

# Earth Science in the K-8 TEKS

## Kindergarten

K.9 Science Concept: The student knows that organisms have basic needs.

C. Identify ways that the Earth can provide resources for life.

K.10 Science Concepts: The student knows that the natural world includes rocks, soil and water.

A. Observe and describe properties of rocks, soil, and water.

B. Give examples of ways that rocks, soil, and water are useful.

## First Grade

1.10 Science Concept: The student knows that the natural world includes rocks, soil, and water.

A. Identify and describe a variety of natural sources of water including streams, lakes, and oceans.

B. Observe and describe differences in rocks and soil samples.

C. Identify how rocks, soils, and water are used and how they can be recycled.

## Second Grade

2.8 The student distinguishes between living organisms and nonliving objects.

A. Identify characteristics of living organisms.

B. Identify characteristics of nonliving objects (this is where most of the teachers use rocks)

2.10 The student knows that the natural world includes rocks, soil, water, and gases of the atmosphere.

A. Describe and illustrate the water cycle.

B. Identify uses of natural resources.

## Third Grade

3.6 The student knows that forces cause change.

B. Identify that forces such as earthquakes and glaciers can change the surface of the Earth.

3.7 The student knows that matter has physical properties.

A. Gather information including temperature, magnetism, **hardness**, and mass using the appropriate tools.

B. Identify matter as liquids, solids, and gases.

3.11 The student knows that the natural world includes earth materials and objects in the sky.

A. Identify and describe the importance of earth materials including rocks, soil, water, and gases of the atmosphere in the local area and classify them as renewable, nonrenewable, or inexhaustible resources.

B. Identify and record properties of soils such as color and texture, capacity to retain water, and ability to support the growth of plants.

## Fourth Grade

4.6 The student knows that change can create recognizable patterns.

A. Identify patterns of change such as in weather, **metamorphosis**, and objects in the sky (interpreted by TEA to include the rock cycle as well as growth of insects).

B. Use reflections to verify that natural objects have symmetry (crystals).

- 4.8 The student knows that adaptations may increase the survival of the members of a species.
- C. Identify the kinds of species that lived in the past and compare them to existing species.
- 4.10 The student knows that certain past events affect present and future events.
- A. Identify and observe the effects of events that require time for changes to become noticeable including growth, erosion, dissolving, weathering, and flow.
  - B. Draw conclusions about “what happened before” using fossils or charts and tables.
- 4.11 The student knows that the natural world includes earth materials and objects in the sky.
- A. Test the properties of soils including texture, capacity to retain water, and ability to support life.
  - B. Summarize the effects of the oceans on land.
  - C. Identify the Sun as the major source of energy for the Earth and understand its role in the growth of plants, in the creation of winds, and in the water cycle.

#### **Fifth grade**

- 5.11 The student knows that certain past events affect present and future events.
- A. Identify and observe actions that require time for changes to be measurable including growth, erosion, dissolving, weathering, and flow;
  - B. Draw conclusions about “what happened before” using data such as from tree growth rings and sedimentary rock sequences.
  - C. Identify past events that led to formation of the Earth’s renewable, nonrenewable, and inexhaustible resources.
- 5.12 The student knows that the natural world includes earth materials and objects in the sky.
- A. Interpret how land forms are the result of a combination of constructive and destructive forces such as deposition of sediment and weathering.
  - B. Describe processes responsible for the formation of coal, oil, gas, and minerals.
  - C. Identify the physical characteristics of the Earth and compare them to the physical characteristics of the moon.

#### **Sixth grade**

- 6.6 The student knows that there is a relationship between force and motion.
- D. Identify forces that shape features of the Earth including uplifting, movement of water, and volcanic activity.
- 6.8 The student knows that complex interactions occur between matter and energy.
- A. Define matter and energy.
- 6.9 The student knows that obtaining, transforming, and distributing energy affects the environment.
- B. Compare methods used for transforming energy in devices such as water heaters, cooling systems, or hydroelectric and wind power plants.
  - C. Research and describe energy types from their source to their use and determine if the type is renewable, nonrenewable, or inexhaustible.
- 6.14 The student knows the structures and functions of Earth systems.

- A. Summarize the rock cycle.
- B. Identify relationships between groundwater and surface water in a watershed.
- C. Describe components of the atmosphere including oxygen, nitrogen, and water vapor, and identify the role of atmospheric movement in weather change.

**Seventh grade**

- 7.8 The student knows that complex interactions occur between matter and energy.
- A. Illustrate examples of potential and kinetic energy in everyday life such as objects at rest, movement of geologic faults, and falling water.
- 7.14 The student knows that natural events and human activity can alter Earth systems.
- A. Describe and predict the impact of different catastrophic events on the Earth.
  - B. Analyze effects of regional erosion, deposition, and weathering.
  - C. Make inferences and draw conclusions about the effects of human activity on Earth's renewable, nonrenewable, and inexhaustible resources.

**Eighth grade**

- 8.7 The student knows that there is a relationship between force and motion.
- B. Recognize that waves are generated and can travel through different media. (Earthquakes and ocean waves make this an Earth Science TEK.)
- 8.12 The student knows that cycles exist in Earth systems.
- A. Analyze and predict the sequence of events in the lunar and rock cycle.
  - B. Relate the role of the oceans to climatic changes.
  - C. Predict the results of modifying the Earth's nitrogen, water, and carbon cycles.
- 8.14 The student knows that natural events and human activities can alter Earth systems.
- A. Predict land features resulting from gradual changes such as mountain building, beach erosion, land subsidence, and continental drift.
  - B. Analyze how a natural or human event may have contributed to the extinction of some species.
  - C. Describe how human activities have modified soil, water, and air quality.