Subject	Chapter 112. Science			
Course Title	§112.32. Aquatic Science, Beginning with School Year 2010-2011 (One Credit).			
TEKS (Knowledge and Skills)	Student Expectation	Breakout	Element	Subelement
(a) General requirements. Students shall be awarded one credit for successful completion of this course. Required prerequisites: one unit of high school Biology. Suggested prerequisite: Chemistry or concurrent enrollment in Chemistry. This course is recommended for students in Grade 10, 11, or 12.				
(b) Introduction.				
(1) Aquatic Science. In Aquatic Science, students study the interactions of biotic and abiotic components in aquatic environments, including impacts on aquatic systems. Investigations and field work in this course may emphasize fresh water or marine aspects of aquatic science depending primarily upon the natural resources available for study near the school. Students who successfully complete Aquatic Science will acquire knowledge about a variety of aquatic systems, conduct investigations and observations of aquatic environments, work collaboratively with peers, and develop critical-thinking and problem-solving skills.				
(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.				
(3) Scientific inquiry. Scientific inquiry is the planned and deliberate investigation of the natural world. Scientific methods of investigation can be experimental, descriptive, or comparative. The method chosen should be appropriate to the question being asked.				
(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 and ethical and social decisions that involve the application of scientific information.				
(5) Scientific systems. A system is a collection of cycles, structures, and processes that interact. All systems have basic properties that can be described in terms of 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 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.				
(C) Knowledge and skills.				
(1) Scientific processes. The student, for at least 40% of instructional time, conducts laboratory and field investigations using safe, environmentally appropriate, and ethical practices. The student is expected to:	(A) demonstrate safe practices during laboratory and field investigations, including chemical, electrical, and fire safety, and safe handling of live and preserved organisms	(i) demonstrate safe practices during laboratory investigations, including chemical safety		

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(1) Scientific processes. The student, for at least 40% of instructional time, conducts laboratory and field investigations using safe, environmentally appropriate, and ethical practices. The student is expected to:	(A) demonstrate safe practices during laboratory and field investigations, including chemical, electrical, and fire safety, and safe handling of live and preserved organisms	(ii) demonstrate safe practices during laboratory investigations, including electrical safety		
(1) Scientific processes. The student, for at least 40% of instructional time, conducts laboratory and field investigations using safe, environmentally appropriate, and ethical practices. The student is expected to:	(A) demonstrate safe practices during laboratory and field investigations, including chemical, electrical, and fire safety, and safe handling of live and preserved organisms	(iii) demonstrate safe practices during laboratory investigations, including fire safety		
(1) Scientific processes. The student, for at least 40% of instructional time, conducts laboratory and field investigations using safe, environmentally appropriate, and ethical practices. The student is expected to:	(A) demonstrate safe practices during laboratory and field investigations, including chemical, electrical, and fire safety, and safe handling of live and preserved organisms	(iv) demonstrate safe practices during laboratory investigations, including safe handling of live organisms		
(1) Scientific processes. The student, for at least 40% of instructional time, conducts laboratory and field investigations using safe, environmentally appropriate, and ethical practices. The student is expected to:	(A) demonstrate safe practices during laboratory and field investigations, including chemical, electrical, and fire safety, and safe handling of live and preserved organisms	(v) demonstrate safe practices during laboratory investigations, including safe handling of preserved organisms		

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(1) Scientific processes. The student, for at least 40% of instructional time, conducts laboratory and field investigations using safe, environmentally appropriate, and ethical practices. The student is expected to:	(A) demonstrate safe practices during laboratory and field investigations, including chemical, electrical, and fire safety, and safe handling of live and preserved organisms	(vi) demonstrate safe practices during field investigations, including chemical safety		
(1) Scientific processes. The student, for at least 40% of instructional time, conducts laboratory and field investigations using safe, environmentally appropriate, and ethical practices. The student is expected to:	(A) demonstrate safe practices during laboratory and field investigations, including chemical, electrical, and fire safety, and safe handling of live and preserved organisms	(vii) demonstrate safe practices during field investigations, including electrical safety		
(1) Scientific processes. The student, for at least 40% of instructional time, conducts laboratory and field investigations using safe, environmentally appropriate, and ethical practices. The student is expected to:	(A) demonstrate safe practices during laboratory and field investigations, including chemical, electrical, and fire safety, and safe handling of live and preserved organisms	(viii) demonstrate safe practices during field investigations, including fire safety		
(1) Scientific processes. The student, for at least 40% of instructional time, conducts laboratory and field investigations using safe, environmentally appropriate, and ethical practices. The student is expected to:	(A) demonstrate safe practices during laboratory and field investigations, including chemical, electrical, and fire safety, and safe handling of live and preserved organisms	(ix) demonstrate safe practices during field investigations, including safe handling of live organisms		

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TEKS (Knowledge and Skills)	Student Expectation	Breakout	Element	Subelement
(1) Scientific processes. The student, for at least 40% of instructional time, conducts laboratory and field investigations using safe, environmentally appropriate, and ethical practices. The student is expected to:	(A) demonstrate safe practices during laboratory and field investigations, including chemical, electrical, and fire safety, and safe handling of live and preserved organisms	(x) demonstrate safe practices during field investigations, including safe handling of preserved organisms		
(1) Scientific processes. The student, for at least 40% of instructional time, conducts laboratory and field investigations using safe, environmentally appropriate, and ethical practices. The student is expected to:	(B) demonstrate an understanding of the use and conservation of resources and the proper disposal or recycling of materials	(i) demonstrate an understanding of the use of resources		
(1) Scientific processes. The student, for at least 40% of instructional time, conducts laboratory and field investigations using safe, environmentally appropriate, and ethical practices. The student is expected to:	(B) demonstrate an understanding of the use and conservation of resources and the proper disposal or recycling of materials	(ii) demonstrate an understanding of the conservation of resources		
(1) Scientific processes. The student, for at least 40% of instructional time, conducts laboratory and field investigations using safe, environmentally appropriate, and ethical practices. The student is expected to:	(B) demonstrate an understanding of the use and conservation of resources and the proper disposal or recycling of materials	(iii) demonstrate the proper disposal or recycling of materials		

