

# Gateways to Science STAAR Edition, Grade 6

## TEKS Scientific Processes—Lesson Checklist

TEKS		Lessons
6.1A	Demonstrate safe practices during laboratory and field investigations as outlined in the Texas Safety Standards	1.1 <i>Gateways to Science</i> 1.2 Safety
6.1B	Practice appropriate use and conservation of resources, including disposal, reuse, or recycling of materials	2.3 Defining Density
6.2A	Plan and implement comparative and descriptive investigations by making observations, asking well-defined questions, and using appropriate equipment and technology	2.4 Density of Regular-Shaped Objects
6.2B	Design and implement experimental investigations by making observations, asking well-defined questions, formulating testable hypotheses, and using appropriate equipment and technology	3.3 Potential and Kinetic Energy
6.2C	Collect and record data using the International System of Units (SI) and qualitative means such as labeled drawings, writing, and graphic organizers	2.4 Density of Regular-Shaped Objects
6.2D	Construct tables and graphs, using repeated trials and means, to organize data and identify patterns	2.4 Density of Regular-Shaped Objects
6.2E	Analyze data to formulate reasonable explanations, communicate valid conclusions supported by the data, and predict trends	2.4 Density of Regular-Shaped Objects
6.3A	In all fields of science, analyze, evaluate, and critique scientific explanations by using empirical evidence, logical reasoning, and experimental and observational testing, including examining all sides of scientific evidence of those scientific explanations, so as to encourage critical thinking by the student	2.5 Density of Liquids
6.3B	Use models to represent aspects of the natural world such as a model of Earth's layers	2.9 Elements and Compounds 4.2 Planet Locations and Properties 4.5 Earth's Layers
6.3C	Identify advantages and limitations of models such as size, scale, properties, and materials	2.9 Elements and Compounds 4.2 Planet Locations and Properties 4.5 Earth's Layers
6.3D	Relate the impact of research on scientific thought and society, including the history of science and contributions of scientists as related to the content	3.2 Energy Debate
6.4A	Use appropriate tools to collect, record, and analyze information, including journals/notebooks, beakers, Petri dishes, meter sticks, graduated cylinders, hot plates, test tubes, triple beam balances, microscopes, thermometers, calculators, computers, timing devices, and other equipment as needed to teach the curriculum	2.3 Defining Density
6.4B	Use preventative safety equipment, including chemical splash goggles, aprons, and gloves, and be prepared to use emergency safety equipment, including an eye/face wash, a fire blanket, and a fire extinguisher	1.1 <i>Gateways to Science</i> 1.2 Safety

\*Process skills are embedded in all lessons but only indicated upon first introduction.

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## TEKS Science Concepts—Lesson Checklist

TEKS	Lessons
<b>Matter and Energy</b>	
6.5A Know that an element is a pure substance represented by chemical symbols	2.7 Elements and Their Symbols
6.5B Recognize that a limited number of the many known elements comprise the largest portion of solid Earth, living matter, oceans, and the atmosphere	4.5 Earth's Layers 2.7 Elements and Their Symbols
6.5C Differentiate between elements and compounds on the most basic level	2.7 Elements and Their Symbols 2.9 Elements and Compounds
6.5D Identify the formation of a new substance by using the evidence of a possible chemical change such as production of a gas, change in temperature, production of a precipitate, or color change	2.10 Evidence of a Chemical Change
<b>Matter and Energy</b>	
6.6A Compare metals, nonmetals, and metalloids using physical properties such as luster, conductivity, or malleability	2.2 Physical Properties of Matter 2.8 Metals, Nonmetals, and Metalloids
6.6B Calculate density to identify an unknown substance	2.3 Defining Density 2.4 Density of Regular-Shaped Objects 2.5 Density of Liquids 2.6 Density of Irregular-Shaped Objects 4.6 Tectonic Plates
6.6C Test the physical properties of minerals, including hardness, color, luster, and streak	4.9 Minerals
<b>Matter and Energy</b>	
6.7A Research and debate the advantages and disadvantages of using coal, oil, natural gas, nuclear power, biomass, wind, hydropower, geothermal, and solar resources	3.1 Earth's Energy Resources 3.2 Energy Debate
6.7B Design a logical plan to manage energy resources in the home, school, or community	3.2 Energy Debate

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## TEKS Science Concepts—Lesson Checklist

TEKS	Lessons
<b>Force, Motion, and Energy</b>	
6.8A Compare and contrast potential and kinetic energy	3.3 Potential and Kinetic Energy
6.8B Identify and describe the changes in position, direction, and speed of an object when acted upon by unbalanced forces	3.8 Unbalanced Forces
6.8C Calculate average speed using distance and time measurements	3.7 Speed
6.8D Measure and graph changes in motion	3.7 Speed
6.8E Investigate how inclined planes and pulleys can be used to change the amount of force to move an object	3.9 Pulleys and Inclined Planes
6.9A Investigate methods of thermal energy transfer, including conduction, convection, and radiation	3.6 Thermal Energy
6.9B Verify through investigations that thermal energy moves in a predictable pattern from warmer to cooler until all the substances attain the same temperature such as an ice cube melting	3.6 Thermal Energy
6.9C Demonstrate energy transformations such as energy in a flashlight battery changes from chemical energy to electrical energy to light energy	3.4 Forms of Energy 3.5 Energy Transformations
<b>Earth and Space</b>	
6.10A Build a model to illustrate the structural layers of Earth, including the inner core, outer core, mantle, crust, asthenosphere, and lithosphere	4.5 Earth's Layers
6.10B Classify rocks as metamorphic, igneous, or sedimentary by the processes of their formation	4.8 Rock Cycle
6.10C Identify the major tectonic plates, including Eurasian, African, Indo-Australian, Pacific, North American, and South American	4.6 Tectonic Plates
6.10D Describe how plate tectonics causes major geological events such as ocean basins, earthquakes, volcanic eruptions, and mountain building	4.6 Tectonic Plates 4.7 Plate Tectonics and Geologic Events
<b>Earth and Space</b>	
6.11A Describe the physical properties, locations, and movements of the Sun, planets, Galilean moons, meteors, asteroids, and comets	4.2 Planet Locations and Properties 4.3 Planet Properties and Motion
6.11B Understand that gravity is the force that governs the motion of our solar system	4.1 Gravity
6.11C Describe the history and future of space exploration, including the types of equipment and transportation needed for space travel	4.4 Space Exploration

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## TEKS Science Concepts—Lesson Checklist

TEKS	Lessons
<b>Organisms and Environments</b>	
6.12A Understand that all organisms are composed of one or more cells	5.3 The Microscope 5.4 Cells
6.12B Recognize that the presence of a nucleus determines whether a cell is prokaryotic or eukaryotic	5.4 Cells
6.12C Recognize that the broadest taxonomic classification of living organisms is divided into currently recognized Domains	5.6 Domains
6.12D Identify the basic characteristics of organisms, including prokaryotic or eukaryotic, unicellular or multicellular, autotrophic or heterotrophic, and mode of reproduction, that further classify them in the currently recognized Kingdoms	5.5 Kingdoms
6.12E Describe biotic and abiotic parts of an ecosystem in which organisms interact	5.1 Biotic and Abiotic Factors
6.12F Diagram the levels of organization within an ecosystem, including organism, population, community, and ecosystem	5.2 Levels of Organization within an Ecosystem