Kindergarten: Grade Overview

The academic standards for Kindergarten establish the content knowledge and skills for Tennessee students necessary to prepare them for the rigorous levels of higher education and future job markets. The course provides students with a wealth of scientific practical experiences. The academic standards for science in Kindergarten are based on research and the National Research Council’s *Framework for K-12 Science Education*.

The academic standards herein establish the core content and practices of science and engineering, as well as what Tennessee student need to know by the end of Kindergarten. Disciplinary core ideas for Kindergarten include:

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<tr>
<th>Physical Science (PS)</th>
<th>Life Science (LS)</th>
<th>Earth and Space Science (ESS)</th>
<th>Engineering, Technology, and Application of Science (ETS)</th>
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<tbody>
<tr>
<td>Matter and Its Interactions</td>
<td>From Molecules to Organisms: Structure and Process</td>
<td>Earth’s Place in the Universe</td>
<td>Engineering Design</td>
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<tr>
<td>Motion and Stability: Forces and Interactions</td>
<td>Ecosystems: Interactions, Energy and Dynamics</td>
<td>Earth’s Systems</td>
<td>Links Among Engineering, Technology, Science, and Society</td>
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<tr>
<td>Energy</td>
<td>Heredity: Inheritance and Variation of Traits</td>
<td>Earth and Human Activity</td>
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<td>Waves and Their Applications in Technologies for Information Transfer</td>
<td>Biological Change: Unity and Diversity</td>
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By the end of Kindergarten, students are introduced to matter and its interactions by constructing experiments with solids and liquids. Students make connections and use senses by classifying observable properties of matter and classifying living and nonliving things. Throughout the year, Kindergarten students use their observation skills to identify weather patterns and seasons. Students also use observations and evidence to identify the relationship between earth and human activities.
First Quarter

### Physical Science [PS]

**K.PS1: Matter and Its Interactions**

| 3) Construct an evidence-based account of how an object made of a small set of pieces (blocks, snap cubes) can be disassembled and made into a new object. | I can show and tell how to create a larger object with smaller pieces. | TXA TO | 1st |

### Life Science [LS]

**K.LS1: From Molecules to Organisms: Structures and Processes**

| 3) Explain how humans use their five senses in making scientific findings. | five senses | I can use my five senses to tell about something. | TXA TO | 1st |

### Engineering, Technology, and Application of Science (ETS)

**K.ETS1: Engineering Design**

| 1) Ask and answer questions about the scientific world and gather information using the senses. | senses | I can use my five senses to ask and answer questions. | TXA TO | 1st |

**NOTES:**

* TO: Teacher Observation  CL: Checklist  C: Conference  P: Project  TXA: Textbook Assessment
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<tr>
<th>Quarter Introduced</th>
<th>Kindergarten Academic Standards for Science</th>
<th>Vocabulary</th>
<th>Learning Targets</th>
<th>Assessment Method*</th>
<th>Quarter Tested</th>
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<td><strong>Second Quarter</strong></td>
<td><strong>Earth Science [ES]</strong></td>
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<td>K.ESS2: Earth’s Systems</td>
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<td></td>
<td>2) Develop and use models to predict weather and identify patterns in spring, summer, autumn, and winter.</td>
<td>predict spring summer autumn winter</td>
<td>I can identify and predict seasonal weather patterns.</td>
<td>TXA TO</td>
<td>2nd</td>
</tr>
<tr>
<td></td>
<td><strong>Engineering, Technology, and Application of Science [ETS]</strong></td>
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<td></td>
<td>K.ETS1: Engineering Design</td>
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<td></td>
<td>2) Describe objects accurately by drawing and/or labeling pictures.</td>
<td>labeling</td>
<td>I can describe an object using pictures or labels.</td>
<td>TXA TO</td>
<td>2nd</td>
</tr>
<tr>
<td></td>
<td>K.ETS2: Links Among Engineering, Technology, Science, and Society</td>
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<td></td>
<td>1) Use appropriate tools (magnifying glass, rain gauge, basic balance scale) to make observations and answer testable scientific questions.</td>
<td>tools magnifying glass rain gauge balance scale</td>
<td>I can use tools to make observations and answer questions.</td>
<td>TXA TO</td>
<td>2nd</td>
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Kindergarten Science
## Third Quarter