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TEKS (Knowledge and Skills)	Student Expectation	Breakout	Element	Subelement
(2) Scientific processes. The student uses scientific methods during laboratory and field investigations. The student is expected to:	(A) know the definition of science and understand that it has limitations, as specified in subsection (b)(2) of this section	(i) know the definition of science, as specified in subsection (b)(2) [above]		
(2) Scientific processes. The student uses scientific methods during laboratory and field investigations. The student is expected to:	(A) know the definition of science and understand that it has limitations, as specified in subsection (b)(2) of this section	(ii) understand that [science] has limitations, as specified in subsection (b)(2) [above]		
(2) Scientific processes. The student uses scientific methods during laboratory and field investigations. The student is expected to:	(B) know that scientific hypotheses are tentative and testable statements that must be capable of being supported or not supported by observational evidence. Hypotheses of durable explanatory power which have been tested over a wide variety of conditions are incorporated into theories	(i) know that scientific hypotheses are tentative statements that must be capable of being supported or not supported by observational evidence		
(2) Scientific processes. The student uses scientific methods during laboratory and field investigations. The student is expected to:	(B) know that scientific hypotheses are tentative and testable statements that must be capable of being supported or not supported by observational evidence. Hypotheses of durable explanatory power which have been tested over a wide variety of conditions are incorporated into theories	(ii) know that scientific hypotheses are testable statements that must be capable of being supported or not supported by observational evidence		
(2) Scientific processes. The student uses scientific methods during laboratory and field investigations. The student is expected to:	(B) know that scientific hypotheses are tentative and testable statements that must be capable of being supported or not supported by observational evidence. Hypotheses of durable explanatory power which have been tested over a wide variety of conditions are incorporated into theories	(iii) [know that] hypotheses of durable explanatory power which have been tested over a wide variety of conditions are incorporated into theories		

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TEKS (Knowledge and Skills)	Student Expectation	Breakout	Element	Subelement
(2) Scientific processes. The student uses scientific methods during laboratory and field investigations. The student is expected to:	(C) know that scientific theories are based on natural and physical phenomena and are capable of being tested by multiple independent researchers. Unlike hypotheses, scientific theories are well-established and highly-reliable explanations, but they may be subject to change as new areas of science and new technologies are developed	(i) know that scientific theories are based on natural and physical phenomena		
(2) Scientific processes. The student uses scientific methods during laboratory and field investigations. The student is expected to:	(C) know that scientific theories are based on natural and physical phenomena and are capable of being tested by multiple independent researchers. Unlike hypotheses, scientific theories are well-established and highly-reliable explanations, but they may be subject to change as new areas of science and new technologies are developed	(ii) know that scientific theories are capable of being tested by multiple independent researchers		
(2) Scientific processes. The student uses scientific methods during laboratory and field investigations. The student is expected to:	(C) know that scientific theories are based on natural and physical phenomena and are capable of being tested by multiple independent researchers. Unlike hypotheses, scientific theories are well-established and highly-reliable explanations, but they may be subject to change as new areas of science and new technologies are developed	(iii) [know that], unlike hypothesis, scientific theories are well-established explanations		

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(2) Scientific processes. The student uses scientific methods during laboratory and field investigations. The student is expected to:	(C) know that scientific theories are based on natural and physical phenomena and are capable of being tested by multiple independent researchers. Unlike hypotheses, scientific theories are well-established and highly-reliable explanations, but they may be subject to change as new areas of science and new technologies are developed	(iv) [know that], unlike hypotheses, scientific theories are highly-reliable explanations		
(2) Scientific processes. The student uses scientific methods during laboratory and field investigations. The student is expected to:	(C) know that scientific theories are based on natural and physical phenomena and are capable of being tested by multiple independent researchers. Unlike hypotheses, scientific theories are well-established and highly-reliable explanations, but they may be subject to change as new areas of science and new technologies are developed	(v) [know that scientific theories] may be subject to change as new areas of science are developed		
(2) Scientific processes. The student uses scientific methods during laboratory and field investigations. The student is expected to:	(C) know that scientific theories are based on natural and physical phenomena and are capable of being tested by multiple independent researchers. Unlike hypotheses, scientific theories are well-established and highly-reliable explanations, but they may be subject to change as new areas of science and new technologies are developed	(vi) [know that scientific theories] may be subject to change as new technologies are developed		
(2) Scientific processes. The student uses scientific methods during laboratory and field investigations. The student is expected to:	(D) distinguish between scientific hypotheses and scientific theories			

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(2) Scientific processes. The student uses scientific methods during laboratory and field investigations. The student is expected to:	(E) plan and implement investigative procedures, including asking questions, formulating testable hypotheses, and selecting, handling, and maintaining appropriate equipment and technology	(i) plan investigative procedures, including asking questions		
(2) Scientific processes. The student uses scientific methods during laboratory and field investigations. The student is expected to:	(E) plan and implement investigative procedures, including asking questions, formulating testable hypotheses, and selecting, handling, and maintaining appropriate equipment and technology	(ii) plan investigative procedures, including formulating testable hypotheses		
(2) Scientific processes. The student uses scientific methods during laboratory and field investigations. The student is expected to:	(E) plan and implement investigative procedures, including asking questions, formulating testable hypotheses, and selecting, handling, and maintaining appropriate equipment and technology	(iii) plan investigative procedures, including selecting appropriate equipment		
(2) Scientific processes. The student uses scientific methods during laboratory and field investigations. The student is expected to:	(E) plan and implement investigative procedures, including asking questions, formulating testable hypotheses, and selecting, handling, and maintaining appropriate equipment and technology	(iv) plan investigative procedures, including handling appropriate equipment		
(2) Scientific processes. The student uses scientific methods during laboratory and field investigations. The student is expected to:	(E) plan and implement investigative procedures, including asking questions, formulating testable hypotheses, and selecting, handling, and maintaining appropriate equipment and technology	(v) plan investigative procedures, including maintaining appropriate equipment		
(2) Scientific processes. The student uses scientific methods during laboratory and field investigations. The student is expected to:	(E) plan and implement investigative procedures, including asking questions, formulating testable hypotheses, and selecting, handling, and maintaining appropriate equipment and technology	(vi) plan investigative procedures, including selecting appropriate technology		
(2) Scientific processes. The student uses scientific methods during laboratory and field investigations. The student is expected to:	(E) plan and implement investigative procedures, including asking questions, formulating testable hypotheses, and selecting, handling, and maintaining appropriate equipment and technology	(vii) plan investigative procedures, including handling appropriate technology		

