

Inquiry Skills	Aquatic Science TEKS Links
1. Set up a new, appropriate problem/application	2(A) plan and implement investigative procedures including asking questions, formulating testable hypotheses, and selecting equipment and technology.
2. Pose relevant questions and develop hypotheses	2(A) plan and implement investigative procedures including asking questions, formulating testable hypotheses, and selecting equipment and technology.
3. Make and test predictions	
4. Observations and measurements are accurate and appropriate	2(B) collect data and make measurements with precision.
5. Equipment is used properly with appropriate safety procedures	1(A) demonstrate safe practices during field and laboratory investigations.
6. Quality assurance procedures are employed (multiple, repeated readings; recalibration) and measurement errors are detected	
7. Specify measurements and variables	
8. Identify similarities and differences	
9. Explain reasons for differences	
10. Use appropriate mathematical procedures	2(C) express and manipulate quantities using mathematical procedures such as dimensional analysis, scientific notation, and significant figures.
11. Infer patterns and trends	2(D) organize, analyze, evaluate, make inferences, and predict trends from data.
12. Explain data and relationships using evidence	2(D) organize, analyze, evaluate, make inferences, and predict trends from data.
13. Collect and organize data	2(B) collect data and make measurements with precision.
14. Use multiple forms to represent data	
15. Use models and simulations	
16. Communicate findings	2(E) communicate valid conclusions.

GLOBE ATMOSPHERE Science Concepts	Aquatic Science Direct TEKS Link*	Aquatic Science InDirect TEKS Link*
1. The atmosphere has observable and/or measurable characteristics.	2(B) collect data and make measurements with precision; 6(C) collect and evaluate global environmental data using technology	
2. Clouds can be categorized by observable features.		
3. Cloud cover and wind can affect atmospheric measurements.	2(B) collect data and make measurements with precision; 6(C) collect and evaluate global environmental data using technology	5(D) evaluate trends in data to determine the factors that impact aquatic ecosystems
4. Cloud types can be associated with certain weather patterns and used to predict the weather.	2(D) organize, analyze, evaluate, make inferences, and predict trends from data 6(C) collect and evaluate global environmental data using technology	5(D) evaluate trends in data to determine the factors that impact aquatic ecosystems 6(B) interpret the role of aquatic systems in climate and weather
5. pH is a characteristic property that can be measured.	2(B) collect data and make measurements with precision; 4(C) collect and analyze baseline quantitative data such as pH, salinity, temperature, mineral content, nitrogen compounds, and turbidity from an aquatic environment 6(C) collect and evaluate global environmental data using technology	5(D) evaluate trends in data to determine the factors that impact aquatic ecosystems
6. Heat energy transfers through radiation, conduction, and convection.		
7. Substances transfer heat energy at different rates.		
8. Some materials are good conductors of heat energy; some are good insulators of heat energy.		
9. The transfer of heat energy affects temperature.		
10. Substances expand and contract as the temperature changes.		
11. Classification helps to organize and understand the natural world.		
Atmosphere Enrichment Concepts	Aquatic Science Direct TEKS Link*	Aquatic Science InDirect TEKS Link*
1. Water has the unique property of expansion when changing from a liquid to a solid state.		

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GLOBE HYDROLOGY Science Concepts	Aquatic Science Direct TEKS Link*	Aquatic Science InDirect TEKS Link*
<p>1. Surface water exists in many forms and has observable and/or measurable characteristics.</p>	<p>2(B) collect data and make measurements with precision</p> <p>10 (A) identify sources and determine the amounts of water in a watershed including groundwater and surface water</p> <p>10(B) research and identify the types of uses and volumes of water used in a watershed</p> <p>10(C) identify water quantity and quality in a local watershed</p> <p>4(A) differentiate among freshwater, brackish, and saltwater ecosystems</p> <p>4(B) research and identify biological, chemical, geological, and physical components of an aquatic ecosystem</p>	<p>5(A) observe and compile data over a period of time from an established aquatic habitat documenting seasonal changes and the behavior of organisms</p> <p>5(D) evaluate trends in data to determine the factors that impact aquatic ecosystems</p> <p>6(C) collect and evaluate global environmental data using technology</p>
<p>2. Surface water characteristics are related to the characteristics of the surrounding environment.</p>	<p>4(B) research and identify biological, chemical, geological, and physical components of an aquatic ecosystem</p>	<p>8(A) predict effects of chemical, organic, physical, and thermal changes on the living and nonliving components of an aquatic ecosystem</p> <p>5(A) observe and compile data over a period of time from an established aquatic habitat documenting seasonal changes and the behavior of organisms</p> <p>10(B) research and identify the types of uses and volumes of water used in a watershed</p> <p>10(C) identify water quantity and quality in a local watershed</p>
<p>3. A watershed guides water to a common watercourse.</p>	<p>10(A) identify sources and determine the amounts of water in a watershed including groundwater and surface water</p>	<p>4(B) research and identify biological, chemical, geological, and physical components of an aquatic ecosystem</p> <p>10(B) research and identify the types of uses and volumes of water used in a watershed</p>

