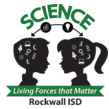




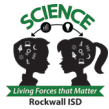
Rockwall ISD Aquatic Science Year-at-a-Glance



	Term 1	Term 2	Term 3	Term 4
Focus TEKS ESSENTIAL	<u>Unit 1</u> 1 A, B; 2 E, F, G, J; 3 E; 5 B; 7 C; 10 B; 12 A, B, C, E <u>Unit 2</u> 2 G, J; 4 A; 6 A; 7 A <u>Unit 3</u> 2 H, J; 3 B; 4 A; 7 B; 12 A, B, D	<u>Unit 4</u> 1 A, B; 2 B, E, F, G, H, J; 3 A, B, E; 10 A, B; 11 A <u>Unit 5</u> 1 A, B; 2 B, E, F, G, H, J; 3 A, D, B; 4 B; 5 C, D; 10 B; 11 A; 12 A, C <u>Unit 6</u> 1 A, B; 2 E, F, G, H, J, K; 3 E; 4 A, B; 5 A; 7 A; 9 A; 10 A; 11 B; 12 A, B, D	<u>Unit 7</u> 1 A, B; 2 F, H, J; 3 A; 4 A; 7 A, B, C; 10 B; 11 A, B; 12 A, B, C, D <u>Unit 8</u> 1 A, B; 2 B, E, G, H, J; 3 B; 5 A, B, C, D; 7 C; 10 A, B; 11 A, B; 12 A, B, C, D <u>Unit 9</u> 1 A, B; 2 E, F, G, H, I, J; 4 B; 5 C, D; 10 B; 12 A <u>Unit 10</u> 1 A, B; 2 E, F, G, J; 3 B, E; 5 C, D; 9 C; 10 A, B; 11 A, B; 12 A, B, D	<u>Unit 11</u> 1 A, B; 2 F, G, H, J; 4 A; 9 A; 10 B, C; 11 B; 12 A, B, C, D <u>Unit 12</u> 1 A, B; 2 E, F, G, H, J; 3 B, E; 5 C, D; 6 B; 7 C; 8 A; 9 C; 10 A, B <u>Unit 13</u> 1 A, B; 2 E, F, G, J; 3 B, C, E; 5 C, D; 10 A, B; 11 A, B; 12 C, D <u>Unit 14</u> 2 H, J; 7 A, B; 12 A, B, D, E
Topic Focus	<u>Unit 1</u> Water is Life <u>Unit 2</u> Water: The Ultimate Recyclable <u>Unit 3</u> Watersheds and the Land	<u>Unit 4</u> Living in Water <u>Unit 5</u> From Sun to Sunfish <u>Unit 6</u> Texas' Many Aquatic Ecosystems	<u>Unit 7</u> Aquifers and Springs <u>Unit 8</u> Streams and Rivers <u>Unit 9</u> Lakes and Ponds <u>Unit 10</u> Wetlands	<u>Unit 11</u> Bays and Estuaries <u>Unit 12</u> Oceans: The Gulf of Mexico <u>Unit 13</u> Fishing for Conservation <u>Unit 14</u> Water for People and the Environment
Resources	<u>Unit 1</u> Chapter 1 <u>Unit 2</u> Chapter 2 <u>Unit 3</u> Chapter 3	<u>Unit 4</u> Chapter 4 <u>Unit 5</u> Chapter 5 <u>Unit 6</u> Chapter 6	<u>Unit 7</u> Chapter 7 <u>Unit 8</u> Chapter 8 <u>Unit 9</u> Chapter 9 <u>Unit 10</u> Chapter 10	<u>Unit 11</u> Chapter 11 <u>Unit 12</u> Chapter 12 <u>Unit 13</u> Chapter 13 <u>Unit 14</u> Chapter 14
Key Concepts	Unit 1 <ul style="list-style-type: none"> • Make and use models of water distribution on Earth and the amount of water useable by humans to help understand abstract ideas. • Explain, on the molecular level, what makes water a polar molecule and how that affects water's properties. 	Unit 4 <ul style="list-style-type: none"> • Identify specific adaptations of aquatic species found in Texas, and explain the role of adaptation in the organism's ability to survive and fill a niche (such as predator, prey, producer, consumer, parasite, or host) in the aquatic community. • Identify the importance of inheritance in aquatic adaptations 	Unit 7 <ul style="list-style-type: none"> • Identify ways that humans might affect the environment where these organism might live. • Identify how increasing human populations in their organism's habitat could change the carrying capacity. • Compare movement of water through various types of rocks and soil. 	Unit 11 <ul style="list-style-type: none"> • Locate bays on a map of Texas. • Identify the importance of bays and estuaries. • Compare and contrast bays and estuaries and identify the importance of freshwater inflow to bays and estuaries. • Determine the kinds of plants found in estuaries.



