



## Texas State Science Standards – Grade 8

### §112.20. Science, Grade 8

#### Knowledge and skills

- 1) Scientific investigation and reasoning. The student, for at least 40% of 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 comparative and 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) Scientific 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 lab journals/notebooks, beakers, meter sticks, graduated cylinders, anemometers, psychrometers, hot plates, test tubes, spring scales, balances, microscopes, thermometers, calculators, computers, spectrometers, timing devices, 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

9) Earth and space. The student knows that natural events can impact Earth

c) Interpret topographic maps and satellite views to identify land and erosional features and predict how these features may be reshaped by weathering

11) Organisms and environments. The student knows that interdependence occurs among living systems and the environment and that human activities can affect these systems. The student is expected to:

b) Investigate how organisms and populations in an ecosystem depend on and may compete for biotic and abiotic factors such as quantity of light, water, range of temperatures, or soil composition

c) Explore how short- and long-term environmental changes affect organisms and traits in subsequent populations

d) Recognize human dependence on ocean systems and explain how human activities such as runoff, artificial reefs, or use of resources have modified these systems