

Arizona Science Standard Performance Level Descriptors Grade 8

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 wealth of knowledge, skills, and abilities in fulfillment of the science standard. They can generate a hypothesis that can be tested, analyze data to identify trends, compose new questions based upon the results of a previous investigation, explain the basic principles of heredity, and describe the intent of Newton's 3rd Law of Motion.

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 able to interpret data to determine relationships between variables, identify potential investigation error, display data in an appropriate graphic, and write clear instructions for conducting investigations. They can distinguish between dominant and recessive traits in humans, determine changes in characteristics of organisms over generations, classify matter as elements, compounds, or mixtures, identify matter based upon its characteristics, and identify conditions under which an object will continue in its state of motion (Newton's 1st and 2nd Laws of Motion).

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 show some understanding of the science standard's concepts and procedures by being able to formulate questions based upon observations, demonstrate appropriate procedures during scientific inquiry, perform measurements using appropriate tools, and explain the purposes of cell division and how an organism's behavior allows it to survive in an environment. 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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Grade 8**

<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"> • Generate a hypothesis that can be tested • Analyze data to identify trends • Form a logical argument about a correlation between variables or sequence of events • Explain how evidence supports the validity and reliability of a conclusion • Critique scientific reports from periodicals, television, or other media • Formulate new questions based on the results of a previous investigation <p><u>Content</u></p> <ul style="list-style-type: none"> • Identify matter based on state, density, boiling point, melting point and solubility • Describe forces as interactions between bodies (Newton’s 3rd Law of Motion) • Explain the basic principles of heredity 	<p><u>Process</u></p> <ul style="list-style-type: none"> • Interpret data to determine relationships between variables • Identify potential investigational error • Choose an appropriate graphic representation for collected data • Write clear, step-by-step instructions for conducting investigations or operating equipment • Apply the scientific processes of prediction, comparison, inference, data organization and identification of variables to problem solving or decision making situations • Compare solutions to best address an identified need or problem <p><u>Content</u></p> <ul style="list-style-type: none"> • Distinguish between dominant and recessive traits in humans • Identify matter based on reactivity, pH, and oxidation • Identify matter based on state, density, boiling point, melting point and solubility • Identify evidence that a chemical reaction has occurred including formation of precipitate, generation of gas, color change and absorption or release of heat • Classify matter as elements, compounds, or mixtures • Identify conditions under which an object will continue in its state of motion (Newton’s 1st Law of Motion) • Describe how the acceleration of a body is dependent on its mass and the net applied force (Newton’s 2nd Law of Motion) • Create position-time and velocity-time graphs from measurements of moving objects. • Determine characteristics of organisms that could change over several generations 	<p><u>Process</u></p> <ul style="list-style-type: none"> • Formulate questions based on observations that lead to the development of a hypothesis • Demonstrate safe behavior and appropriate procedures during scientific inquiry • Perform measurements using appropriate scientific tools <p><u>Content</u></p> <ul style="list-style-type: none"> • Explain the purposes of cell division for growth and repair, and reproduction • Explain how an organism’s behavior allows it to survive in an environment

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