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(2) Scientific processes. The student uses scientific methods during laboratory and field investigations. The student is expected to:	(E) plan and implement investigative procedures, including asking questions, formulating testable hypotheses, and selecting, handling, and maintaining appropriate equipment and technology	(viii) plan investigative procedures, including maintaining appropriate technology		
(2) Scientific processes. The student uses scientific methods during laboratory and field investigations. The student is expected to:	(E) plan and implement investigative procedures, including asking questions, formulating testable hypotheses, and selecting, handling, and maintaining appropriate equipment and technology	(ix) implement investigative procedures, including asking questions		
(2) Scientific processes. The student uses scientific methods during laboratory and field investigations. The student is expected to:	(E) plan and implement investigative procedures, including asking questions, formulating testable hypotheses, and selecting, handling, and maintaining appropriate equipment and technology	(x) implement investigative procedures, including formulating testable hypotheses		
(2) Scientific processes. The student uses scientific methods during laboratory and field investigations. The student is expected to:	(E) plan and implement investigative procedures, including asking questions, formulating testable hypotheses, and selecting, handling, and maintaining appropriate equipment and technology	(xi) implement investigative procedures, including selecting appropriate equipment		
(2) Scientific processes. The student uses scientific methods during laboratory and field investigations. The student is expected to:	(E) plan and implement investigative procedures, including asking questions, formulating testable hypotheses, and selecting, handling, and maintaining appropriate equipment and technology	(xii) implement investigative procedures, including handling appropriate equipment		
(2) Scientific processes. The student uses scientific methods during laboratory and field investigations. The student is expected to:	(E) plan and implement investigative procedures, including asking questions, formulating testable hypotheses, and selecting, handling, and maintaining appropriate equipment and technology	(xiii) implement investigative procedures, including maintaining appropriate equipment		
(2) Scientific processes. The student uses scientific methods during laboratory and field investigations. The student is expected to:	(E) plan and implement investigative procedures, including asking questions, formulating testable hypotheses, and selecting, handling, and maintaining appropriate equipment and technology	(xiv) implement investigative procedures, including selecting appropriate technology		

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(2) Scientific processes. The student uses scientific methods during laboratory and field investigations. The student is expected to:	(E) plan and implement investigative procedures, including asking questions, formulating testable hypotheses, and selecting, handling, and maintaining appropriate equipment and technology	(xv) implement investigative procedures, including handling appropriate technology		
(2) Scientific processes. The student uses scientific methods during laboratory and field investigations. The student is expected to:	(E) plan and implement investigative procedures, including asking questions, formulating testable hypotheses, and selecting, handling, and maintaining appropriate equipment and technology	(xvi) implement investigative procedures, including maintaining appropriate technology		
(2) Scientific processes. The student uses scientific methods during laboratory and field investigations. The student is expected to:	(F) collect data individually or collaboratively, make measurements with precision and accuracy, record values using appropriate units, and calculate statistically relevant quantities to describe data, including mean, median, and range	(i) collect data individually or collaboratively		
(2) Scientific processes. The student uses scientific methods during laboratory and field investigations. The student is expected to:	(F) collect data individually or collaboratively, make measurements with precision and accuracy, record values using appropriate units, and calculate statistically relevant quantities to describe data, including mean, median, and range	(ii) make measurements with precision		
(2) Scientific processes. The student uses scientific methods during laboratory and field investigations. The student is expected to:	(F) collect data individually or collaboratively, make measurements with precision and accuracy, record values using appropriate units, and calculate statistically relevant quantities to describe data, including mean, median, and range	(iii) make measurements with accuracy		

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(2) Scientific processes. The student uses scientific methods during laboratory and field investigations. The student is expected to:	(F) collect data individually or collaboratively, make measurements with precision and accuracy, record values using appropriate units, and calculate statistically relevant quantities to describe data, including mean, median, and range	(iv) record values using appropriate units		
(2) Scientific processes. The student uses scientific methods during laboratory and field investigations. The student is expected to:	(F) collect data individually or collaboratively, make measurements with precision and accuracy, record values using appropriate units, and calculate statistically relevant quantities to describe data, including mean, median, and range	(v) calculate statistically relevant quantities to describe data, including mean		
(2) Scientific processes. The student uses scientific methods during laboratory and field investigations. The student is expected to:	(F) collect data individually or collaboratively, make measurements with precision and accuracy, record values using appropriate units, and calculate statistically relevant quantities to describe data, including mean, median, and range	(vi) calculate statistically relevant quantities to describe data, including median		
(2) Scientific processes. The student uses scientific methods during laboratory and field investigations. The student is expected to:	(F) collect data individually or collaboratively, make measurements with precision and accuracy, record values using appropriate units, and calculate statistically relevant quantities to describe data, including mean, median, and range	(vii) calculate statistically relevant quantities to describe data, including range		
(2) Scientific processes. The student uses scientific methods during laboratory and field investigations. The student is expected to:	(G) demonstrate the use of course apparatuses, equipment, techniques, and procedures	(i) demonstrate the use of course apparatuses [and] equipment		

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(2) Scientific processes. The student uses scientific methods during laboratory and field investigations. The student is expected to:	(G) demonstrate the use of course apparatuses, equipment, techniques, and procedures	(ii) demonstrate the use of course techniques		
(2) Scientific processes. The student uses scientific methods during laboratory and field investigations. The student is expected to:	(G) demonstrate the use of course apparatuses, equipment, techniques, and procedures	(iii) demonstrate the use of courseprocedures		
(2) Scientific processes. The student uses scientific methods during laboratory and field investigations. The student is expected to:	(H) organize, analyze, evaluate, build models, make inferences, and predict trends from data	(i) organize data		
(2) Scientific processes. The student uses scientific methods during laboratory and field investigations. The student is expected to:	(H) organize, analyze, evaluate, build models, make inferences, and predict trends from data	(ii) analyze data		
(2) Scientific processes. The student uses scientific methods during laboratory and field investigations. The student is expected to:	(H) organize, analyze, evaluate, build models, make inferences, and predict trends from data	(iii) evaluate data		
(2) Scientific processes. The student uses scientific methods during laboratory and field investigations. The student is expected to:	(H) organize, analyze, evaluate, build models, make inferences, and predict trends from data	(iv) build models from data		
(2) Scientific processes. The student uses scientific methods during laboratory and field investigations. The student is expected to:	(H) organize, analyze, evaluate, build models, make inferences, and predict trends from data	(v) make inferences from data		

