South Cross Bayou

High School Science Standards by Station

Station	9-12 Standards B=Biology, BH=Biology Honors, C=Chemistry, CH=Chemistry Honors, ES=Earth Science, E=Environmental Science, M=Marine Science, M2=Marine Science 2, PS=Physical Science, P=Physics
Introduction	SC.912.L.17.18 Describe how human population size and resource use relate to environmental quality. (E,M) SC.912.L.17.19 Describe how different natural resources are produced and how their rates of use and renewal limit availability. (E,C) SC.912.L.17.14 Assess the need for adequate waste management strategies. (E) SC.912.L.17.15 Discuss the effects of technology on environmental quality. (C,E,M2) SC.912.L.17.16 Discuss the large-scale environmental impacts resulting from human activity, including waste spills, oil spills, runoff, greenhouse gases, ozone depletion, and surface and groundwater pollution. (B,E,M,M2) SC.912.L.17.20 Predict the impact of individuals on environmental systems and examine how human lifestyles affect sustainability. (B,E) HE.912.C.1.3 Evaluate how environment and personal health are interrelated. (E)
1 *Operations Center*	SC.912.L.17.13 Discuss the need for adequate monitoring of environmental parameters when making policy decisions. (B,E,M2) SC.912.N.1.2 Describe and explain what characterizes science and its methods. (C,CH,E,M,M2,PS,P) SC.912.N.3.5 Describe the function of models in science, and identify the wide range of models used in science. (C,CH,E,ES,M,M2,PS,P) SC.912.E.7.8 Explain how various atmospheric, oceanic, and hydrologic conditions in Florida have influenced and can influence human behavior, both individually and collectively. (E,ES,M2) SC.912.P.8.2 Differentiate between physical and chemical properties and physical and chemical changes of matter. (C,CH,PS)
2 *Influent Pump Station*	SC.912.P.12.2 Analyze the motion of an object in terms of its position, velocity, and acceleration (with respect to a frame of reference) as functions of time. (ES,PS,P)
3 *Headworks*	SC.912.L.17.16 Discuss the large-scale environmental impacts resulting from human activity, including waste spills, oil spills, runoff, greenhouse gases, ozone depletion, and surface and groundwater pollution. (B,E,M,M2) SC.912.P.8.2 Differentiate between physical and chemical properties and physical and chemical changes of matter. (C,CH,PS)
4A *Teacups*	SC.912.P.8.2 Differentiate between physical and chemical properties and physical and chemical changes of matter. (C,CH,PS) SC.912.P.12.2 Analyze the motion of an object in terms of its position, velocity, and acceleration (with respect to a frame of reference) as functions of time. (ES,PS,P) SC.912.P.12.3 Interpret and apply Newton's three laws of motion. (PS,P) SC.912.P.12.4 Describe how the gravitational force between two objects depends on their masses and the distance between them. (ES, PS, P)
4B *Grit Snail & Dumpsters*	SC.912.L.17.14 Assess the need for adequate waste management strategies. (E) SC.912.P.8.2 Differentiate between physical and chemical properties and physical and chemical changes of matter. (C,CH,PS) SC.912.P.12.2 Analyze the motion of an object in terms of its position, velocity, and acceleration (with respect to a frame of reference) as functions of time. (ES,PS,P)
5 *Primary Clarifier Tanks*	SC.912.P.8.2 Differentiate between physical and chemical properties and physical and chemical changes of matter. (C,CH,PS) SC.912.P.12.4 Describe how the gravitational force between two objects depends on their masses and the distance between them. (ES, PS, P)

