#### Living Things Have Needs

- Define organisms as living things that have needs.
- Describe how different organisms meet their needs.
- Differentiate the needs of plants and the needs of animals.

Unit 2, Lesson 1, pages T51-T57, T66-T70, T80-T89, “Ants! They are hard workers!”
Unit 2, Lesson 3, pages T248-T249, “Meet the Bats”
<table>
<thead>
<tr>
<th>Grouping Living Things A</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Explain how animals are grouped.</td>
</tr>
<tr>
<td>• Identify examples of vertebrates and invertebrates.</td>
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<tr>
<td>• Describe the major groups of plants—seed and seedless.</td>
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<tr>
<td>Unit 2, Lesson 5, pages T401-T407, T416-T422, T434-T439, T448-T453, “Tell Me, Tree”</td>
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<table>
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<tr>
<th>Life Cycles</th>
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<tbody>
<tr>
<td>• Explain that all organisms grow and change.</td>
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<tr>
<td>• Describe metamorphosis and identify animals that go through it.</td>
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<tr>
<td>• Identify the role of seeds in the life cycle of flowering plants.</td>
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<tr>
<td>Unit 2, Lesson 1, pages T28-T35, “A Log’s Life”</td>
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<td>Unit 2, Lesson 1, pages T51-T57, T66-T70, T80-T89, “Ants! They are hard workers!”</td>
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<td>Unit 2, Lesson 1, pages T92-T93, Science Inquiry, “From Eggs to Butterflies”</td>
</tr>
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<td>Unit 2, Lesson 3, pages T248-T249, “Meet the Bats”</td>
</tr>
<tr>
<td>Unit 2, Lesson 3, pages T268-T269, Science Inquiry, “From Tadpole to Frog”</td>
</tr>
<tr>
<td>Unit 2, Lesson 5, pages T401-T407, T416-T422, T434-T439, T448-T453, “Tell Me, Tree”</td>
</tr>
<tr>
<td>Unit 6, Lesson 5, pages T448-T449, Science Inquiry, “Pumpkins”</td>
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<th>Organisms</th>
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<tbody>
<tr>
<td>Learning About Plants</td>
</tr>
<tr>
<td>• Learn about the things plants need to survive, including air, water, food, and sunlight.</td>
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<tr>
<td>• Learn about the steps of a plant’s life cycle.</td>
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<td>Unit 4, Lesson 5, pages T392-T393, “A Plant That Acts Like an Animal”</td>
</tr>
<tr>
<td>Unit 5, Lesson 3, T248-T249, Science Inquiry, “Window Gardens”</td>
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<td>Unit 6, Lesson 5, pages T448-T449, Science Inquiry, “Pumpkins”</td>
</tr>
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</table>
### Learning About Animals
- Learn that different animals have different characteristics and that they are grouped by common characteristics.
- Learn that many characteristics are inherited from parents, but some are caused or influenced by the environment.
- Learn about life cycles.

#### Unit References
- Unit 2, Lesson 1, pages T51-T57, T66-T70, T80-T89, “Ants! They are hard workers!”
- Unit 2, Lesson 1, pages T92-T93, “From Eggs to Butterflies”
- Unit 2, Lesson 3, pages T248-T249, “Meet the Bats”
- Unit 2, Lesson 3, pages T268-T269, Science Inquiry, “From Tadpole to Frog”

### People Have Needs
- Describe what humans need to survive.
- Explain what people can do to stay healthy.
- Recognize that food contains nutrients that the human body uses.

### Microorganisms and People
- Explain why microscopes are needed to view microorganisms.
- Identify ways in which some microorganisms are helpful to people.
- Recognize that microorganisms can harm people and other living things.