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(2) Scientific processes. The student uses scientific methods during laboratory and field investigations. The student is expected to:	(H) organize, analyze, evaluate, build models, make inferences, and predict trends from data	(vi) predict trends from data		
(2) Scientific processes. The student uses scientific methods during laboratory and field investigations. The student is expected to:	(I) perform calculations using dimensional analysis, significant digits, and scientific notation	(i) perform calculations using dimensional analysis		
(2) Scientific processes. The student uses scientific methods during laboratory and field investigations. The student is expected to:	(I) perform calculations using dimensional analysis, significant digits, and scientific notation	(ii) perform calculations using significant digits		
(2) Scientific processes. The student uses scientific methods during laboratory and field investigations. The student is expected to:	(I) perform calculations using dimensional analysis, significant digits, and scientific notation	(iii) perform calculations using scientific notation		
(2) Scientific processes. The student uses scientific methods during laboratory and field investigations. The student is expected to:	(J) communicate valid conclusions using essential vocabulary and multiple modes of expression such as lab reports, labeled drawings, graphic organizers, journals, summaries, oral reports, and technology-based reports	(i) communicate valid conclusions using essential vocabulary		
(2) Scientific processes. The student uses scientific methods during laboratory and field investigations. The student is expected to:	(J) communicate valid conclusions using essential vocabulary and multiple modes of expression such as lab reports, labeled drawings, graphic organizers, journals, summaries, oral reports, and technology-based reports	(ii) communicate valid conclusions using multiple modes of expression		

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TEKS (Knowledge and Skills)	Student Expectation	Breakout	Element	Subelement
(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:	(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	(i) in all fields of science, analyze scientific explanations by using empirical evidence		
(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:	(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	(ii) in all fields of science, analyze scientific explanations by using logical reasoning		
(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:	(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	(iii) in all fields of science, analyze scientific explanations by using experimental testing		
(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:	(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	(iv) in all fields of science, analyze scientific explanations by using observational testing		

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(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:	(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	(v) in all fields of science, analyze scientific explanations, including examining all sides of scientific evidence of those scientific explanations		
(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:	(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	(vi) in all fields of science, evaluate scientific explanations by using empirical evidence		
(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:	(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	(vii) in all fields of science, evaluate scientific explanations by using logical reasoning		
(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:	(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	(viii) in all fields of science, evaluate scientific explanations by using experimental testing		

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(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:	(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	(ix) in all fields of science, evaluate scientific explanations by using observational testing		
(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:	(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	(x) in all fields of science, evaluate scientific explanations, including examining all sides of scientific evidence of those scientific explanations		
(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:	(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	(xi) in all fields of science, critique scientific explanations by using empirical evidence		
(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:	(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	(xii) in all fields of science, critique scientific explanations by using logical reasoning		

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(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:	(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	(xiii) in all fields of science, critique scientific explanations by using experimental testing		
(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:	(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	(xiv) in all fields of science, critique scientific explanations by using observational testing		
(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:	(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	(xv) in all fields of science, critique scientific explanations, including examining all sides of scientific evidence of those scientific explanations		
(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:	(B) communicate and apply scientific information extracted from various sources such as current events, news reports, published journal articles, and marketing materials	(i) communicate scientific information extracted from various sources		

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(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:	(B) communicate and apply scientific information extracted from various sources such as current events, news reports, published journal articles, and marketing materials	(ii) apply scientific information extracted from various sources		
(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:	(C) draw inferences based on data related to promotional materials for products and services	(i) draw inferences based on data related to promotional materials for products		
(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:	(C) draw inferences based on data related to promotional materials for products and services	(ii) draw inferences based on data related to promotional materials for services		
(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:	(D) evaluate the impact of research and technology on scientific thought, society, and the environment	(i) evaluate the impact of research on scientific thought		
(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:	(D) evaluate the impact of research and technology on scientific thought, society, and the environment	(ii) evaluate the impact of research on society		

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TEKS (Knowledge and Skills)	Student Expectation	Breakout	Element	Subelement
(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:	(D) evaluate the impact of research and technology on scientific thought, society, and the environment	(iii) evaluate the impact of research on the environment		
(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:	(D) evaluate the impact of research and technology on scientific thought, society, and the environment	(iv) evaluate the impact of technology on scientific thought		
(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:	(D) evaluate the impact of research and technology on scientific thought, society, and the environment	(v) evaluate the impact of technology on society		
(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:	(D) evaluate the impact of research and technology on scientific thought, society, and the environment	(vi) evaluate the impact of technology on the environment		
(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:	(E) describe the connection between aquatic science and future careers			

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TEKS (Knowledge and Skills)	Student Expectation	Breakout	Element	Subelement
(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:	(F) research and describe the history of aquatic science and contributions of scientists	(i) research the history of aquatic science		
(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:	(F) research and describe the history of aquatic science and contributions of scientists	(ii) research the contributions of scientists		
(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:	(F) research and describe the history of aquatic science and contributions of scientists	(iii) describe the history of aquatic science		
(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:	(F) research and describe the history of aquatic science and contributions of scientists	(iv) describe the contributions of scientists		
(4) Science concepts. Students know that aquatic environments are the product of Earth systems interactions. The student is expected to:	(A) identify key features and characteristics of atmospheric, geological, hydrological, and biological systems as they relate to aquatic environments	(i) identify key features of atmospheric systems as they relate to aquatic environments		

