

**Zingy Science Texas
3-5 Lessons**

**Grade 5 STAAR
(3rd-5th grade standards)**

LESSON 1: PROPERTIES	
1: Atoms - part I 2: Atoms - part II 3: States of matter	Grade 5 - 5.A Classify matter based on physical properties, physical state (solid, liquid, and gas)
4: Changes of state	Grade 3 - 5.C Predict, observe, and record changes in the state of matter caused by heating or cooling. Grade 5 - 5.B Identify the boiling and freezing/melting points of water on the Celsius scale;
5: Mixtures	Grade 5 - 5.D Identify changes that can occur in the physical properties of the ingredients of solutions such as dissolving salt in water or adding lemon juice to water. Grade 5 - 5.C Demonstrate that some mixtures maintain physical properties of their ingredients such as iron filings and sand; and
6: Properties	Grade 5 - 5.A Classify matter based on physical properties, including mass, magnetism, physical state (solid, liquid, and gas), relative density (sinking and floating), solubility in water, and the ability to conduct or insulate thermal energy or electric energy;
LESSON 2: ENERGY AND FORCES	
1: Electricity 2: Series and parallel circuits 3: Transformation of energy	Grade 5 - 6.A Explore the uses of energy, including mechanical, light, thermal, electrical, and sound energy; Grade 5 - 6.B Demonstrate that the flow of electricity in circuits requires a complete path through which an electric current can pass and can produce light, heat, and sound;
4: Magnetism 5: Magnetizing	Grade 5 - 5.A Classify matter based on physical properties, including mass, magnetism, physical state (solid, liquid, and gas), relative density (sinking and floating), solubility in water, and the ability to conduct or insulate thermal energy or electric energy;
6: Light 7: Reflection 8: Refraction	Grade 5 - 6.C Demonstrate that light travels in a straight line until it strikes an object or travels through 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
9: Sound	Grade 5 - 6.A Explore the uses of energy, including mechanical, light, thermal, electrical, and sound energy

10: Force	Grade 5 - 6.D Design an experiment that tests the effect of force on an object.
11: Simple machines	Grade 3 - 5.B Demonstrate and observe how position and motion can be changed by pushing and pulling objects to show work being done such as swings, balls, pulleys, and wagons.
LESSON 3: EARTH	
1: Earth layers 2: Tectonic plate motion 3: Volcanoes 4: Earthquakes	Grade 3 - 7.B Investigate rapid changes in Earth's surface such as volcanic eruptions, earthquakes, and landslides.
5: Rock cycle 6: Changes	Grade 5 - 7.A Explore the processes that led to the formation of sedimentary rocks and fossil fuels Grade 5 - 7.B Recognize how landforms such as deltas, canyons, and sand dunes are the result of changes to Earth's surface by wind, water, and ice
7: Fossils	Grade 5 - 7.D Identify fossils as evidence of past living organisms and the nature of the environments at the time using models.
8: Soil	Grade 4 - 7.A Examine properties of soils, including color and texture, capacity to retain water, and ability to support the growth of plants
Lesson 3- Topic 9	Grade 4 - 8.B Describe and illustrate the continuous movement of water above and on the surface of Earth through the water cycle and explain the role of the Sun as a major source of energy in this process; and Grade 5 - 8.B Explain how the Sun and the ocean interact in the water cycle
10: Wind and weather	Grade 4 - 8.A Measure and record changes in weather and make predictions using weather maps, weather symbols, and a map key; Grade 5 - 8.A Differentiate between weather and climate;
LESSON 4: SPACE	
2: The solar system	Grade 5 - 8.D Identify the planets in Earth's solar system and their position in relation to the Sun
3: Seasons 4: Moon phases 5: Eclipses and tides	Grade 5 - 8.C Demonstrate that Earth rotates on its axis once approximately every 24 hours causing the day/night cycle and the apparent movement of the Sun across the sky Grade 4 - 8.C Collect and analyze data to identify sequences and predict patterns of change in shadows, tides, seasons, and the observable appearance of the Moon over time.
LESSON 5:	

ENERGY RESOURCES	
1: Hydro and wind energy 2: Solar energy 3: Geothermal energy 4: Nuclear energy 5: Fossil fuel energy 6: Biomass and biofuels 7: Battery and hydrogen energy 8: Renewable and non-renewable energy resources 9: Materials	Grade 5 - 7.C Identify alternative energy resources such as wind, solar, hydroelectric, geothermal, and biofuels; and Grade 4 - 7.C Identify and classify Earth's renewable resources, including air, plants, water, and animals; and nonrenewable resources, including coal, oil, and natural gas; and the importance of conservation.
LESSON 6: ECOSYSTEMS	
1: Ecosystems I 2: Ecosystems II 3: Producers 4: Consumers 5: Decomposers	Grade 3 - 9.A Observe and describe the physical characteristics of environments and how they support populations and communities within an ecosystem. Grade 5 - 9.A Observe the way organisms live and survive in their ecosystem by interacting with the living and non-living elements Grade 5 - 9.B Describe how the flow of energy derived from the Sun, used by producers to create their own food, is transferred through a food chain and food web to consumers and decomposers; Grade 5 - 9.C Predict the effects of changes in ecosystems caused by living organisms, including humans, such as the overpopulation of grazers or the building of highways; and Adaptive traits Grade 5 - 10.A Compare the structures and functions of different species that help them live and survive such as hooves on prairie animals or webbed feet in aquatic animals
8: Biogeochemical cycles	Grade 5 - 9.D Identify the significance of the carbon dioxide-oxygen cycle to the survival of plants and animals
9: Plant and animal cycle 10: Metamorphosis of insects	Grade 3 - 10.C Investigate and compare how animals and plants undergo a series of orderly changes in their diverse life cycles such as tomato plants, frogs, and lady bugs. Grade 5 - 10.C Describe the differences between complete and incomplete metamorphosis of insects.
11: Traits	Grade 5 - 10.B Differentiate between inherited traits of plants and animals such as spines on a cactus or shape of a beak and learned behaviors such as an animal learning tricks or a child riding a bicycle

Source: <http://www.tea.state.tx.us/student.assessment/staar/>