### Ecosystems
### Habitats Are Everywhere

- **Understand that plants and animals inhabit different kinds of environments and have features that help them survive in those places.**
- **Describe the characteristics of living things that help a plant or animal to acquire what it needs to live.**

<table>
<thead>
<tr>
<th>Unit 1, Lesson 3, pages T236-T237, “A Good Life at the Lake”</th>
</tr>
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<tbody>
<tr>
<td>Unit 1, Lesson 4, pages T330-T331, “Survival”</td>
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<td>Unit 4, Lesson 1, pages T28-T29, “Under the Moon”</td>
</tr>
<tr>
<td>Unit 4, Lesson 1, pages T30-T35, “Animals in Camouflage”</td>
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<td>Unit 4, Lesson 1, pages T51-T57, T64-T70, T80-T91, “Animal Camouflage”</td>
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<tr>
<td>Unit 4, Lesson 1, pages T94-T95, Science Inquiry, “Smart Bears Sleep the Winter Away”</td>
</tr>
<tr>
<td>Unit 4, Lesson 2, pages T135-T142, T152-T157, T168-T173, T182-T187, “Hungry Little Hare”</td>
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<tr>
<td>Unit 4, Lesson 3, pages T229-T233, T242-T246, T256-T259, T268-T271, “How to Hide and Octopus and Other Sea Creatures”</td>
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<td>Unit 4, Lesson 3, pages T272-T273, Science Inquiry, “Creatures in Costume”</td>
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<td>Unit 4, Lesson 5, pages T401-T406, T414-T416, T426-T429, T438-T439, “I See Animals Hiding”</td>
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<tr>
<td>Unit 4, Lesson 5, pages T456-T457, Science Inquiry, “How Animals Hide”</td>
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### Ecosystems All Around

- **Understand that living organisms need to be adapted to their environment to survive.**
  - Unit 1, Lesson 4, pages T330-T331, Science Inquiry, “Survival”
  - Unit 2, Lesson 1, pages T28-T35, “A Log’s Life”
  - Unit 2, Lesson 1, pages T51-T57, T66-T70, T80-T89, “Ants! They are hard workers!”
  - Unit 2, Lesson 3, pages T248-T249, “Meet the Bats”
  - Unit 4, Lesson 1, pages T30-T35, “Animals in Camouflage”
  - Unit 4, Lesson 1, pages T51-T57, T64-T70, T80-T91, “Animal Camouflage”
  - Unit 4, Lesson 1, pages T94-T95, Science Inquiry, “Smart Bears Sleep the Winter Away”
  - Unit 4, Lesson 2, pages T135-T142, T152-T157, T168-T173, T182-T187, “Hungry Little Hare”
  - Unit 4, Lesson 2, pages T188-T189, Science Inquiry, “Food Chains and Food Webs”
  - Unit 4, Lesson 3, pages T229-T233, T242-T246, T256-T259, T268-T271, “How to Hide and Octopus and Other Sea Creatures”
  - Unit 4, Lesson 3, pages T272-T273, Science Inquiry, “Creatures in Costume”
  - Unit 4, Lesson 5, pages T401-T406, T414-T416, T426-T429, T438-T439, “I See Animals Hiding”
  - Unit 4, Lesson 5, pages T456-T457, Science Inquiry, “How Animals Hide”

- **Compare the ways that living organisms depend on each other and on their environments.**

- **Describe the relationships between organisms within a food web and how animals are grouped according to what they eat.**

### Organisms Interact

- **Recognize that living things and nonliving things are in an ecosystem.**
  - Unit 2, Lesson 1, pages T28-T35, “A Log’s Life”
  - Unit 2, Lesson 1, pages T51-T57, T66-T70, T80-T89, “Ants! They are hard workers!”
  - Unit 2, Lesson 3, pages T248-T249, “Meet the Bats”

- **Distinguish between communities and populations.**

- **Describe how habitats provide organisms with the things they need.**
### Energy in an Ecosystem

- Describe how plants use energy from the sun to produce food.
- Know that animals obtain energy by eating producers or other consumers.
- Model how energy moves through a food chain.

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### Organisms Compete

- Recognize that living things compete for resources.
- Describe adaptations that help plants survive.
- Describe adaptations that help animals survive.