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(4) Science concepts. Students know that aquatic environments are the product of Earth systems interactions. The student is expected to:	(A) identify key features and characteristics of atmospheric, geological, hydrological, and biological systems as they relate to aquatic environments	(ii) identify key features of geological systems as they relate to aquatic environments		
(4) Science concepts. Students know that aquatic environments are the product of Earth systems interactions. The student is expected to:	(A) identify key features and characteristics of atmospheric, geological, hydrological, and biological systems as they relate to aquatic environments	(iii) identify key features of hydrological systems as they relate to aquatic environments		
(4) Science concepts. Students know that aquatic environments are the product of Earth systems interactions. The student is expected to:	(A) identify key features and characteristics of atmospheric, geological, hydrological, and biological systems as they relate to aquatic environments	(iv) identify key feature of biological systems as they relate to aquatic environments		
(4) Science concepts. Students know that aquatic environments are the product of Earth systems interactions. The student is expected to:	(A) identify key features and characteristics of atmospheric, geological, hydrological, and biological systems as they relate to aquatic environments	(v) identify key characteristics of atmospheric systems as they relate to aquatic environments		
(4) Science concepts. Students know that aquatic environments are the product of Earth systems interactions. The student is expected to:	(A) identify key features and characteristics of atmospheric, geological, hydrological, and biological systems as they relate to aquatic environments	(vi) identify key characteristics of geological systems as they relate to aquatic environments		
(4) Science concepts. Students know that aquatic environments are the product of Earth systems interactions. The student is expected to:	(A) identify key features and characteristics of atmospheric, geological, hydrological, and biological systems as they relate to aquatic environments	(vii) identify key characteristics of hydrological systems as they relate to aquatic environments		
(4) Science concepts. Students know that aquatic environments are the product of Earth systems interactions. The student is expected to:	(A) identify key features and characteristics of atmospheric, geological, hydrological, and biological systems as they relate to aquatic environments	(viii) identify key characteristics of biological systems as they relate to aquatic environments		

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TEKS (Knowledge and Skills)	Student Expectation	Breakout	Element	Subelement
(4) Science concepts. Students know that aquatic environments are the product of Earth systems interactions. The student is expected to:	(B) apply systems thinking to the examination of aquatic environments, including positive and negative feedback cycles	(i) apply systems thinking to the examination of aquatic environments, including positive feedback cycles		
(4) Science concepts. Students know that aquatic environments are the product of Earth systems interactions. The student is expected to:	(B) apply systems thinking to the examination of aquatic environments, including positive and negative feedback cycles	(ii) apply systems thinking to the examination of aquatic environments, including negative feedback cycles		
(4) Science concepts. Students know that aquatic environments are the product of Earth systems interactions. The student is expected to:	(C) collect and evaluate global environmental data using technology such as maps, visualizations, satellite data, Global Positioning System (GPS), Geographic Information System (GIS), weather balloons, buoys, etc	(i) collect global environmental data using technology		
(4) Science concepts. Students know that aquatic environments are the product of Earth systems interactions. The student is expected to:	(C) collect and evaluate global environmental data using technology such as maps, visualizations, satellite data, Global Positioning System (GPS), Geographic Information System (GIS), weather balloons, buoys, etc	(ii) evaluate global environmental data using technology		
(5) Science concepts. The student conducts long-term studies on local aquatic environments. Local natural environments are to be preferred over artificial or virtual environments. The student is expected to:	(A) evaluate data over a period of time from an established aquatic environment documenting seasonal changes and the behavior of organisms	(i) evaluate data over a period of time from an established aquatic environment documenting seasonal changes		

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TEKS (Knowledge and Skills)	Student Expectation	Breakout	Element	Subelement
(5) Science concepts. The student conducts long-term studies on local aquatic environments. Local natural environments are to be preferred over artificial or virtual environments. The student is expected to:	(A) evaluate data over a period of time from an established aquatic environment documenting seasonal changes and the behavior of organisms	(ii) evaluate data over a period of time from an established aquatic environment documenting the behavior of organisms		
(5) Science concepts. The student conducts long-term studies on local aquatic environments. Local natural environments are to be preferred over artificial or virtual environments. The student is expected to:	(B) collect baseline quantitative data, including pH, salinity, temperature, mineral content, nitrogen compounds, and turbidity from an aquatic environment	(i) collect baseline quantitative data, including pH from an aquatic environment		
(5) Science concepts. The student conducts long-term studies on local aquatic environments. Local natural environments are to be preferred over artificial or virtual environments. The student is expected to:	(B) collect baseline quantitative data, including pH, salinity, temperature, mineral content, nitrogen compounds, and turbidity from an aquatic environment	(ii) collect baseline quantitative data, including salinity from an aquatic environment		
(5) Science concepts. The student conducts long-term studies on local aquatic environments. Local natural environments are to be preferred over artificial or virtual environments. The student is expected to:	(B) collect baseline quantitative data, including pH, salinity, temperature, mineral content, nitrogen compounds, and turbidity from an aquatic environment	(iii) collect baseline quantitative data, including temperature from an aquatic environment		

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TEKS (Knowledge and Skills)	Student Expectation	Breakout	Element	Subelement
(5) Science concepts. The student conducts long-term studies on local aquatic environments. Local natural environments are to be preferred over artificial or virtual environments. The student is expected to:	(B) collect baseline quantitative data, including pH, salinity, temperature, mineral content, nitrogen compounds, and turbidity from an aquatic environment	(iv) collect baseline quantitative data, including mineral content from an aquatic environment		
(5) Science concepts. The student conducts long-term studies on local aquatic environments. Local natural environments are to be preferred over artificial or virtual environments. The student is expected to:	(B) collect baseline quantitative data, including pH, salinity, temperature, mineral content, nitrogen compounds, and turbidity from an aquatic environment	(v) collect baseline quantitative data, including nitrogen compounds from an aquatic environment		
(5) Science concepts. The student conducts long-term studies on local aquatic environments. Local natural environments are to be preferred over artificial or virtual environments. The student is expected to:	(B) collect baseline quantitative data, including pH, salinity, temperature, mineral content, nitrogen compounds, and turbidity from an aquatic environment	(vi) collect baseline quantitative data, including turbidity from an aquatic environment		
(5) Science concepts. The student conducts long-term studies on local aquatic environments. Local natural environments are to be preferred over artificial or virtual environments. The student is expected to:	(C) analyze interrelationships among producers, consumers, and decomposers in a local aquatic ecosystem			

