

Alignment to Texas Essential Knowledge and Skills

Find it with GPS!

Lesson focuses on exploring how the development of global positioning systems has revolutionized both defense and consumer product engineering. Students work in teams to understand the technology behind GPS, explore current applications, and brainstorm new applications for global use of GPS. They use both a simple GPS handheld device and online resources to understand the functioning and potential of this engineering technology.

Grade 3	Grade 4	Grade 5	Grade 6	Grade 7	Grade 8	IPC	Physics
Strand: Scientific Investigation and Reasoning							
1.A Demonstrate safe practices as described in the Texas Safety Standards during classroom and outdoor investigations including observing a schoolyard habitat.	1.A Demonstrate safe practices and the use of safety equipment as described in the Texas Safety Standards during classroom and outdoor investigations.	1.A Demonstrate safe practices and the use of safety equipment as described in the Texas Safety Standards during classroom and outdoor investigations.	1.A Demonstrate safe practices during laboratory and field investigations as outlined in the Texas Safety Standards.	1.A Demonstrate safe practices during laboratory and field investigations as outlined in the Texas Safety Standards.	1.A Demonstrate safe practices during laboratory and field investigations as outlined in the Texas Safety Standards.	1.A Demonstrate safe practices during laboratory and field investigations.	1.A Demonstrate safe practices during laboratory and field investigations.
2.A Plan and implement descriptive investigations including asking and answering questions, making inferences, and selecting and using equipment or technology needed to solve a specific problem in the natural world.	2.A Plan and implement descriptive investigations, including asking well-defined questions, making inferences, and selecting and using appropriate equipment or technology to answer his/her questions.	2.A Describe, plan and implement simple experimental investigations testing one variable.	2.A Plan and implement comparative and descriptive investigations by making observations, asking well- defined questions, and using appropriate equipment and technology.	2.A Plan and implement comparative and descriptive investigations by making observations, asking well- defined questions and using appropriate equipment and technology.	2.A Plan and implement comparative and descriptive investigations by making observations, asking well- defined questions, and selecting and using appropriate equipment and technology.	2.B Plan and implement investigate procedures including asking questions, formulating testable hypotheses, and selecting equipment and technology.	2.E Design and implement investigative procedures including making observations, asking well-defined questions, formulating testable hypotheses, identifying variables, selecting appropriate equipment and technology, and evaluating numerical answers for reasonableness.
2.B Collect data by observing and measuring using the metric system and recognize differences between observed and measured data.	2.B Collect and record data by observing and measuring, using the metric system, and using descriptive words and numerals, such as labeled drawings, writing, and concept maps.	2.C Collect information by detailed observations and accurate measuring.	2.C Collect and record data using the International System of Units (SI) and qualitative means such as labeled drawings, writing, and graphic organizers.	2.C Collect and record data using the International System of Units (SI) and qualitative means such as labeled drawings, writing, and graphic organizers.	2.C Collect and record data using the International System of Units (SI) and qualitative means such as labeled drawings, writing, and graphic organizers.	2.C Collect data and make measurements with precision.	2.H Make measurements with accuracy and precision and record data using scientific notation and International System (SI) units.
2.D Analyze and interpret patterns in	2.D Analyze data and interpret	2.D Analyze and interpret	2.E Analyze data to formulate reasonable	2.E Analyze data to formulate reasonable	2.E Analyze data to formulate reasonable	2.D Organize, analyze, evaluate,	2.J Organize and evaluate data and

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data to construct reasonable explanations based on evidence from investigations.	patterns to construct reasonable explanations from data that can be observed and measured.	information to construct reasonable explanations from direct (observable) and indirect (inferred) evidence.	explanations, communicate valid conclusions supported by the data, and predict trends.	explanations, communicate valid conclusions supported by the data, and predict trends.	explanations, communicate valid conclusions supported by the data, and predict trends.	make inferences, and predict trends from data.	make inferences from data including the use of tables, charts, and graphs.
2.F Communicate valid conclusions supported by data in writing, by drawing pictures, and through verbal discussion.	2.F Communicate valid, oral and written results supported by data.	2.F Communicate valid conclusions in both written and verbal forms.				2.E Communicate valid conclusions.	2.K Communicate valid conclusions supported by the data through various methods such as lab reports, labeled drawings, graphic organizers, journals, summaries, oral reports, and technology-based reports.
							2.L Express and manipulate relationships among physical variables quantitatively including the use of graphs, charts, and equations.
3.D Connect grade level appropriate science concepts with the history of science, science careers and contributions of scientists.	3.D Connect grade-level appropriate science concepts with the history of science, science careers, and contributions of scientists.	3.D Connect grade-level appropriate science concepts with the history of science, science careers, and contributions of scientists.	3.D Relate the impact of research on scientific thought and society including the history of science and contributions of scientists as related to the content.	3.D Relate the impact of research on scientific thought and society, including history of science and contributions of scientists as related to the content.	3.D Relate the impact of research on scientific thought and society including the history of science and contributions of scientists as related to the content.	3.D Evaluate the impact of research on scientific thought, society, and the environment.	3.D Explain the impacts of the scientific contributions of a variety of historical and contemporary scientists on scientific thought and society.
						3.E Describe connections between physics and chemistry and future careers.	3.E Research and describe the connections between physics and future careers.
Strand: Force, Motion and Energy							
			8.D Measure and graph changes in motion.			4.A Describe and calculate an object's motion in terms of position, displacement, speed	4.A Generate and interpret graphs and charts describing different types of motion including the



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						and acceleration.	use of real-time technology such as motion detectors or photogates.
						4.B Measure and graph distance and speed as a function of time using moving toys.	4.B Describe and analyze motion in one dimension using equations with the concepts of distance, displacement, speed, average velocity, instantaneous velocity, and acceleration.
							4.F Identify and describe motion relative to different frames of reference.