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<th>Unit 2, Lesson 1, pages T51-T57, T66-T70, T80-T89, “Ants! They are hard workers!”</th>
<th>Unit 2, Lesson 3, pages T219-T225, T234-T238, T250-T255, T264-T267, “Hungry Hoppers: Grasshopper in Your Backyard”</th>
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### People and the Ecosystem

- Identify ways in which human actions can change an ecosystem.
- Name some natural causes of change in ecosystems.
- Discuss ways to conserve resources.

| Unit 1, Lesson 2, pages T125-T129, T138-T142, T154-T157, T166-T169, “For the Love of Our Earth” | Unit 4, Lesson 5, pages T392-T393, “A Plant That Acts Like an Animal” |
## Scientific Method

- **Unit 2, Lesson 1, pages T36-T37, Inquiry Process**
- **Unit 4, Lesson 1, pages T36-T37, T96-T97, Inquiry Process**
- **Unit 4, Lesson 2, pages T142-T143, T190-T191, Inquiry Process**
- **Unit 4, Lesson 3, pages T234-T235, T274-T275, Inquiry Process**
- **Unit 4, Lesson 4, pages T362-T363, Inquiry Process**
- **Unit 4, Lesson 5, pages T406-T407, T458-T459, T464-T465, Inquiry Process**

## Grade 2

### Earth Science

#### Earth Materials

**Learning About Earth’s Surface**

- **Describe the different materials that make up Earth’s surface.**
- **Understand that water can be found in streams, lakes, and oceans on Earth’s surface.**
- **Recognize that soil is made up of rock particles and organic material and that soils have different properties.**
- **Explain how humans use resources from Earth’s surface and how we can protect those resources.**

- **Unit 1, Lesson 2, pages T125-T129, T138-T142, T154-T157, T166-T169, “For the Love of Our Earth”**
- **Unit 2, Lesson 2, pages T131-T138, T146-T150, T162-T167, T176-T179, “If You Find a Rock”**
- **Unit 2, Lesson 2, pages T180-T181, “A Story from the Past”**
### Earth’s Natural Resources

- Describe rocks, minerals, and fossils.
- Compare the physical properties of different kinds of rocks and understand that rock is composed of different combinations of minerals.
- Describe soil.
- Understand how humans use natural resources from Earth and how they can change the environment through the use of resources.

Unit 1, Lesson 2, pages T125-T129, T138-T142, T154-T157, T166-T169, “For the Love of Our Earth”
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### Forces Shape the Land

- Describe features on Earth’s surface.
- Identify changes to Earth’s surface that can occur slowly or rapidly.
- Explain how volcanoes and earthquakes change Earth’s surface.

### Materials on Earth

- Identify three ways in which rocks are formed.
- Explain that scientists study fossils to learn about plants and animals that lived long ago.
- Describe what soil is made of.

Unit 2, Lesson 2, pages T131-T138, T146-T150, T162-T167, T176-T179, “If You Find a Rock”
Unit 2, Lesson 2, pages T180-T181, “A Story from the Past”
## Earth’s Resources

- Identify natural resource found on Earth.
- Discuss advantages and disadvantages of using fossil fuels.
- List ways to conserve renewable and nonrenewable resources.

## Water and Weather

### Weather on Earth

- Describe how weather changes from day to day and follows patterns based on the seasons.
- Identify different types of weather and the characteristics of each type.
- Identify forms of precipitation as either solid or liquid.
- Explain how water moves through the atmosphere.

### Weather and Water

- Explain how the atmosphere is composed of air and how air has properties.
- Recognize that air is matter because it takes up space, it is able to move in the form of wind, and it can be measured in direction and speed.
- Describe the water cycle and how it causes weather.
### Air Around You

- Describe the structure and composition of Earth’s atmosphere.
- Identify characteristics of weather.
- Explain that the movement of air causes changes in weather.

### Water Cycle

- Identify sources of water on Earth.
- Distinguish among the processes of the water cycle.
- Explain that living things need a clean, safe water supply.

### Predicting Weather A

- Describe the tools used to measure and predict weather.
- Recognize that severe storms can damage property and living things.
- List safety measures people can take in the event of severe weather.