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TEKS (Knowledge and Skills)	Student Expectation	Breakout	Element	Subelement
(5) Science concepts. The student conducts long-term studies on local aquatic environments. Local natural environments are to be preferred over artificial or virtual environments. The student is expected to:	(D) identify the interdependence of organisms in an aquatic environment such as in a pond, river, lake, ocean, or aquifer and the biosphere	(i) identify the interdependence of organisms in an aquatic environment		
(6) Science concepts. The student knows the role of cycles in an aquatic environment. The student is expected to:	(A) identify the role of carbon, nitrogen, water, and nutrient cycles in an aquatic environment, including upwellings and turnovers	(i) identify the role of [the] carbon cycle in an aquatic environment, including upwellings		
(6) Science concepts. The student knows the role of cycles in an aquatic environment. The student is expected to:	(A) identify the role of carbon, nitrogen, water, and nutrient cycles in an aquatic environment, including upwellings and turnovers	(ii) identify the role of [the] nitrogen cycle in an aquatic environment, including upwellings		
(6) Science concepts. The student knows the role of cycles in an aquatic environment. The student is expected to:	(A) identify the role of carbon, nitrogen, water, and nutrient cycles in an aquatic environment, including upwellings and turnovers	(iii) identify the role of [the] water cycle in an aquatic environment, including upwellings		
(6) Science concepts. The student knows the role of cycles in an aquatic environment. The student is expected to:	(A) identify the role of carbon, nitrogen, water, and nutrient cycles in an aquatic environment, including upwellings and turnovers	(iv) identify the role of [the] nutrient cycle in an aquatic environment, including upwellings		
(6) Science concepts. The student knows the role of cycles in an aquatic environment. The student is expected to:	(A) identify the role of carbon, nitrogen, water, and nutrient cycles in an aquatic environment, including upwellings and turnovers	(v) identify the role of [the] carbon cycle in an aquatic environment, including turnovers		
(6) Science concepts. The student knows the role of cycles in an aquatic environment. The student is expected to:	(A) identify the role of carbon, nitrogen, water, and nutrient cycles in an aquatic environment, including upwellings and turnovers	(vi) identify the role of [the] nitrogen cycle in an aquatic environment, including turnovers		
(6) Science concepts. The student knows the role of cycles in an aquatic environment. The student is expected to:	(A) identify the role of carbon, nitrogen, water, and nutrient cycles in an aquatic environment, including upwellings and turnovers	(vii) identify the role of [the] water cycle in an aquatic environment, including turnovers		

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TEKS (Knowledge and Skills)	Student Expectation	Breakout	Element	Subelement
(6) Science concepts. The student knows the role of cycles in an aquatic environment. The student is expected to:	(A) identify the role of carbon, nitrogen, water, and nutrient cycles in an aquatic environment, including upwellings and turnovers	(viii) identify the role of [the] nutrient cycle in an aquatic environment, including turnovers		
(6) Science concepts. The student knows the role of cycles in an aquatic environment. The student is expected to:	(B) examine the interrelationships between aquatic systems and climate and weather, including El Niño and La Niña, currents, and hurricanes	(i) examine the interrelationships between aquatic systems and climate and weather, including El Niño		
(6) Science concepts. The student knows the role of cycles in an aquatic environment. The student is expected to:	(B) examine the interrelationships between aquatic systems and climate and weather, including El Niño and La Niña, currents, and hurricanes	(ii) examine the interrelationships between aquatic systems and climate and weather, including La Niña		
(6) Science concepts. The student knows the role of cycles in an aquatic environment. The student is expected to:	(B) examine the interrelationships between aquatic systems and climate and weather, including El Niño and La Niña, currents, and hurricanes	(iii) examine the interrelationships between aquatic systems and climate and weather, including currents		
(6) Science concepts. The student knows the role of cycles in an aquatic environment. The student is expected to:	(B) examine the interrelationships between aquatic systems and climate and weather, including El Niño and La Niña, currents, and hurricanes	(iv) examine the interrelationships between aquatic systems and climate and weather, including hurricanes		
(7) Science concepts. The student knows the origin and use of water in a watershed. The student is expected to:	(A) identify sources and determine the amounts of water in a watershed, including rainfall, groundwater, and surface water	(i) identify sources of water in a watershed, including rainfall		
(7) Science concepts. The student knows the origin and use of water in a watershed. The student is expected to:	(A) identify sources and determine the amounts of water in a watershed, including rainfall, groundwater, and surface water	(ii) identify sources of water in a watershed, including groundwater		
(7) Science concepts. The student knows the origin and use of water in a watershed. The student is expected to:	(A) identify sources and determine the amounts of water in a watershed, including rainfall, groundwater, and surface water	(iii) identify sources of water in a watershed, including surface water		
(7) Science concepts. The student knows the origin and use of water in a watershed. The student is expected to:	(A) identify sources and determine the amounts of water in a watershed, including rainfall, groundwater, and surface water	(iv) determine amounts of water in a watershed, including rainfall		

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TEKS (Knowledge and Skills)	Student Expectation	Breakout	Element	Subelement
(7) Science concepts. The student knows the origin and use of water in a watershed. The student is expected to:	(A) identify sources and determine the amounts of water in a watershed, including rainfall, groundwater, and surface water	(v) determine amounts of water in a watershed, including groundwater		
(7) Science concepts. The student knows the origin and use of water in a watershed. The student is expected to:	(A) identify sources and determine the amounts of water in a watershed, including rainfall, groundwater, and surface water	(vi) determine amounts of water in a watershed, including surface water		
(7) Science concepts. The student knows the origin and use of water in a watershed. The student is expected to:	(B) identify factors that contribute to how water flows through a watershed			
(7) Science concepts. The student knows the origin and use of water in a watershed. The student is expected to:	(C) identify water quantity and quality in a local watershed.	(i) identify water quantity in a local watershed		
(7) Science concepts. The student knows the origin and use of water in a watershed. The student is expected to:	(C) identify water quantity and quality in a local watershed.	(ii) identify water quality in a local watershed		
(8) Science concepts. The student knows that geological phenomena and fluid dynamics affect aquatic systems. The student is expected to:	(A) demonstrate basic principles of fluid dynamics, including hydrostatic pressure, density, salinity, and buoyancy	(i) demonstrate basic principles of fluid dynamics, including hydrostatic pressure		
(8) Science concepts. The student knows that geological phenomena and fluid dynamics affect aquatic systems. The student is expected to:	(A) demonstrate basic principles of fluid dynamics, including hydrostatic pressure, density, salinity, and buoyancy	(ii) demonstrate basic principles of fluid dynamics, including density		
(8) Science concepts. The student knows that geological phenomena and fluid dynamics affect aquatic systems. The student is expected to:	(A) demonstrate basic principles of fluid dynamics, including hydrostatic pressure, density, salinity, and buoyancy	(iii) demonstrate basic principles of fluid dynamics, including salinity		

