

Science – Technology/Engineering Curriculum Guide

Preface

Kindergarten

Unifying Concepts and Processes	Content	Science Applications
<p>Systems, Order, & Organization Laws of force, motion, classification of organisms, planetary motion.</p> <p>Evidence, Models, Explanation Prediction, probability, hypotheses, models, laws.</p> <p>Constancy, Change, Measurement Rate, scale, patterns, trends, cycles.</p> <p>Evolution & Equilibrium Changes in environment, populations, ecosystems, conservation of energy, natural- and human- induced hazards.</p> <p>Form & Function Diversity and adoption of organisms, interaction of energy and matter, behavior of organisms.</p>	<p><u>Life Science:</u> <u>Characteristics of Organisms</u></p> <ul style="list-style-type: none"> • Distinguish between living/non-living things. • Identify plants and animals as living things. <p><u>Life Cycles and Heredity</u></p> <ul style="list-style-type: none"> • Describe and sequence the life cycle of a plant or mammal species. • Describe changes caused by growth. • Describe observations of personal growth changes experienced from birth until kindergarten. • Match animal offspring with parent. <p><u>Organisms and Their Environment</u></p> <ul style="list-style-type: none"> • Identify the five senses and the part of the body that controls that sense. 	<p>Identify a problem or design an opportunity.</p> <p>Propose designs and choose between alternative solutions.</p> <p>Implement a proposed solution.</p> <p>Evaluate the solution and its proposed consequences.</p> <p>Communicate the problem, process, and solution.</p> <p>Science: Personal & Social Perspectives</p> <hr/> <p>Personal and community health.</p> <p>Population growth.</p> <p>Natural resources.</p>

<p style="text-align: center;">Science as Inquiry</p> <hr/> <p>Identify questions and concepts that guide scientific investigation.</p> <p>Design and conduct scientific investigation.</p> <p>Use technology and mathematics to improve investigation and communication.</p> <p>Formulate and revise scientific explanations and models using logic and evidence</p>	<ul style="list-style-type: none"> Describe how seasonal changes affect the appearance and lives of people. <p><u>Earth and Space Science:</u> <u>Structure of the Earth System</u></p> <ul style="list-style-type: none"> Describe some examples of water, rocks, soil, and living organisms found on the school grounds. <p><u>Earth in the Solar System</u></p> <ul style="list-style-type: none"> Compare events that distinguish day from night. <p><u>Physical Science:</u> <u>Chemistry - Properties of Matter</u></p> <ul style="list-style-type: none"> Sort objects by a single observable variable such as texture, color, hardness, etc. Demonstrate objects that float/sink. <p><u>Physics – Motion and Forces:</u></p> <ul style="list-style-type: none"> Describe the way bodies can move (straight line, zig-zag, back and forth, fast, slow, etc.). <p><u>Technology/Engineering:</u> <u>Materials and Tools</u></p> <ul style="list-style-type: none"> Distinguish between natural and man-made (manufactured) materials. 	<p>Environmental quality. Natural- and Human-induced hazards.</p> <p style="text-align: center;">History and Nature of Science</p> <hr/> <p>Science as Human Endeavor Requiring reasoning, insight, energy, skill, and creativity, as well as habits of mind, i.e., intellectual honesty, tolerance of ambiguity, skepticism, and openness to new ideas.</p> <p>Nature of Scientific Knowledge Including evaluation of experiments, observations, theoretical models, proposed explanations, evidence, reasoning, and alternate conclusions.</p> <p>Historical Perspectives Including the study of famous scientists and discoveries.</p>
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- Identify and explain possible uses for natural materials (wood, cotton, wool, and fur).
- Identify and explain possible uses for synthetic materials (plastic, Styrofoam).
- Identify, describe, and demonstrate the safe and proper use of tools (glue, scissors, tape, ruler) and materials (paper, toothpicks, straws, spools) to construct simple structures.
- Construct simple two-dimensional objects using some of these classroom tools and materials.

Engineering Design Process

- Identify and explain common uses of the wheel.
- Describe and compare how humans and animals use parts of their bodies as tools (teeth for cutting).