### Space

#### Earth in Space A

- Understand the rotation of Earth in space.
- Recognize the phases of the moon.
### Learning About Space

- Explain the difference between rotation and orbit.
- Understand that Earth orbits the sun and the moon orbits Earth.
- Recognize the relationships between the sun, moon, and Earth and how they result in day, night, seasonal changes, and moon phases.

### Earth, Sun, and Moon

- Recognize that Earth’s rotation causes night and day.
- Explain how the tilt of Earth’s axis causes seasons.
- Describe why the moon appears to change shape.

### The Sun and Planets

- Explain that the planets orbit the sun in our solar system.
- List the inner planets in order from the sun.
- List the outer planets in order from the sun.

### Exploring Space A

- Explain that groups of stars form patterns called constellations.
- Describe how telescopes are used to study space.
- Identify the technology used to study space, including the space shuttle, space probes, and satellites.

Getting Started, pages GS50-GS51, “The Red Star”
<table>
<thead>
<tr>
<th>Properties of Matter A</th>
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</thead>
<tbody>
<tr>
<td>Explain that matter has properties and can be classified.</td>
</tr>
<tr>
<td>Understand that the properties of matter can change when it is mixed, cooled, or heated.</td>
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<tr>
<td>Recognize that matter usually exists in one of three states: solid, liquid, or gas.</td>
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<tr>
<th>Characteristics of Matter</th>
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<td>Explain that matter is made of smaller pieces.</td>
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<tr>
<td>Understand that matter can change state.</td>
</tr>
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<td>Recognize the observable properties of solids, liquids, and gases.</td>
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<td>Understand that matter can be mixed together.</td>
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<thead>
<tr>
<th>Properties of Matter B</th>
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<tbody>
<tr>
<td>Define and describe matter.</td>
</tr>
<tr>
<td>Identify some properties of matter.</td>
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<tr>
<td>Explain how some properties of matter are measured.</td>
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</tbody>
</table>
# Solids, Liquids, and Gases

- Identify the three states of matter.
- Explain physical and chemical changes of matter.
- Explore what happens to matter during a chemical change.

# Heating and Cooling Matter

- Define heat as a flow of energy.
- Distinguish which materials make good conductors.
- Compare and contrast conductors and insulators.

# Forces

## Learning About Forces

- Describe how gravity pulls objects toward Earth’s surface.
- Explain that pushes and pulls result from forces and cause motion.
- Recognize that motion changes when forces change and that equal forces can cause balance.
### Forces and Motion
- Recognize that forces cause motion and that forces may be experienced as pushes or pulls on an object.
- Understand that different objects require different amounts of force to move.
- Explain that motion can be observed, described, and measured.

### Forces Make Things Move
- Explain that all changes in motion are caused by forces.
- Identify friction and gravity as forces that affect motion.
- Determine what gravity is and how it affects us.

### Magnetism
- Explain that magnets attract some metal objects.
- Describe some characteristics of a magnet’s poles.
- Discuss the relationship between electricity and magnetism.

### Simple Machines
- Explain what simple machines are.
- Identify various simple machines.
- Describe uses of simple machines.
### Energy

#### Heat, Light, and Sound

- Recognize that heat, light, and sound are types of energy.
- Discover that the sun is a source of heat and light.
- Explain that vibrations cause sound waves.

#### Energy Is Everywhere

- Explain that energy can take on many forms and that it can be transferred.
- Discuss that energy can be in the form of sound, light, and heat.
- Recognize that energy can have many sources.

#### Light and Sound

- Explain how light travels and interacts with a variety of materials.
- Explain why we have colors.
- Describe how sounds are made and the characteristics of sound waves.

#### Electrical Energy A

- Identify sources of electricity.
- Describe how electricity moves and how it is controlled.
- Recognize the role switches play in controlling electric current.
### Energy Sources

- Identify sources of stored energy.
- Discuss ways that energy can change form.
- Compare and contrast renewable and nonrenewable energy sources.

### Scientific Method

- Scientific Method