Table 1. South Cross Bayou High School (Grades 9 through 12) Science Standards by Station [a]

Station	Number	Description
Introduction	SC.912.L.17.14	Assess need for adequate waste management strategies.
	SC.912.L.17.15	Discuss impacts of technology on environmental quality.
	SC.912.L.17.16	Discuss large-scale environmental impacts resulting from human activity, including waste spills, oil spills, runoff, greenhouse gases, ozone depletion, and surface and groundwater pollution.
	SC.912.L.17.18	Describe how human population size and resource use relate to environmental quality.
	SC.912.L.17.19	Describe how different natural resources are produced and how their rates of use and renewal limit availability.
	SC.912.L.17.20	Predict impacts of individuals on environmental systems and examine how human lifestyles affect sustainability.
1 Operations Room/ SCADA	SC.912.L.17.13	Discuss need for adequate monitoring of environmental parameters when making policy decisions.
	SC.912.L.17.15	Discuss impacts of technology on environmental quality.
	SC.912.N.3.5	Describe the function of models in science and identify wide range of models used in science.
2 Laboratory	SC.912.L.17.2	Explain general distribution of life in aquatic systems as a function of chemistry, geography, light, depth, salinity, and temperature.
	SC.912.P.8.2	Differentiate between physical and chemical properties and physical and chemical changes in matter.
3 Influent Pump Station	Not applicable	Not applicable
4 Headworks/ Grit Removal	SC.912.L.17.14	Assess the need for adequate waste management strategies.
	SC.912.L.17.16	Discuss large-scale environmental impacts resulting from human activity, including waste spills, oil spills, runoff, greenhouse gases, ozone depletion, and surface and groundwater pollution.
	SC.912.L.17.20	Predict impacts of individuals on environmental systems and examine how human lifestyles affect sustainability.
5 Primary Clarifier Tanks	SC.912.P.8.2	Differentiate between physical and chemical properties and physical and chemical changes of matter.
6 Anoxic Tanks	SC.912.E.7.1	Analyze movement of matter and energy through different biogeochemical cycles, including water and carbon.
	SC.912.L.17.10	Diagram and explain biogeochemical cycles of an ecosystem, including water, carbon, and nitrogen cycle.
	SC.912.L.18.8	Identify reactants, products, and basic functions of aerobic and anaerobic cellular respiration.
	SC.912.P.8.2	Differentiate between physical and chemical properties and physical and chemical changes of matter.
	SC.912.P.8.7	Interpret formula representations of molecules and compounds in terms of composition and structure.

Station	Number	Description
7 Aeration Tanks	SC.912.E.7.1	Analyze movement of matter and energy through different biogeochemical cycles, including water and carbon.
	SC.912.L.17.10	Diagram and explain biogeochemical cycles of an ecosystem, including water, carbon, and nitrogen cycle.
	SC.912.L.18.8	Identify reactants, products, and basic functions of aerobic and anaerobic cellular respiration.
	SC.912.P.8.2	Differentiate between physical and chemical properties and physical and chemical changes of matter.
	SC.912.P.8.7	Interpret formula representations of molecules and compounds in terms of composition and structure.
	SC.912.P.8.8	Characterize types of chemical reactions, including redox, acid-base, synthesis, and single and double replacement reactions.
8A Mixing Station and Return-Activated Pumps	SC.912.P.8.2	Differentiate between physical and chemical properties and physical and chemical changes of matter.
	SC.912.P.12.12	Explain how factors such as concentration, temperature, and presence of catalyst affect rate of a chemical reaction.
8B Secondary Clarifier Tanks	SC.912.P.8.2	Differentiate between physical and chemical properties and physical and chemical changes of matter.
9 Denitrification Filters	SC.912.E.7.1	Analyze movement of matter and energy through different biogeochemical cycles, including water and carbon.
	SC.912.E.7.3	Differentiate and describe interactions among Earth systems, including atmosphere, hydrosphere, cryosphere, geosphere, and biosphere.
	SC.912.L.17.10	Diagram and explain biogeochemical cycles of an ecosystem, including water, carbon, and nitrogen cycle.
	SC.912.L.18.8	Identify reactants, products, and basic functions of aerobic and anaerobic cellular respiration.
	SC.912.P.8.2	Differentiate between physical and chemical properties and physical and chemical changes of matter.
	SC.912.P.8.7	Interpret formula representations of molecules and compounds in terms of composition and structure.
10A Chlorine Contact Chamber	HE.912.C.1.3	Evaluate how environment and personal health are interrelated.
	SC.912.P.8.2	Differentiate between physical and chemical properties and physical and chemical changes of matter.
	SC.912.P.12.2	Analyze an object's motion in terms of its position, velocity, and acceleration (with respect to a frame of reference) as functions of time.
11 Outflow Cascade	SC.912.E.7.1	Analyze movement of matter and energy through different biogeochemical cycles, including water and carbon.
	SC.912.L.17.2	Explain general distribution of life in aquatic systems as a function of chemistry, geography, light, depth, salinity, and temperature.
	SC.912.L.17.10	Diagram and explain biogeochemical cycles of an ecosystem, including water, carbon, and nitrogen cycle.
	SC.912.L.17.11	Evaluate costs and benefits of renewable and nonrenewable resources, such as water, energy, fossil fuels, wildlife, and forests.
	SC.912.L.17.16	Discuss large-scale environmental impacts resulting from human activity, including waste spills, oil spills, runoff, greenhouse gases, ozone depletion, and surface and groundwater pollution.

