

# Tree Homes

## PreK-K-1

### National Science Education Standards

#### SCIENCE AS INQUIRY STANDARDS

##### LEVELS K-4

Abilities necessary to do scientific inquiry

Understanding about scientific inquiry

#### LIFE SCIENCE STANDARDS

##### LEVELS K-4

Characteristics of organisms

Life cycles of organisms

Organisms and environments

### Texas Essential Knowledge and Skills

#### Kindergarten Science

##### (a) Introduction.

- (1) In Kindergarten, science introduces the use of simple investigations and fieldwork to help students develop the skills of asking questions, gathering information, communicating findings, and making informed decisions. Using their own senses and common tools such as a hand lens, students make observations and collect information.
- (2) As students learn science skills, they identify component of the natural world including rocks, soil, and water. Students observe the seasons and growth as examples of change. In addition, Kindergarten science includes the identification of objects and their parts. Students learn how to group living and nonliving things and explore the basic needs of living things.
- (3) Science is a way of learning about the natural world. Students should know how science has built a vast body of changing and increasing knowledge described by physical, mathematical, and conceptual models, and also should know that science may not answer all questions.
- (4) A system is a collection of cycles, structures, and processes that interact. Students should understand a whole in terms of its components and how these components relate to each other and to the whole. All systems have basic properties that can be described in terms of space, time, energy, and matter. Change and constancy occur in systems and can be observed and measured as patterns. These patterns help to predict what will happen next and can change over time.
- (5) Investigations are used to learn about the natural world. Students should understand that certain types of questions can be answered by investigations, and that methods,

models, and conclusions build from these investigations change as new observations are made. Models of objects and events are tools for understanding the natural world and can show how systems work. They have limitations and based on new discoveries are constantly being modified to more closely reflect the physical world.

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(b) Knowledge and skills

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| (1) Scientific processes. The student conduct laboratory investigations and fieldwork using safe, environmentally appropriate, and ethical practices.             | The student is expected to:<br>(A) demonstrate safe practices during laboratory investigations and fieldwork; and<br>(B) make wise choices in the use and conservation of resources and the disposal of materials.  |
| (2) Scientific processes. The student develops abilities necessary to do science inquiry in both the field and the classroom.                                     | The student is expected to:<br>(A) ask questions about objects and events;<br>(B) plan and conduct simple investigations;<br>(C) gather information using simple equipment and tools to extend the senses;<br>(D) construct reasonable explanations using information; and<br>(E) communicate findings about simple investigations.   |
| (3) Scientific processes. The student knows that information and critical thinking are used in making decisions.  | The student is expected to:<br>(A) make decisions using information.  |
| (4) Scientific processes. The student uses age-appropriate tools and models to verify that objects and parts of objects can be observed, described, and measured. | The student is expected to:<br>(A) make observations using tools including hand lenses, balances, cups, and bowls, and<br>(B) identify senses as tools of observation.  |
| (5) Science concepts. The student knows that objects have properties and patterns.  | The student is expected to:<br>(A) compare and describe the properties of objects; and<br>(B) observe and identify patterns including seasons, growth, and day and night.   |
| (6) Science concepts. The student knows that objects have parts.  | The student is expected to:<br>(A) sort objects according to their parts;<br>(B) observe and record parts of plants including leaves, roots, stems, and flowers;<br>(C) observe and record parts of animals including wings, feet, heads, and tails; and<br>(D) identify parts that, when separated from the whole, may result in the part or the whole not working such as cars without wheels and plants without roots. |

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| (7) Science concepts. The student knows that many types of change occur.     | The student is expected to:<br>(A) observe, describe, and record changes in size, weight, color, position, quantity, sound, and movement;<br>(B) identify that heat causes change, such as ice melting or the sun warming the air; and<br>(D) observe and record stages in the life cycle or organisms. |
| (9) Science concepts. The student knows that living things have basic needs. | The student is expected to:<br>(A) identify examples of how living things meet their basic needs;<br>(B) give examples of how living things depend on each other, and<br>(C) identify ways that the Earth provides resources for life.  |