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TEKS (Knowledge and Skills)	Student Expectation	Breakout	Element	Subelement
(8) Science concepts. The student knows that geological phenomena and fluid dynamics affect aquatic systems. The student is expected to:	(A) demonstrate basic principles of fluid dynamics, including hydrostatic pressure, density, salinity, and buoyancy	(iv) demonstrate basic principles of fluid dynamics, including buoyancy		
(8) Science concepts. The student knows that geological phenomena and fluid dynamics affect aquatic systems. The student is expected to:	(B) identify interrelationships between ocean currents, climates, and geologic features			
(8) Science concepts. The student knows that geological phenomena and fluid dynamics affect aquatic systems. The student is expected to:	(C) describe and explain fluid dynamics in an upwelling and lake turnover	(i) describe fluid dynamics in an upwelling		
(8) Science concepts. The student knows that geological phenomena and fluid dynamics affect aquatic systems. The student is expected to:	(C) describe and explain fluid dynamics in an upwelling and lake turnover	(ii) describe fluid dynamics in lake turnover		
(8) Science concepts. The student knows that geological phenomena and fluid dynamics affect aquatic systems. The student is expected to:	(C) describe and explain fluid dynamics in an upwelling and lake turnover	(iii) explain fluid dynamics in an upwelling		
(8) Science concepts. The student knows that geological phenomena and fluid dynamics affect aquatic systems. The student is expected to:	(C) describe and explain fluid dynamics in an upwelling and lake turnover	(iv) explain fluid dynamics in lake turnover		
(9) Science concepts. The student knows the types and components of aquatic ecosystems. The student is expected to:	(A) differentiate among freshwater, brackish, and saltwater ecosystems;			

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(9) Science concepts. The student knows the types and components of aquatic ecosystems. The student is expected to:	(B) identify the major properties and components of different marine and freshwater life zones	(i) identify the major properties of different marine life zones		
(9) Science concepts. The student knows the types and components of aquatic ecosystems. The student is expected to:	(B) identify the major properties and components of different marine and freshwater life zones	(ii) identify the major components of different marine life zones		
(9) Science concepts. The student knows the types and components of aquatic ecosystems. The student is expected to:	(B) identify the major properties and components of different marine and freshwater life zones	(iii) identify the major properties of different freshwater life zones		
(9) Science concepts. The student knows the types and components of aquatic ecosystems. The student is expected to:	(B) identify the major properties and components of different marine and freshwater life zones	(iv) identify the major components of different freshwater life zones		
(9) Science concepts. The student knows the types and components of aquatic ecosystems. The student is expected to:	(C) identify biological, chemical, geological, and physical components of an aquatic life zone as they relate to the organisms in it	(i) identify biological components of an aquatic life zone as they relate to the organisms in it		
(9) Science concepts. The student knows the types and components of aquatic ecosystems. The student is expected to:	(C) identify biological, chemical, geological, and physical components of an aquatic life zone as they relate to the organisms in it	(ii) identify chemical components of an aquatic life zone as they relate to the organisms in it		
(9) Science concepts. The student knows the types and components of aquatic ecosystems. The student is expected to:	(C) identify biological, chemical, geological, and physical components of an aquatic life zone as they relate to the organisms in it	(iii) identify geological components of an aquatic life zone as they relate to the organisms in it		

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TEKS (Knowledge and Skills)	Student Expectation	Breakout	Element	Subelement
(9) Science concepts. The student knows the types and components of aquatic ecosystems. The student is expected to:	(C) identify biological, chemical, geological, and physical components of an aquatic life zone as they relate to the organisms in it	(iv) identify physical components of an aquatic life zone as they relate to the organisms in it		
(10) Science concepts. The student knows environmental adaptations of aquatic organisms. The student is expected to:	(A) classify different aquatic organisms using tools such as dichotomous keys	(i) classify different aquatic organisms using tools		
(10) Science concepts. The student knows environmental adaptations of aquatic organisms. The student is expected to:	(B) compare and describe how adaptations allow an organism to exist within an aquatic environment	(i) compare how adaptations allow an organism to exist within an aquatic environment		
(10) Science concepts. The student knows environmental adaptations of aquatic organisms. The student is expected to:	(B) compare and describe how adaptations allow an organism to exist within an aquatic environment	(ii) describe how adaptations allow an organism to exist within an aquatic environment		
(10) Science concepts. The student knows environmental adaptations of aquatic organisms. The student is expected to:	(C) compare differences in adaptations of aquatic organisms to fresh water and marine environments			
(11) Science concepts. The student knows about the interdependence and interactions that occur in aquatic environments. The student is expected to:	(A) identify how energy flows and matter cycles through both fresh water and salt water aquatic systems, including food webs, chains, and pyramids	(i) identify how energy flows through fresh water aquatic systems, including food webs		
(11) Science concepts. The student knows about the interdependence and interactions that occur in aquatic environments. The student is expected to:	(A) identify how energy flows and matter cycles through both fresh water and salt water aquatic systems, including food webs, chains, and pyramids	(ii) identify how energy flows through fresh water aquatic systems, including food chains		