Rockwall ISD Aquatic Science Year-at-a-Glance



- Investigate their own use of water and devise ways to cut usage to conserve our water supply.
- Identify the constants, and the dependent and independent variables in the water conservation experiment.
- Use technology and appropriate equipment to test water quantity, quality, and possibility of pollution to collect data in a local watershed.
- Collect data and draw conclusions based on data.
- Make connections between testing of water quality and careers
- Identify ways human activity can affect aquatic environments.
- Predict effects of chemical, organic, physical, and thermal changes from humans on the living and nonliving components of an aquatic ecosystem.
- Identify the impact of various laws and policies such as the Clean Water Act on aquatic systems.
- Compare and describe how adaptations allow an organism to exist within an aquatic environment.

Unit 2

- Diagram and describe the path of water through the hydrosphere, geosphere and atmosphere (the water cycle).
- Identify the sun's energy as the driver of the water cycle fueling evaporation and transpiration, which puts water into the atmosphere to form clouds and its effect on aquatic environment.

and differentiate inherited traits and learned behavior.

- Examine Texas fish species and record observations.
- Identify basic characteristics of organisms that help classify them and use a dichotomous key to identify a fish.
- Discuss these relationships:
 - predator/prey
 - parasite/host
 - producer/consumer
- Complete a Comparison Matrix for Texas Fish studied with labeled drawing
- Define species and give a Texas-specific example of an aquatic species.
- Observe and describe how different aquatic environments support different varieties of organisms.

Unit 5

- Examine and analyze the importance of interactions in an aquatic community.
- Predict the possible effects of changes in the numbers and types of organisms in an aquatic community on the populations of other organisms within the community.
- Explain how populations of organisms and individuals within a community compete with one another for resources.
- Recognize factors that affect the number and types of organisms an environment can support.
- Make generalizations about organisms' behavior based on their

- Identify types of permeable rocks and soils.
- Identify impermeable natural materials such as clay and granite.
- Explain how water moves through aquifers.
- Identify the parts of different types of aquifers.

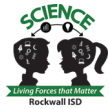
Unit 8

- Explain how biotic and abiotic factors that make up the stream ecosystem function together.
- Compare and contrast the adaptations of plants and animals living in flowing water to those of other aquatic and terrestrial species.
- Predict the impact of flooding on the organisms in a stream ecosystem.
- Describe how technological solutions to problems, such as levees, dams and channelization, can have risks and unintended consequences.
- Describe possible solutions to potentially harmful environmental changes within a stream ecosystem.
- Predict the changes in the number and types of organisms in a stream ecosystem based on stream order. Recognize the factors that affect the number and types of organisms a stream ecosystem can support.
- Explain how organisms respond to the external stimuli in these different habitats.
- Explain how diversity contributes to sustainability of the stream ecosystem.

- Compare adaptations of closely related species.
- Explain how tides may differ in different places in bays and from bay to bay.
- Explain the importance of conservation of water inland to healthy ecosystems and the production of seafood on the Texas Coast
- Describe how organisms depend on biotic and abiotic factors in the estuary.
- Identify and evaluate factors that affect aquatic populations.
- Predict how species extinction may alter the food chain and affect existing populations in an estuary.
- Identify the land uses of humans and effects of those uses of the land on an estuary
- Describe how biodiversity contributes to the sustainability of an ecosystem.
- Describe how short and long term environmental changes affect organisms and traits in subsequent populations.
- Describe how organisms and populations in an ecosystem depend on and may compete for biotic and abiotic parts of the ecosystem.
- Describe human dependence on ocean systems and explain how human activities have modified these systems.
- Explain how human activity is affecting aquatic viability in the Texas bays and estuaries.



Rockwall ISD Aquatic Science Year-at-a-Glance



- Identify ways that humans and other living things impact the water cycle.
- Define and differentiate between weather and climate.
- Identify the source of home and school tap water and how waste from both is treated.
- Explain how the availability of freshwater for humans and other living organisms is dependent upon the water cycle

Unit 3

- Students will look at changes to water, an abiotic part of the environment on which all living things depend, and how those changes affect living things.
- Students will discuss changes in water in a watershed caused by various human uses of the land.
- Students will use a topographic map to help them create a model of a watershed. Students will look at problems on the school grounds that might affect the watershed
- Students will look at the effects of pollution in different places in a model watershed.
- Students will describe the impact of erosion and sedimentation on aquatic resources in Texas.
- Students will identify Texas' natural physiographic regions and explain how land type may affect Texas' aquatic resources, wildlife and recreation in and around water.
- Students will explain the relationship between the

- data from observations and mapping.
- Diagram and describe the transfer of energy in an aquatic food web (or the trophic levels in a energy pyramid) in Texas, including producers, consumers, decomposers, scavengers, and predator/prey relationships. Be sure to include the source of energy for the aquatic ecosystem.