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GLOBE HYDROLOGY Science Concepts	Aquatic Science Direct TEKS Link*	Aquatic Science InDirect TEKS Link*
4. Watershed characteristics are related to the physical features of the land.	4(B) research and identify biological, chemical, geological, and physical components of an aquatic ecosystem 10(C) identify water quantity and quality in a local watershed	8(A) predict effects of chemical, organic, physical, and thermal changes on the living and nonliving components of an aquatic ecosystem 4(C) identify water quantity and quality in a local watershed 10(B) research and identify the types of uses and volumes of water used in a watershed
5. The physical environment affects an organism's response patterns; organisms adapt and survive, move, or die.	5(A) observe and compile data over a period of time from an established aquatic habitat documenting seasonal changes and the behavior of organisms 7(B) compare and describe how adaptations allow an organism to exist within an aquatic environment 7(C) predict adaptations of an organism prompted by environmental changes 8(A) predict effects of chemical, organic, physical, and thermal changes on the living and nonliving components of an aquatic ecosystem	5(D) evaluate trends in data to determine the factors that impact aquatic ecosystems 7(D) compare differences in adaptations of aquatic organisms to fresh water and marine environments 8(B) analyze the cumulative impact of natural and human influence on an aquatic system 8(D) analyze and discuss human influences on an aquatic environment including fishing, transportation, and recreation
6. pH is a characteristic property that can be measured.	2(B) collect data and make measurements with precision 4(C) collect and analyze baseline quantitative data such as pH, salinity, temperature, mineral content, nitrogen compounds, and turbidity from an aquatic environment	5(D) evaluate trends in data to determine the factors that impact aquatic ecosystems 6(C) collect and evaluate global environmental data using technology
7. Classification helps to organize and understand the natural world.		7A) classify different aquatic organisms using dichotomous keys

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Hydrology Enrichment Concepts	Aquatic Science Direct TEKS Link*	Aquatic Science InDirect TEKS Link*
1. Macro-invertebrates are sensitive indicators of water quality.	4(B) research and identify biological, chemical, geological, and physical components of an aquatic ecosystem 10(C) identify water quantity and quality in a local watershed	8(A) predict effects of chemical, organic, physical, and thermal changes on the living and nonliving components of an aquatic ecosystem 5(D) evaluate trends in data to determine the factors that impact aquatic ecosystems
2. Topographical maps provide 3-dimensional information about the land.		

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GLOBE SOILS Science Concepts	Aquatic Science Direct TEKS Link*	Aquatic Science InDirect TEKS Link*
1. Soil has observable and/or measurable properties that change with time and location.	2(B) collect data and make measurements with precision 6(C) collect and evaluate global environmental data using technology	
2. The interaction of organisms, climate, parent material, topography, and time affect soil properties.		
3. Soil acts as an insulating layer, creating a measurable temperature gradient.	2(B) collect data and make measurements with precision 6(C) collect and evaluate global environmental data using technology	
4. Environmental conditions affect the rate of decomposition in soil.		
5. The chemical and physical properties of soils make different soils useful in different ways.		
6. pH is a characteristic property that can be measured.	2(B) collect data and make measurements with precision 4(C) collect and analyze baseline quantitative data such as pH, salinity, temperature, mineral content, nitrogen compounds, and turbidity from an aquatic environment 6(C) collect and evaluate global environmental data using technology	
7. Classification helps to organize and understand the natural world.		7(A) classify different aquatic organisms using dichotomous keys
Soils Enrichment Concepts:	Aquatic Science Direct TEKS Link*	Aquatic Science InDirect TEKS Link*
1. There are 12 soil textures representing different amounts of sand-, silt-, and clay-sized particles.	4(B) analyze examples of solids, liquids, and gases to determine their compressibility, structure, motion of particles, shape, and volume	
2. A soil profile can be classified according to its properties, such as horizon, color, structure, consistency, texture, root and rock distribution, density, pH, carbonates, and fertility.	2(B) collect data and make measurements with precision	
3. Infiltration is the rate at which water flows into the ground; the rate changes depending on the level of soil saturation, soil texture and structure, and land cover.		