## Grade 1 Science

### (a) Introduction.

- (1) In Grade 1, science introduces the use of simple investigations and fieldwork to help students develop the skills of asking questions, gathering information, making measurements using non-standard units, using tools such as a thermometer, to extend their senses, constructing explanations, and drawing conclusions.
  - (2) As students learn science skills, they identify component of the natural world including rocks, soil, and natural resources. Students observe that heat from the sun or friction, is an example of something that causes change. In addition, Grade 1 students identify basic needs of living things, explore ways that living things depend on each other, and group living an nonliving things. Students identify parts that can be put together with other parts to do new things.
  - (3) Science is a way of learning about the natural world. Students should know how science has built a vast body of changing and increasing knowledge described by physical, mathematical, and conceptual models, and also should know that science may not answer all questions.
  - (4) A system is a collection of cycles, structures, and processes that interact. Students should understand a whole in terms of its components and how these components relate to each other and to the whole. All systems have basic properties that can be described in terms of space, time, energy, and matter. Change and constancy occur in systems and can be observed and measured as patterns. These patterns help to predict what will happen next and can change over time.
  - (5) Investigations are used to learn about the natural world. Students should understand that certain types of questions can be answered by investigations, and that methods, models, and conclusions build from these investigations change as new observations are made. Models of objects and events are tools for understanding the natural world and can show how systems work. They have limitations and based on new discoveries are constantly being modified to more closely reflect the physical world.
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(b) Knowledge and skills

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| (1) Scientific processes. The student conduct laboratory investigations and fieldwork using safe, environmentally appropriate, and ethical practices.             | The student is expected to:<br>(A) demonstrate safe practices during laboratory investigations and fieldwork; and<br>(B) make wise choices in the use and conservation of resources and the disposal of materials.   |
| (2) Scientific processes. The student develops abilities necessary to do science inquiry in both the field and the classroom.                                     | The student is expected to:<br>(A) ask questions about objects and events;<br>(B) plan and conduct simple investigations<br>(C) compare results of investigations with what students and scientists know about the world;<br>(D) gather information using simple equipment and tools to extend the senses;<br>(E) construct reasonable explanations and draw conclusions using information and prior knowledge; and<br>(F) communicate findings about simple investigations. |
| (3) Scientific processes. The student knows that information and critical thinking are used in making decisions.  | The student is expected to:<br>(A) make decisions using information, and<br>(B) discuss and justify the merits of decisions.   |
| (4) Scientific processes. The student uses age-appropriate tools and models to verify that objects and parts of objects can be observed, described, and measured. | The student is expected to:<br>(A) collect information using tools including hand lenses, clocks, computers, thermometers, and balances;<br>(B) record and compare collected information; and<br>(C) measure objects and parts of objects, using non-standard units such as paper clips, hands, and pencils.   |
| (5) Science concepts. The student knows that objects have properties and patterns.  | The student is expected to:<br>(A) sort objects and events based on properties and patterns; and<br>(B) identify, predict, and create patterns including those seen in charts, graphs, and numbers.  |
| (6) Science concepts. The student knows that objects have parts.  | The student is expected to:<br>(A) sort objects according to their parts and characteristics; and<br>(B) observe and describe the parts of plants and animals.   |

(7) Science concepts. The student knows that many types of change occur.

The student is expected to:

- (A) observe, measure, and record changes in size, weight, color, position, quantity, sound, and movement; and
- (D) observe and record stages in the life cycle of organisms.

(9) Science concepts. The student knows that living things have basic needs.

The student is expected to:

- (A) identify and describe how living things meet their basic needs; and
- (B) compare and give examples of how living things depend on each other for their basic needs.

(10) Science concepts. The student knows that the natural world includes rocks, soil, and water.

The student is expected to:

- (C) identify the importance and uses of natural and human-made materials.