

Arizona Science Standard Performance Level Descriptors Grade 4

Exceeds the Standard – Students who score in this level illustrate a superior academic performance as evidenced by achievement that is substantially beyond the goal for all students. Students who perform at this level demonstrate a comprehensive range of knowledge, skills, and abilities in fulfillment of the science standard. They are able to plan simple investigations that control variables, formulate conclusions based upon data, explain the role of experiments in scientific inquiry, evaluate the consequences of environmental occurrences, and construct electric circuits.

Meets the Standard – Students who score in this level demonstrate a solid academic performance on subject matter as reflected by the science standard. Students who perform at this level are generally able to analyze data to determine trends, formulate predictions based on cause and effect relationships, describe benefits and risks related to the use of technology, compare structures and their functions in plants and animals, and measure changes in weather.

Approaches the Standard – Students who score in this level show partial understanding of the knowledge and application of the skills that are fundamental for proficient work. Students who perform at this level generally show some understanding of the science standard’s concepts and procedures by being able to demonstrate safe behavior and appropriate procedures in science inquiry, measure using appropriate tools, describe the interaction of components in a system, classify animals by their traits, investigate the characteristics of magnets, and interpret the symbols on weather maps. Some gaps in knowledge and skills are evident and may require additional instruction and remediation in order to achieve a satisfactory level of understanding.

Falls Far Below the Standard – Students who score in this level may have significant gaps and limited knowledge and skills that are necessary to satisfactorily meet the state’s science standard. Students will usually require a considerable amount of additional instruction and remediation in order to achieve a satisfactory level of understanding.

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| <p>Students at the “Exceeds the Standard” level have demonstrated proficiency in the skills at the “Approaches” and “Meets” levels and also have a range of the following knowledge and skills.</p> | <p>Students at the “Meets the Standard” level have demonstrated proficiency in the skills at the “Approaches” level and also have a range of the following knowledge and skills.</p> | <p>Students at the “Approaches the Standard” level have a range of the following knowledge and skills.</p> |
| <p><u>Process</u></p> <ul style="list-style-type: none"> • Plan a simple investigation that identifies the variables to be controlled. • Formulate conclusions based upon identified trends in data • Explain the role of experimentation in scientific inquiry. • Evaluate the consequences of environmental occurrences that happen either rapidly (e.g., fire, flood, tornado) or over a long period of time • Analyze the effect that limited resources (e.g., natural gas, minerals) may have on an environment. <p><u>Content</u></p> <ul style="list-style-type: none"> • Construct series and parallel electric circuits. • Compare rapid and slow processes that change the Earth’s surface • Analyze evidence that indicates life and environmental conditions have changed • Differentiate between weather and climate as they relate to the southwestern United States | <p><u>Process</u></p> <ul style="list-style-type: none"> • Differentiate inferences from observations • Formulate predictions in the realm of science based on observed cause and effect relationships. • Analyze data obtained in a scientific investigation to identify trends. • Determine whether the data supports the prediction for an investigation. • Describe how natural events and human activities have positive and negative impacts on environments. • Describe benefits (e.g., easy communications, rapid transportation) and risks (e.g., pollution, destruction of natural resources) related to the use of technology. <p><u>Content</u></p> <ul style="list-style-type: none"> • Compare structures in plants (e.g., roots, stems, leaves, flowers) and animals (e.g., muscles, bones, nerves) that serve different functions in growth and survival. • Describe ways various resources (e.g., air, water, plants, animals, soil) are utilized to meet the needs of a population. • Recognize that successful characteristics of populations are inherited traits that are favorable in a particular environment. • Describe the role that water plays in the following processes that alter the Earth’s surface features: erosion, deposition, weathering. • Measure changes in weather • Identify the Earth processes that cause erosion. • Give examples of adaptations that allow plants and animals to survive: camouflage – horned lizards, coyotes; mimicry – Monarch and Viceroy butterflies; physical – cactus spines; mutualism – species of acacia that harbor ants, which repel other harmful insects | <p><u>Process</u></p> <ul style="list-style-type: none"> • Demonstrate safe behavior and appropriate procedures (e.g., use and care of technology, materials, organisms) in all science inquiry. • Measure using appropriate tools (e.g., ruler, scale, balance) and units of measure (i.e., metric, U.S. customary). • Describe how science and technology (e.g., computers, air conditioning, medicine) have improved the lives of many people. • Describe the interaction of components in a system (e.g., flashlight, radio). <p><u>Content</u></p> <ul style="list-style-type: none"> • Classify animals by identifiable group characteristics. • Describe ways in which resources can be conserved • Investigate the characteristics of magnets • Interpret the symbols on a weather map. |

These descriptors do not include all the skills and knowledge as contained in the Science Standard.