### Physical Science [PS]

#### K.PS1: Matter and Its Interactions

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<td>Third Quarter</td>
<td>1) Plan and conduct an investigation to describe and classify different kinds of materials including wood, plastic, metal, cloth, and paper by their observable properties (color, texture, hardness, and flexibility) and whether they are natural or human-made.</td>
<td>investigation wood plastic metal cloth texture hardness</td>
<td>flexibility natural human-made</td>
<td>I can describe different materials and tell if they are natural or human-made.</td>
<td>TXA TO 3rd</td>
</tr>
<tr>
<td></td>
<td>2) Conduct investigations to understand that matter can exist in different states (solid and liquid) and has properties that can be observed and tested.</td>
<td>investigations matter solid liquid properties</td>
<td></td>
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<td>TXA TO 3rd</td>
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### Earth Science [ES]

#### K.ESS2: Earth’s Systems

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<tr>
<td>Third Quarter</td>
<td>1) Analyze and interpret weather data (precipitation, wind, temperature, cloud cover) to describe weather patterns that occur over time (hourly, daily) using simple graphs, pictorial weather symbols, and tools (thermometer, rain gauge).</td>
<td>weather precipitation wind temperature cloud cover weather patterns rain gauge</td>
<td>hourly daily thermometer</td>
<td>I can explain weather data and patterns.</td>
<td>TXA TO 3rd</td>
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### Third Quarter

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<td></td>
<td>2) Explain the purpose of weather forecasting to prepare for, and respond to, severe weather in Tennessee.</td>
<td></td>
<td>I can explain the purpose of weather forecasting.</td>
<td>TXA TO</td>
<td>3rd</td>
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</table>
## Fourth Quarter

### Life Science [LS]

#### K.LS1: From Molecules to Organisms: Structures and Processes

1. **Use information from observations to identify differences between plants and animals** (locomotion, obtaining of food, and taking in air/gasses).
   - **Vocabulary:** plants, animals, locomotion, gasses
   - **Learning Target:** I can identify differences between plants and animals.
   - **Assessment Method:** TXA
   - **Quarter Tested:** 4th

2. **Recognize differences between living organisms and non-living materials and sort them into groups by observable physical attributes.**
   - **Vocabulary:** living, non-living, attributes
   - **Learning Target:** I can tell the difference between living and non-living things. I can sort living and non-living things into groups.
   - **Assessment Method:** TXA
   - **Quarter Tested:** 4th

#### K.LS3.1: Heredity: Inheritance and Variation of Traits

1. **Make observations to describe that young plants and animals resemble their parents.**
   - **Vocabulary:** resemble
   - **Learning Target:** I can tell how young plants and animals resemble their parents.
   - **Assessment Method:** TXA
   - **Quarter Tested:** 4th

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**PowerSchool**

April 2018
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<td>K.ESS3: Earth and Human Activity</td>
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<td></td>
<td>1) Use a model to represent the relationship between the basic needs (shelter, food, water) of different plants and animals (including humans) and the places they live.</td>
<td>needs shelter</td>
<td>I can show and tell about the needs of different plants and animals.</td>
<td>TXA TO</td>
<td>4th</td>
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<td></td>
<td>3) Communicate solutions that will reduce the impact from humans on land, water, air, and other living things in the local environment.</td>
<td>solutions environment</td>
<td>I can tell ways to reduce the impact from humans in the environment.</td>
<td>TXA TO</td>
<td>4th</td>
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NOTES:
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Kindergarten Science

Resources

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| **STEMScopes Lesson:**  
New Objects made from Existing Objects  
**Brain Pop Jr:**  
“Seasons”  
“Fall”  
“Winter”  
“Spring”  
“Summer”  
**Discovery Education Video:**  
“The Fabulous Five: Our Senses”  
**TN Department of Ed Lessons:**  
K.PS1.3 - Constructing Explanations and Designing Solutions  
K.LS1.3 - Obtaining, Evaluating, and Communicating Information |
| **STEMScopes Lesson:**  
Weather and Seasonal Patterns  
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| **STEMScopes Lesson:**  
Properties of Materials  
**TN Department of Ed Lessons:**  
K.ESS2.1 - Using Mathematics and Computational Thinking  
K.LS1.1 - Engaging in Argument from Evidence  
K.LS1.2 - Analyzing and Interpreting Data  
K.LS3.1 - Asking Questions and Defining Problems  
K.ESS3.1 - Developing and Using Models |
| **STEMScopes Lesson:**  
Properties and States of Matter  
**TN Department of Ed Lessons:**  
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| **STEMScopes Lesson:**  
Parts of Animals  
Similarities and Differences in Animals  
Parts of Plants  
Similarities and Differences in Plants  
Living and Non-living  
Basic Needs and Habits  
Reducing Human Impact  
**TN Department of Ed Lessons:**  
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## Formative Assessment Schedule

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<td>K.PS1.2</td>
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