Unit 6

- Create a list and identify how all of the Texas aquatic ecosystems are related.
- Compare and contrast Texas' aquatic ecosystem types.
- Predict the impact of a natural or human-caused environmental change on the organisms in an ecosystem.
- Discuss mark and recapture method to estimate a population in a nearby creek or pond.
- Generate ideas for conserving aquatic ecosystems.

- Predict the types of organism to be found based on the stream order.
- Compare adaptations of organisms from different stream habitats.

Unit 9

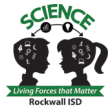
- Examine the future of water resources in Texas.
- Explain how biotic and abiotic factors that make up the lake ecosystem function together, including how depth zones determine where populations of species live in the lake.
- Compare and contrast the characteristics of plants adapted to living in lakes and ponds to those of terrestrial species.
- Predict the impact of storm-water runoff on the organisms in a pond ecosystem.
- Describe possible solutions to potentially harmful environmental changes within a pond ecosystem.
- Predict the impact of manmade and natural disturbances on lakes and ponds.
- Describe energy transfer in a pond food web.
- Differentiate between structure and function in plant and animal cell organelles including cell membrane, cell wall, nucleus, chloroplast, cytoplasm, mitochondria, and vacuole.
- Describe producer/consumer, predator/prey, and parasite/host relationships as they occur in food webs in freshwater.

Unit 12

- Identify and describe the biotic and abiotic parts of the Gulf ecosystem.
- Describe some of the micro-habitats that exist in the Gulf of Mexico.
- Identify producer/consumer, predator/prey, or parasite/host relationships in a marine environment.
- Describe some adaptations of aquatic organisms found in the Gulf of Mexico.
- Describe how different environments support different varieties of organisms.
- Identify and diagram how energy flows in saltwater aquatic systems including food webs.
- Evaluate the effects of human activities on the environment including habitat restoration projects, species preservation efforts, nature conservation groups, hunting, fishing, ecotourism.
- Make predictions, observations, and diagrams about layering of different temperatures and salinities of water
- Identify the role of oceans in the formation of weather systems such as hurricanes.
- Explain how ocean currents are important to the ocean food web.
- Predict effects on the living and nonliving components of an aquatic ecosystem of chemical, organic, physical, and thermal changes caused by humans.



Rockwall ISD Aquatic Science Year-at-a-Glance



watershed and the water body into which it drains.

- Students will draw conclusions about the relationships among the characteristics of physiographic regions, watershed, and aquatic environments.

Unit 10

- Explain characteristics of Texas wetlands including playa lakes riparian wetlands, spring-fed wetlands, sand sheet wetlands, resacas, ciénegas, bottomland hardwoods, and tidal wetlands.
- Describe their plant and its adaptation, the wetland in which it lives, and how that adaptation helps the plant survive.
- Explain how biotic and abiotic factors that make up wetland ecosystems function together.
- Describe the adaptations and diets of animals in the Texas coastal wetlands
- Predict the impact of drainage on the organisms in a wetland ecosystem. Describe how technological solutions to problems, such as drainage and agricultural development, can have risks and unintended consequences.
- Describe possible solutions to potentially harmful environmental changes within a wetland ecosystem.
- Identify ways human activity can affect aquatic environments.
- Predict effects of chemical, organic, physical, and thermal changes caused by humans on the living and nonliving components of an aquatic ecosystem.
- Analyze the cumulative impact of human population growth on an aquatic system.

Unit 13

- Apply knowledge of species adaptations in the conservation of Texas' aquatic resources.
- Apply knowledge of the roles of producers, consumers, and decomposers in the transfer of energy in an aquatic food web in Texas.
- Demonstrate ethical judgment with regard to the conservation of Texas' aquatic resources.
- Identify ways human activity can affect aquatic environments.
- Predict effects on the living and nonliving components of an aquatic ecosystem of chemical, organic, physical, and thermal changes caused by humans.
- Analyze the cumulative impact of human population growth on an aquatic system.

Unit 14

- Identify applicable water laws in Texas.
- Identify ways Prior Appropriation and Riparian Law can work for or against the environment.
- Differentiate between point source pollution and non-point source pollution.
- Identify laws or regulatory entities responsible for controlling pollution.