



Science Detailed Performance Level Descriptors

Grades 9 and 10

Performance Level Descriptors - Science

PLD Type	Below Proficient	Approaching Proficient	Proficient	Highly Proficient
Policy	The Level 1 students are below proficient in achieving or applying the science attitudes and knowledge/ skills as specified in the Utah Core Standards. The students generally perform significantly below the standard for their grade level, are able to engage with higher-order thinking skills for all science contexts with extensive support.	The Level 2 students are approaching proficient in achieving or applying the science attitudes and knowledge/ skills as specified in the Utah Core Standards. The students generally perform slightly below the standard for their grade level, are likely able to engage in higher-order thinking skills for all science contexts with support.	The Level 3 students are proficient in achieving or applying the science attitudes and knowledge/skills as specified in the Utah Core Standards. The students generally perform at the standard for their grade level, are able to engage in higher order thinking-skills for all science contexts with independence and minimal support. This level of science performance likely indicates students are on track to be sufficiently prepared for college or career.	The Level 4 students are highly proficient in achieving or applying the science attitudes and knowledge/skills as specified in the Utah Core Standards. The students generally perform above the standard for their grade level, are able to engage in higher-order thinking skills involving all science contexts independently. This level of science performance likely indicates students are on track to be well-prepared for college or career.
Range	The Level One Student:	The Level Two Student:	The Level Three Student:	The Level Four Student:
ILO 1 Can apply science processes and thinking skills.	<ul style="list-style-type: none"> • observes objects, events and patterns • records qualitative and quantitative information • uses instruments to collect data • identifies an experimental problem • collects data on the dependent variable(s) • identifies factual statements 	<ul style="list-style-type: none"> • uses comparisons to help understand observations and phenomena • evaluate, sort, and sequence data according to given criteria • selects appropriate instruments to analyze data • formulates research questions and hypotheses • identifies variables and describes the relationships between them • selects the appropriate format (e.g., graph, chart, diagram) to summarize the 	<ul style="list-style-type: none"> • evaluates data according to given criteria • uses appropriate instruments to analyze data • predicts results of investigations based upon prior data • plans procedures to control independent variables • analyzes data, checks it for accuracy and constructs reasonable conclusions • prepares written reports of investigations • develops classification systems 	<ul style="list-style-type: none"> • prepares succinct written reports of investigations • constructs models simulations and metaphors to describe and explain natural phenomena • uses mathematics as a precise method for showing relationships • forms alternative hypotheses to explain a problem

		<p>data</p> <ul style="list-style-type: none"> distinguishes inferences from facts uses classification systems 	<ul style="list-style-type: none"> constructs models to describe and explain natural phenomena 	
<p>ILO 3</p> <p>Demonstrate understanding of science concepts, principles, and systems.</p>	<ul style="list-style-type: none"> identifies basic science concepts, information, and principles 	<ul style="list-style-type: none"> describes basic science concepts, information, and principles 	<ul style="list-style-type: none"> distinguishes between examples and non-examples of concepts that have been taught applies principles and concepts of science to explain various phenomena 	<ul style="list-style-type: none"> solves problems by applying science principles and procedures across multiple systems
<p>ILO 4</p> <p>Communicate effectively using science language and reasoning.</p>	<ul style="list-style-type: none"> uses data in science communication Identifies references sources 	<ul style="list-style-type: none"> provides relevant data to support conclusions Uses basic scientific language in communications uses reference sources to obtain information 	<ul style="list-style-type: none"> provides relevant data using mathematical language and reasoning to support inferences and conclusions uses precise scientific language and proper English in written communication uses relevant reference sources to obtain information and cite source 	<ul style="list-style-type: none"> applies mathematical language and reasoning to support inferences and conclusions evaluates reference sources for validity
<p>ILO 5/6</p> <p>Demonstrate awareness of social and historical aspects of science and understanding of the nature of science.</p>	<ul style="list-style-type: none"> distinguishes scientific from non-scientific approaches to problem solving recognizes that natural laws operate today as they did in the past and will continue to operate that way in the future 	<ul style="list-style-type: none"> demonstrates that new science knowledge can involve many approaches describes how science impacts society and is cumulative in nature recognizes that science understanding changes and is refined with new evidence 	<ul style="list-style-type: none"> determines if a hypothesis, conclusion, or prediction is or is not supported determines if additional technology, trial, or modification are useful in order to enhance or evaluate experimental results explains how science understanding changes and is refined with new evidence 	<ul style="list-style-type: none"> determines if a hypothesis, conclusion, or prediction is or is not supported determines if additional technology, trial, or modification are useful in order to enhance or evaluate experimental results explains how science understanding changes and is refined with new evidence