**Telescoping Periscope**  
Lesson focuses on the many uses of periscopes and how this simple device was designed and is used in many applications. Students work in teams to design and build their own working periscope out of everyday materials. They design their periscope, build and test it, evaluate their designs and those of classmates, and share observations with their class.

| Grade 3 | Grade 4 | Grade 5 | Grade 6 | Grade 7 | Grade 8 | IPC | Physics |
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| ***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. |
| 1.B Make informed choices in the use and conservation of natural resources by recycling or reusing materials such as paper, aluminum cans, and plastics. | 1.B Make informed choices in the use and conservation of natural resources and reusing and recycling of materials such as paper, aluminum, glass, cans and plastic. | 1.B Make informed choices in the conservation, disposal, and recycling of materials. | 1.B Practice appropriate use and conservation of resources including disposal, reuse, or recycling of materials. | 1.B Practice appropriate use and conservation of resources including disposal, reuse, or recycling of materials. | 1.B Practice appropriate use and conservation of resources including disposal, reuse, or recycling of materials. | 1.B Demonstrate an understanding of the use and conservation of resources and the proper disposal or recycling of materials. | 1.B Demonstrate an understanding of the use and conservation of resources and the proper disposal or recycling of materials. |
| 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 data to construct reasonable explanations based on evidence from investigations. | 2.D Analyze data and interpret patterns to construct reasonable explanations from data that can be observed and measured. | 2.D Analyze and interpret information to construct reasonable explanations from direct (observable) and indirect (inferred) evidence. | 2.E Analyze data to formulate reasonable explanations, communicate valid conclusions supported by the data, and predict trends. | 2.E Analyze data to formulate reasonable explanations, communicate valid conclusions supported by the data, and predict trends. | 2.E Analyze data to formulate reasonable explanations, communicate valid conclusions supported by the data, and predict trends. | 2.D Organize, analyze, evaluate, make inferences, and predict trends from data. | 2.J Organize and evaluate data and make inferences from data including the use of tables, charts, and graphs. |
| 2.E Demonstrate that repeated investigations may increase the reliability of results. | 2.E Perform repeated investigations to increase the reliability of results. | 2.E Demonstrate that repeated investigations may increase the reliability of results. |  |  |  |  |  |
| 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. |
| 3.C Represent the natural world using models such as volcanoes or Sun, Earth, and Moon system, and identify their limitations including size, properties, and materials. |  | 3.C Draw or develop a model that represents how something works or looks that cannot be seen such as how a soda dispensing machine works. | 3.B Use models to represent aspects of the natural world such as a model of Earth’s layers. | 3.B Use models to represent aspects of the natural world such as human body systems, and plant and animal cells. | 3.B Use models to represent aspects of the natural world such as an atom, a molecule, space or a geologic feature. |  |  |
| 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. |
| 4.B Use safety equipment as appropriate, including safety goggles and gloves. | 4.B Use safety equipment as appropriate, including safety goggles and gloves. | 4.B Use safety equipment as appropriate, including safety goggles and gloves. |  |  |  |  |  |
| *Strand: Matter and Energy* | | | | | | | |
| 5.A Measure, test, and record physical properties of matter including temperature, mass, magnetism, and the ability to sink or float. | 5.A Measure, compare, and contrast physical properties of matter including size, mass, volume, states (solid, liquid, gas), temperature, magnetism, and the ability to sink or float. | ☆ 5.A Classify matter based on physical properties including: mass, magnetism, physical state (solid, liquid, and gas), relative density (sinking and floating), and solubility in water, and the ability to conduct or insulate thermal energy or electric energy. | ✔6.A Compare metals, nonmetals, and metalloids using physical properties such as luster, conductivity or malleability. |  |  | 6.C Analyze physical and chemical properties of elements and compounds such as, color, density, viscosity, buoyancy, boiling point, freezing point, conductivity, and reactivity. |  |
| *Strand: Force, Motion and Energy* | | | | | | | |
| 6.A Explore different forms of energy including mechanical, light, sound, and heat/thermal in everyday life. | 6.A Differentiate among forms of energy including mechanical, sound, electrical, light, and heat/thermal. | ☆6.A Explore the uses of energy including mechanical, light, thermal, electrical, and sound energy. |  |  |  |  |  |
|  |  | ☆6.C Demonstrate that light travels in a straight line until it strikes an object or travels from one medium to another and demonstrate that light can be reflected such as the use of mirrors or other shiny surfaces, and refracted such as the appearance of an object when observed through water. |  |  |  | 5.G Explore the characteristics and behaviors of energy transferred by waves including acoustic, seismic, light and waves on water as they superpose on one another, bend around corners, reflect off surfaces, are absorbed by materials and change direction when entering new materials. | ✔7.A Examine and describe oscillatory motion and wave propagation in various types of media. |
|  |  |  |  |  |  |  | ✔7.C Compare characteristics and behaviors of transverse waves including electromagnetic waves and the electromagnetic spectrum and characteristics and behaviors of longitudinal waves including sound waves. |
|  |  |  |  |  |  |  | ☆7.D Investigate behaviors of waves including reflection, refraction, diffraction, interference, resonance, and the Doppler effect. |