6 *Anoxic Tanks*	SC.912.L.17.10 Diagram and explain the biogeochemical cycles of an ecosystem, including water, carbon, and nitrogen cycle. (E,M,M2) SC.912.E.7.1 Analyze the movement of matter and energy through the different biogeochemical cycles, including water and carbon. (B,BH,ES,PS) SC.912.L.15.1 Explain how the scientific theory of evolution is supported by the fossil record, comparative anatomy, comparative embryology, biogeography, molecular biology, and observed evolutionary change. (B) SC.912.L.15.13 Describe the conditions required for natural selection, including: overproduction of offspring, inherited variation, and the struggle to survive, which result in differential reproductive success. (B,E,M) SC.912.L.17.5 Analyze how population size is determined by births, deaths, immigration, emigration, and limiting factors (biotic and abiotic) that determine carrying capacity. (B,E,M2) SC.912.L.15.6 Discuss distinguishing characteristics of the domains and kingdoms of living organisms. (B) SC.912.L.18.8 Identify the reactants, products, and basic functions of aerobic and anaerobic cellular respiration. (B,PS) SC.912.P.8.2 Differentiate between physical and chemical properties and physical and chemical changes of matter. (C,CH,PS) SC.912.P.8.8 Characterize types of chemical reactions, for example: redox, acid-base, synthesis, and single and double replacement reactions. (C,CH,PS) SC.912.P.8.7 Interpret formula representations of molecules and compounds in terms of composition and structure. (BH,C,CH,PS) SC.912.L.16.10 Evaluate the impact of biotechnology on the individual, society and the environment, including medical and ethical issues. (B,E,M)
7 *Aeration Tanks*	SC.912.L.17.10 Diagram and explain the biogeochemical cycles of an ecosystem, including water, carbon, and nitrogen cycle. (E,M,M2) SC.912.E.7.1 Analyze the movement of matter and energy through the different biogeochemical cycles, including water and carbon. (B,BH,ES,PS) SC.912.L.18.8 Identify the reactants, products, and basic functions of aerobic and anaerobic cellular respiration. (B,PS) SC.912.L.17.5 Analyze how population size is determined by births, deaths, immigration, emigration, and limiting factors (biotic and abiotic) that determine carrying capacity. (B,E,M2) SC.912.L.15.1 Explain how the scientific theory of evolution is supported by the fossil record, comparative anatomy, comparative embryology, biogeography, molecular biology, and observed evolutionary change. (B) SC.912.L.15.13 Describe the conditions required for natural selection, including: overproduction of offspring, inherited variation, and the struggle to survive, which result in differential reproductive success. (B,E,M) SC.912.L.16.10 Evaluate the impact of biotechnology on the individual, society and the environment, including medical and ethical issues. (B,E,M) SC.912.P.8.1 Differentiate among the four states of matter. (C,CH,PS,P) SC.912.P.8.2 Differentiate between physical and chemical properties and physical and chemical changes of matter. (C,CH,PS) SC.912.P.8.7 Interpret formula representations of molecules and compounds in terms of composition and structure. (BH,C,CH,PS) SC.912.P.8.8 Characterize types of chemical reactions, for example: redox, acid-base, synthesis, and single and double replacement reactions. (C,CH,PS)

8A *Mixing Facility*	SC.912.P.8.7 Interpret formula representations of molecules and compounds in terms of composition and structure. (BH,C,CH,PS) SC.912.P.8.2 Differentiate between physical and chemical properties and physical and chemical changes of matter. (C,CH,PS) SC.912.P.8.8 Characterize types of chemical reactions, for example: redox, acid-base, synthesis, and single and double replacement reactions. (C,CH,PS) SC.912.P.12.12 Explain how various factors, such as concentration, temperature, and presence of a catalyst affect the rate of a chemical reaction. (C, PS)
8B *Secondary Clarifier Tanks*	SC.912.P.8.2 Differentiate between physical and chemical properties and physical and chemical changes of matter. (C,CH,PS) SC.912.P.12.2 Analyze the motion of an object in terms of its position, velocity, and acceleration (with respect to a frame of reference) as functions of time. (ES,PS,P)
9 *Denitrification*	SC.912.L.17.10 Diagram and explain the biogeochemical cycles of an ecosystem, including water, carbon, and nitrogen cycle. (E,M,M2) SC.912.E.7.1 Analyze the movement of matter and energy through the different biogeochemical cycles, including water and carbon. (B,BH,ES,PS) SC.912.E.7.3 Differentiate and describe the various interactions among Earth systems, including: atmosphere, hydrosphere, cryosphere, geosphere, and biosphere. (ES,M2) SC.912.L.18.8 Identify the reactants, products, and basic functions of aerobic and anaerobic cellular respiration. (B,PS) SC.912.P.8.7 Interpret formula representations of molecules and compounds in terms of composition and structure. (BH,C,CH,PS) SC.912.P.8.2 Differentiate between physical and chemical properties and physical and chemical changes of matter. (C,CH,PS) SC.912.P.8.8 Characterize types of chemical reactions, for example: redox, acid-base, synthesis, and single and double replacement reactions. (C,CH,PS)
10A *Chlorine Contact Tank*	SC.912.P.8.2 Differentiate between physical and chemical properties and physical and chemical changes of matter. (C,CH,PS) SC.912.P.8.7 Interpret formula representations of molecules and compounds in terms of composition and structure. (BH,C,CH,PS) SC.912.P.8.8 Characterize types of chemical reactions, for example: redox, acid-base, synthesis, and single and double replacement reactions. (C,CH,PS) SC.912.P.12.2 Analyze the motion of an object in terms of its position, velocity, and acceleration (with respect to a frame of reference) as functions of time. (ES,PS,P) HE.912.C.1.3 Evaluate how environment and personal health are interrelated. (E)