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GLOBE LAND COVER Science Concepts	Aquatic Science Direct TEKS Link*	Aquatic Science InDirect TEKS Link*
1. A GLOBE Study Site has observable and/or measurable characteristics.	2(B) collect data and make measurements with precision	5(D) evaluate trends in data to determine the factors that impact aquatic ecosystems.
2. A GLOBE Study Site represents a system with boundaries, and is a subset of the earth system.		
3. Earth's land surface is covered by a variety of naturally occurring vegetated ecosystems.		
4. The physical environment affects an organism's response patterns; organisms adapt and survive, move, or die.	5(A) observe and compile data over a period of time from an established aquatic habitat documenting seasonal changes and the behavior of organisms 7(B) compare and describe how adaptations allow an organism to exist within an aquatic environment 7(C) predict adaptations of an organism prompted by environmental changes 8(A) predict effects of chemical, organic, physical, and thermal changes on the living and nonliving components of an aquatic ecosystem	
5. The magnetic needle of a compass is attracted to Earth's Magnetic North and to some metal objects that are nearby.		
6. Classification helps to organize and understand the natural world.		7(A) classify different aquatic organisms using dichotomous keys;
Land Cover Enrichment Concepts	Aquatic Science Direct TEKS Link*	Aquatic Science InDirect TEKS Link*
1. Remote sensing is a technique used to create visual representations of data.		
2. Image display is accomplished by conversion of stored data to a user-defined coded scheme and creating an image based on differences in measurement.		
3. Student remote sensing involves observations made without the use of touch (i.e., using eyes, ears, nose and skin surface).		

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GLOBE Seasons Science Concepts	Aquatic Science Direct TEKS Link*	Aquatic Science InDirect TEKS Link*
1. Seasonal changes can be observed.	(A) observe and compile data over a period of time from an established aquatic habitat documenting seasonal changes and the behavior of organisms	
2. Seasonal changes follow an annual cycle. The magnitude of these changes varies from year to year.		5(D) evaluate trends in data to determine the factors that impact aquatic ecosystems
3. Seasonal patterns differ based on geographic location.		6(B) interpret the role of aquatic systems in climate and weather
4. Earth has many climate zones.		
5. Classification helps to organize and understand the natural world.		7(A) classify different aquatic organisms using dichotomous keys
Seasons Enrichment Concepts	Aquatic Science Direct TEKS Link*	Aquatic Science InDirect TEKS Link*
1. Bud-break is the period when leaf buds appear and grow.		
2. Senescence is the period when actively growing plant material dies.		

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GLOBE GPS Science Concepts	Aquatic Science Direct TEKS Link*
1. The amount of sunlight that falls directly at a particular site on Earth varies throughout the year.	
2. The magnetic needle of a compass is attracted to Earth's Magnetic North and to some metal objects that are nearby.	6(C) collect and evaluate global environmental data using technology
3. A map is a symbolic representation of a certain land area.	6(C) collect and evaluate global environmental data using technology
GPS Enrichment Concepts	
1. Universal time is a technique used to standardize time measurements.	6(C) collect and evaluate global environmental data using technology
2. The spatial relationship between Earth and celestial objects can be used to determine location on Earth.	6(C) collect and evaluate global environmental data using technology
3. The GPS is used to make accurate measurements of latitude and longitude.	6(C) collect and evaluate global environmental data using technology

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