



## Texas State Science Standards- Grade 7

### §112.19. Science, Grade 7

#### Knowledge and skills

- 1) Scientific investigation and reasoning. The student, for at least 40% of the instructional time, conducts laboratory and field investigations following safety procedures and environmentally appropriate and ethical practices. The student is expected to:
  - a) Demonstrate safe practices during laboratory and field investigations as outlined in the Texas Safety Standards
  - b) Practice appropriate use and conservation of resources, including disposal, reuse, or recycling of materials
  
- 2) Scientific investigation and reasoning. The student uses scientific inquiry methods during laboratory and field investigations. The student is expected to:
  - a) Plan and implement comparative and descriptive investigations by making observations, asking well-defined questions, and using appropriate equipment and technology
  - b) Design and implement experimental investigations by making observations, asking well-defined questions, formulating testable hypotheses, and using appropriate equipment and technology
  - c) Collect and record data using the International System of Units (SI) and qualitative means such as labeled drawings, writing, and graphic organizers
  - d) Construct tables and graphs, using repeated trials and means, to organize data and identify patterns
  - e) Analyze data to formulate reasonable explanations, communicate valid conclusions supported by the data, and predict trends
  
- 3) Scientific investigation and reasoning. The student uses critical thinking, scientific reasoning, and problem solving to make informed decisions and knows the contributions of relevant scientists. The student is expected to:
  - a) 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

- 4) Science investigation and reasoning. The student knows how to use a variety of tools and safety equipment to conduct science inquiry. The student is expected to:
  - a) Use appropriate tools to collect, record, and analyze information, including life science models, hand lens, stereoscopes, microscopes, beakers, Petri dishes, microscope slides, graduated cylinders, test tubes, meter sticks, metric rulers, metric tape measures, timing devices, hot plates, balances, thermometers, calculators, water test kits, computers, temperature and pH probes, collecting nets, insect traps, globes, digital cameras, journals/notebooks, and other equipment as needed to teach the curriculum
  - b) 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
  
- 6) Matter and energy. The student knows that matter has physical and chemical properties and can undergo physical and chemical changes. The student is expected to:
  - a) Identify that organic compounds contain carbon and other elements such as hydrogen, oxygen, phosphorus, nitrogen, or sulfur
  
- 8) Earth and space. The student knows that natural events and human activity can impact Earth systems. The student is expected to:
  - a) Predict and describe how different types of catastrophic events impact ecosystems such as floods, hurricanes, or tornadoes
  - b) Analyze the effects of weathering, erosion, and deposition on the environment in ecoregions of Texas
  - c) Model the effects of human activity on groundwater and surface water in a watershed
  
- 10) Organisms and environments. The student knows that there is a relationship between organisms and the environment. The student is expected to:
  - a) Observe and describe how different environments, including microhabitats in schoolyards and biomes, support different varieties of organisms
  - b) Describe how biodiversity contributes to the sustainability of an ecosystem
  
- 11) Organisms and environments. The student knows that populations and species demonstrate variation and inherit many of their unique traits through gradual processes over many generations. The student is expected to:
  - a) Examine organisms or their structures such as insects or leaves and use dichotomous keys for identification