

Texas State Guidelines

Guide Line Number	Guide Line	POP!World Module Meeting Guideline
112.32 C(3) A-D	<p>(3) Scientific processes. The student uses critical thinking, scientific reasoning, and problem solving to make informed decisions within and outside the classroom. The student is expected to:</p> <p>(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;</p> <p>(B) communicate and apply scientific information extracted from various sources such as current events, news reports, published journal articles, and marketing materials;</p> <p>(C) draw inferences based on data related to promotional materials for products and services;</p> <p>(D) evaluate the impact of research and technology on scientific thought, society, and the environment;</p> <p>(E) describe the connection between aquatic science and future careers; and</p> <p>(F) research and describe the history of aquatic science and contributions of scientists.</p>	Basic, Migration, Drift. NRM, Mutation, Selection, M+S, Crosses
112.34 B 1-5	(1) Biology. In Biology, students conduct laboratory and field investigations, use scientific methods during investigations, and make	Basic, Migration, Drift. NRM, Mutation,

<p>informed decisions using critical thinking and scientific problem solving. Students in Biology study a variety of topics that include: structures and functions of cells and viruses; growth and development of organisms; cells, tissues, and organs; nucleic acids and genetics; biological evolution; taxonomy; metabolism and energy transfers in living organisms; living systems; homeostasis; and ecosystems and the environment.</p> <p>(2) Nature of science. Science, as defined by the National Academy of Sciences, is the "use of evidence to construct testable explanations and predictions of natural phenomena, as well as the knowledge generated through this process." This vast body of changing and increasing knowledge is described by physical, mathematical, and conceptual models. Students should know that some questions are outside the realm of science because they deal with phenomena that are not scientifically testable.</p> <p>(3) Scientific inquiry. Scientific inquiry is the planned and deliberate investigation of the natural world. Scientific methods of investigation are experimental, descriptive, or comparative. The method chosen should be appropriate to the question being asked.</p> <p>(4) Science and social ethics. Scientific decision making is a way of answering questions about the natural world. Students should be able to distinguish between scientific decision-making methods (scientific methods) and ethical and social decisions that involve science (the application of scientific information).</p> <p>(5) Science, systems, and models. A system is a collection of cycles, structures, and processes that interact. All systems have basic properties that can be described in space, time, energy, and matter. Change and constancy occur in systems as patterns and can be observed, measured, and modeled. These patterns help to make predictions that can be</p>	Selection, M+S, Crosses
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	scientifically tested. Students should analyze a system in terms of its components and how these components relate to each other, to the whole, and to the external environment.	
112.34 C.6	(E) identify and illustrate changes in DNA and evaluate the significance of these changes;	Mutation, M+S, Crosses
112.34 C.6	(F) predict possible outcomes of various genetic combinations such as monohybrid crosses, dihybrid crosses and non-Mendelian inheritance;	Crosses
112.34 C.7	(C) analyze and evaluate how natural selection produces change in populations, not individuals; (D) analyze and evaluate how the elements of natural selection, including inherited variation, the potential of a population to produce more offspring than can survive, and a finite supply of environmental resources, result in differential reproductive success; (E) analyze and evaluate the relationship of natural selection to adaptation and to the development of diversity in and among species;	Selection, M+S
112.34 C.7	(F) analyze and evaluate the effects of other evolutionary mechanisms, including genetic drift, gene flow, mutation, and recombination	Drift, Mutation, M+S, Migration
112.34 C.12	(A) interpret relationships, including predation, parasitism, commensalism, mutualism, and competition among organisms;	Selection, M+S
112.19 b.11	(C) identify some changes in genetic traits that have occurred over several generations through natural selection and selective breeding such as the Galapagos Medium Ground Finch (<i>Geospiza fortis</i>) or domestic animals.	Migration, Drift. NRM, Mutation, Selection, M+S, Crosses
112.19 b.14	(B) compare the results of uniform or diverse offspring from sexual reproduction or asexual reproduction; and	Crosses