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TEKS (Knowledge and Skills)	Student Expectation	Breakout	Element	Subelement
(11) Science concepts. The student knows about the interdependence and interactions that occur in aquatic environments. The student is expected to:	(A) identify how energy flows and matter cycles through both fresh water and salt water aquatic systems, including food webs, chains, and pyramids	(iii) identify how energy flows through fresh water aquatic systems, including pyramids		
(11) Science concepts. The student knows about the interdependence and interactions that occur in aquatic environments. The student is expected to:	(A) identify how energy flows and matter cycles through both fresh water and salt water aquatic systems, including food webs, chains, and pyramids	(iv) identify how matter cycles through fresh water aquatic systems, including food webs		
(11) Science concepts. The student knows about the interdependence and interactions that occur in aquatic environments. The student is expected to:	(A) identify how energy flows and matter cycles through both fresh water and salt water aquatic systems, including food webs, chains, and pyramids	(v) identify how matter cycles through fresh water aquatic systems, including food chains		
(11) Science concepts. The student knows about the interdependence and interactions that occur in aquatic environments. The student is expected to:	(A) identify how energy flows and matter cycles through both fresh water and salt water aquatic systems, including food webs, chains, and pyramids	(vi) identify how matter cycles through fresh water aquatic systems, including pyramids		
(11) Science concepts. The student knows about the interdependence and interactions that occur in aquatic environments. The student is expected to:	(A) identify how energy flows and matter cycles through both fresh water and salt water aquatic systems, including food webs, chains, and pyramids	(vii) identify how energy flows through salt water aquatic systems, including food webs		
(11) Science concepts. The student knows about the interdependence and interactions that occur in aquatic environments. The student is expected to:	(A) identify how energy flows and matter cycles through both fresh water and salt water aquatic systems, including food webs, chains, and pyramids	(viii) identify how energy flows through salt water aquatic systems, including food chains		

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TEKS (Knowledge and Skills)	Student Expectation	Breakout	Element	Subelement
(11) Science concepts. The student knows about the interdependence and interactions that occur in aquatic environments. The student is expected to:	(A) identify how energy flows and matter cycles through both fresh water and salt water aquatic systems, including food webs, chains, and pyramids	(ix) identify how energy flows through salt water aquatic systems, including pyramids		
(11) Science concepts. The student knows about the interdependence and interactions that occur in aquatic environments. The student is expected to:	(A) identify how energy flows and matter cycles through both fresh water and salt water aquatic systems, including food webs, chains, and pyramids	(x) identify how matter cycles through salt water aquatic systems, including food webs		
(11) Science concepts. The student knows about the interdependence and interactions that occur in aquatic environments. The student is expected to:	(A) identify how energy flows and matter cycles through both fresh water and salt water aquatic systems, including food webs, chains, and pyramids	(xi) identify how matter cycles through salt water aquatic systems, including food chains		
(11) Science concepts. The student knows about the interdependence and interactions that occur in aquatic environments. The student is expected to:	(A) identify how energy flows and matter cycles through both fresh water and salt water aquatic systems, including food webs, chains, and pyramids	(xii) identify how matter cycles through salt water aquatic systems, including pyramids		
(11) Science concepts. The student knows about the interdependence and interactions that occur in aquatic environments. The student is expected to:	(B) evaluate the factors affecting aquatic population cycles			
(12) Science concepts. The student understands how human activities impact aquatic environments. The student is expected to:	(A) predict effects of chemical, organic, physical, and thermal changes from humans on the living and nonliving components of an aquatic ecosystem	(i) predict effects of chemical changes from humans on the living components of an aquatic ecosystem		

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TEKS (Knowledge and Skills)	Student Expectation	Breakout	Element	Subelement
(12) Science concepts. The student understands how human activities impact aquatic environments. The student is expected to:	(A) predict effects of chemical, organic, physical, and thermal changes from humans on the living and nonliving components of an aquatic ecosystem	(ii) predict effects of organic changes from humans on the living components of an aquatic ecosystem		
(12) Science concepts. The student understands how human activities impact aquatic environments. The student is expected to:	(A) predict effects of chemical, organic, physical, and thermal changes from humans on the living and nonliving components of an aquatic ecosystem	(iii) predict effects of physical changes from humans on the living components of an aquatic ecosystem		
(12) Science concepts. The student understands how human activities impact aquatic environments. The student is expected to:	(A) predict effects of chemical, organic, physical, and thermal changes from humans on the living and nonliving components of an aquatic ecosystem	(iv) predict effects of thermal changes from humans on the living components of an aquatic ecosystem		
(12) Science concepts. The student understands how human activities impact aquatic environments. The student is expected to:	(A) predict effects of chemical, organic, physical, and thermal changes from humans on the living and nonliving components of an aquatic ecosystem	(v) predict effects of chemical changes from humans on the nonliving components of an ecosystem		
(12) Science concepts. The student understands how human activities impact aquatic environments. The student is expected to:	(A) predict effects of chemical, organic, physical, and thermal changes from humans on the living and nonliving components of an aquatic ecosystem	(vi) predict effects of organic changes from humans on the nonliving components of an aquatic ecosystem		
(12) Science concepts. The student understands how human activities impact aquatic environments. The student is expected to:	(A) predict effects of chemical, organic, physical, and thermal changes from humans on the living and nonliving components of an aquatic ecosystem	(vii) predict effects of physical changes from humans on the nonliving components of an aquatic ecosystem		
(12) Science concepts. The student understands how human activities impact aquatic environments. The student is expected to:	(A) predict effects of chemical, organic, physical, and thermal changes from humans on the living and nonliving components of an aquatic ecosystem	(viii) predict effects of thermal changes from humans on the nonliving components of an aquatic ecosystem		

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(12) Science concepts. The student understands how human activities impact aquatic environments. The student is expected to:	(B) analyze the cumulative impact of human population growth on an aquatic system			
(12) Science concepts. The student understands how human activities impact aquatic environments. The student is expected to:	(C) investigate the role of humans in unbalanced systems such as invasive species, fish farming, cultural eutrophication, or red tides	(i) investigate the role of humans in unbalanced systems		
(12) Science concepts. The student understands how human activities impact aquatic environments. The student is expected to:	(D) analyze and discuss how human activities such as fishing, transportation, dams, and recreation influence aquatic environments	(i) analyze how human activities influence aquatic environments		
(12) Science concepts. The student understands how human activities impact aquatic environments. The student is expected to:	(D) analyze and discuss how human activities such as fishing, transportation, dams, and recreation influence aquatic environments	(ii) discuss how human activities influence aquatic environments		
(12) Science concepts. The student understands how human activities impact aquatic environments. The student is expected to:	(E) understand the impact of various laws and policies such as The Endangered Species Act, right of capture laws, or Clean Water Act on aquatic systems	(i) understand the impact of various laws on aquatic systems		
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