Station	Number	Description
12 Waste Sludge Holding Tank	SC.912.P8.2	Differentiate between physical and chemical properties and physical and chemical changes of matter.
13A Egg-Shaped Digesters	SC.912.E.7.1	Analyze movement of matter and energy through different biogeochemical cycles, including water and carbon.
	SC.912.L.16.10	Evaluate impacts of biotechnology, including medical and ethical issues, on individual, society, and environment.
	SC.912.L.17.11	Evaluate costs and benefits of renewable and nonrenewable resources, such as water, energy, fossil fuels, wildlife, and forests.
	SC.912.L.17.15	Discuss impacts of technology on environmental quality.
	SC.912.L.17.16	Discuss large-scale environmental impacts resulting from human activity, including waste spills, oil spills, runoff, greenhouse gases, ozone depletion, and surface and groundwater pollution.
	SC.912.P.8.2	Differentiate between physical and chemical properties and physical and chemical changes of matter.
	SC.912.P.10.1	Differentiate forms of energy and recognize they can be transformed from one form to others.
	SC.912.P.10.4	Describe heat as energy transferred by convection, conduction, and radiation and explain connection of heat to change in temperature or states of matter.
13B Pelletizing Factory	SC.912.L.17.12	Discuss political, social, and environmental consequences of sustainable use of land.
	SC.912.L.17.15	Discuss impacts of technology on environmental quality.
	SC.912.L.17.16	Discuss large-scale environmental impacts resulting from human activity, including waste spills, oil spills, runoff, greenhouse gases, ozone depletion, and surface and groundwater pollution.
	SC.912.L.17.19	Describe how different natural resources are produced and how their rates of use and renewal limit availability.
	SC.912.L.17.20	Predict impacts of individuals on environmental systems and examine how human lifestyles affect sustainability.
	SC.912.P.8.2	Differentiate between physical and chemical properties and physical and chemical changes of matter.
	SC.912.P.10.4	Describe heat as energy transferred by convection, conduction, and radiation and explain connection of heat to change in temperature or states of matter.

[a] Possible connections science standards are listed in Table 2. South Cross Bayou High School (Grades 9 through 12) Science Standard Potential Connection by Station.

redox = reduction/oxidation
SCADA = supervisory control and data acquisition

Table 2. South Cross Bayou High School (Grades 9 through 12) Science Standard Potential Connection by Station

Station	Number	Description
Introduction	Not applicable	Not applicable
1 Operations/SCADA	SC.912.N.1.2	Describe and explain what characterizes science and its methods.
2 Laboratory	SC.912.L.14.4	Compare and contrast structure and function of types of microscopes.
3 Influent Pump Station	SC.912.P.12.2	Analyze an object's motion in terms of its position, velocity, and acceleration (with respect to a frame of reference) as functions of time.
	SC.912.P.12.3	Interpret and apply Newton's three laws of motion.
4 Headworks/ Grit Removal	SC.912.P.8.2	Differentiate between physical and chemical properties and physical and chemical changes of matter.
5 Primary Clarifier Tanks	Not applicable	Not applicable
6 Anoxic Tanks	SC.912.L.15.6	Discuss distinguishing characteristics of domains and kingdoms of living organisms.
	SC.912.L.16.10	Evaluate impacts of biotechnology, including medical and ethical issues, on individual, society, and environment.
	SC.912.P.8.8	Characterize types of chemical reactions, including redox, acid-base, synthesis, and single and double replacement reactions.
	SC.912.L.15.13	Describe conditions required for natural selection that result in differential reproductive success, including overproduction of offspring, inherited variation, and struggle to survive.
7 Aeration Tanks	SC.912.L.15.13	Describe conditions required for natural selection, including overproduction of offspring, inherited variation, and struggle to survive, which result in differential reproductive success.
8A Mixing Station/RAS Pumps	Not applicable	Not applicable
8B Secondary Clarifier Tanks	SC.912.P.12.2	Analyze an object's motion in terms of its position, velocity, and acceleration (with respect to a frame of reference) as functions of time.
9 Denitrification Filters	SC.912.P.8.8	Characterize types of chemical reactions, including redox, acid-base, synthesis, and single and double replacement reactions.
10 Chlorine Contact chamber	Not applicable	Not applicable

Station	Number	Description
11 Chlorine Contact Chamber	Not applicable	Not applicable
12 Outflow Cascade	Not applicable	Not applicable
13A Waste Sludge Holding Tank	MA.912.GR.4.5	Solve mathematical and real-world problems involving the volume of three-dimensional figures limited to cylinders, pyramids, prisms, cones, and spheres.
13B Egg-Shaped Digesters	SC.912.L.15.6	Discuss distinguishing characteristics of domains and kingdoms of living organisms.
	SC.912.P.8.7	Characterize types of chemical reactions, including redox, acid-base, synthesis, and single and double replacement reactions.
	SC.912.P.8.8	Interpret formula representations of molecules and compounds in terms of composition and structure.

redox = reduction/oxidation