11 *Outflow Cascade*	SC.912.L.17.11 Evaluate the costs and benefits of renewable and nonrenewable resources, such as water, energy, fossil fuels, wildlife, and forests. (B,E,M,M2) SC.912.L.17.10 Diagram and explain the biogeochemical cycles of an ecosystem, including water, carbon, and nitrogen cycle. (E,M,M2) SC.912.E.7.1 Analyze the movement of matter and energy through the different biogeochemical cycles, including water and carbon. (B,BH,ES,PS) SC.912.L.17.16 Discuss the large-scale environmental impacts resulting from human activity, including waste spills, oil spills, runoff, greenhouse gases, ozone depletion, and surface and groundwater pollution. (B,E,M,M2) SC.912.L.17.2 Explain the general distribution of life in aquatic systems as a function of chemistry, geography, light, depth, salinity, and temperature. (B,M) SC.912.P.8.7 Interpret formula representations of molecules and compounds in terms of composition and structure. (BH,C,CH,PS) SC.912.P.8.2 Differentiate between physical and chemical properties and physical and chemical changes of matter. (C,CH,PS) SC.912.P.8.8 Characterize types of chemical reactions, for example: redox, acid-base, synthesis, and single and double replacement reactions. (C,CH,PS) SC.912.P.12.2 Analyze the motion of an object in terms of its position, velocity, and acceleration (with respect to a frame of reference) as functions of time. (ES,PS,P)
12 *Digesters*	SC.912.L.16.10 Evaluate the impact of biotechnology on the individual, society and the environment, including medical and ethical issues. (B,E,M) SC.912.L.17.11 Evaluate the costs and benefits of renewable and nonrenewable resources, such as water, energy, fossil fuels, wildlife, and forests. (B,E,M,M2) SC.912.L.17.10 Diagram and explain the biogeochemical cycles of an ecosystem, including water, carbon, and nitrogen cycle. (E,M,M2) SC.912.E.7.1 Analyze the movement of matter and energy through the different biogeochemical cycles, including water and carbon. (B,BH,ES,PS) SC.912.L.17.15 Discuss the effects of technology on environmental quality. (C,E,M2) SC.912.L.17.16 Discuss the large-scale environmental impacts resulting from human activity, including waste spills, oil spills, runoff, greenhouse gases, ozone depletion, and surface and groundwater pollution. (B,E,M,M2) SC.912.L.15.6 Discuss distinguishing characteristics of the domains and kingdoms of living organisms. (B) SC.912.P.8.2 Differentiate between physical and chemical properties and physical and chemical changes of matter. (C,CH,PS) SC.912.P.8.7 Interpret formula representations of molecules and compounds in terms of composition and structure. (BH,C,CH,PS) SC.912.P.8.8 Characterize types of chemical reactions, for example: redox, acid-base, synthesis, and single and double replacement reactions. (C,CH,PS) SC.912.P.10.1 Differentiate among the various forms of energy and recognize that they can be transformed from one form to others. (BH,C,CH,E,PS,P) SC.912.P.10.4 Describe heat as the energy transferred by convection, conduction, and radiation, and explain the connection of heat to change in temperature or states of matter. (ES,PS,P)
13A *Dewatering Centrifuges*	SC.912.P.8.1 Differentiate among the four states of matter. (C,CH,PS,P) SC.912.P.8.2 Differentiate between physical and chemical properties and physical and chemical changes of matter. (C,CH,PS) SC.912.P.12.2 Analyze the motion of an object in terms of its position, velocity, and acceleration (with respect to a frame of reference) as functions of time. (ES,PS,P)

13B *Pelletizer*	SC.912.P.8.2 Differentiate between physical and chemical properties and physical and chemical changes of matter. (C,CH,PS) SC.912.P.10.4 Describe heat as the energy transferred by convection, conduction, and radiation, and explain the connection of heat to change in temperature or states of matter. (ES,PS,P) SC.912.L.16.10 Evaluate the impact of biotechnology on the individual, society and the environment, including medical and ethical issues. (B,E,M) SC.912.L.17.12 Discuss the political, social, and environmental consequences of sustainable use of land. (E) SC.912.L.17.15 Discuss the effects of technology on environmental quality. (C,E,M2) SC.912.L.17.16 Discuss the large-scale environmental impacts resulting from human activity, including waste spills, oil spills, runoff, greenhouse gases, ozone depletion, and surface and groundwater pollution. (B,E,M,M2) SC.912.L.17.19 Describe how different natural resources are produced and how their rates of use and renewal limit availability. (E,C) SC.912.L.17.20 Predict the impact of individuals on environmental systems and examine how human lifestyles affect sustainability. (B,E)