Regional Occupational Program

Get in the Water: Careers with a Future A-G 2026-2027

COURSE DESCRIPTION

Get in the Water: Careers with a Future is a UC A-G elective course that integrates Next Generation Science Standards with the CTE Model Curriculum Standards for the Environmental Resources Pathway. The water industry in California offers a multitude of technical careers that do not require additional education beyond industry certifications. These certifications offer students a career path that is important to the health and well-being of Californians, as well as relatively high starting salaries, benefits, and room for advancement. This is the second course in a two-course series and provides students with a more thorough examination of the water industry, technical career pathways within the water industry, and advanced preparation aligned to entry-level and intermediate certification pathways. Certification examinations and credentials are administered by agencies including the State Water Resources Control Board and CA-NV AWWA. The course introduces students to certification-aligned content in drinking water distribution, drinking water treatment, wastewater operations, and water-use efficiency at a more advanced level than the introductory course. Students will research, investigate, problem solve, analyze, document, and conduct experiments on water careers, local and global water issues, supplies and sources, rate-setting processes, planning, current water-use efficiency practices, regulations, water quality, treatment and distribution methods, contaminants, and the environmental impacts on this natural resource.

Course Information:

Course Length:	1 Year
Prerequisite:	Pre-Algebra
Course Level:	Concentrator
UC:	Yes G - Elective
Articulated:	No
Industry Cert.:	Yes - D2/T2 aligned, WW II aligned, WUEP-aligned
Industry Sector:	Energy, Environment, and Utilities
Pathway:	Environmental Resources
CALPADS:	7611

O*Net SOC Codes:

11-9121.02	Water Resource Specialist
19-1031.00	Conservation Scientists
17-2051.02	Water/Wastewater Engineers

Legend:

CTE - PS	CTE Pathway Standards
CRP	Career Ready Practices
CTE - AS	CTE Anchor Standards
CCSS	Common Core State Standards
ISTE	International Society for Technology in Education

Get in the Water: Careers with a Future

Course Orientation

a. Discuss objectives for this course, including competencies, teacher expectations, classroom policies, and procedures.
b. Identify and discuss the acquisition of transferable skills (communication, collaboration, creativity, and critical thinking) and their importance to being college and career ready and for future personal and professional success.
c. Review objectives, competencies, and course syllabus.
d. Discuss student and teacher expectations, including behavior, class rules, appropriate dress, pre-course knowledge, and grading policies, including enrollment and attendance requirements and procedures, and classroom/school safety and disaster procedures.
e. Discuss next steps in course sequence related to the career pathway, the need for reinforcement of basic skills, transferrable skills, and postsecondary and career options.
f. Discuss the Big Six: Career Ready Essentials and the Standards for Career Ready Practice as they relate to this course, all aspects of the industry sector, and being college and career ready.

Big Six: Career Ready Essentials

1. Effective Communication	CTE - PS	CRP	CTE - AS	CCSS	ISTE
a. Demonstrate effective verbal communication and conflict resolution skills. **b. Use the writing process to develop written communication with the appropriate tone, organization, and format for the identified audience.** c. Explain the effect of interpersonal skills on one's ability to communicate effectively and develop relationships. d. Describe the impact of ineffective communication on business relationships. e. Analyze the impact of vocabulary, body language, and tone on verbal communication. f. Demonstrate active listening skills. g. Accurately interpret industry-specific written communication. h. Model responsible and effective use of various communication technologies. i. Identify valid and reliable digital reference and resource materials. j. Gather information from multiple digital sources to compare and contrast, synthesize, and summarize. k. Identify and use appropriate communication and collaboration technologies. l. Utilize technology to problem solve, accomplish tasks, and to produce or publish products.		1 2 11	2 3 4 5 7 8 9 10 11	**LS** 9-10 11-12.6 **SLS** 11-12.2 9-10 11-12.1 11-12.1d **WS** 11-12.7 11-12.6	1b,c 2c 3b,c 5c 6b,c,d

2. Collaboration, Creativity, and Critical Thinking	CTE - PS	CRP	CTE - AS	CCSS	ISTE
a. Demonstrate critical thinking skills for a variety of purposes and in different settings. **b. Collaborate to reach consensus on an identical objective through the sharing of knowledge, tasks, and learning.** c. Discuss the importance of the critical thinking process to real-world applications.		2 4 5 7 9	2 3 4 5 7	**LS** 9-10 11- 12.6 **SLS**	1c 3c,d 4a-d 5c,d 6c

d. Evaluate the impact of creative thinking on problem solving and innovation in real-world applications. e. Compile work that demonstrates the process used to (elaborate, refine, analyze) evaluate original ideas and maximize creative efforts. f. Apply divergent and convergent thinking to the development of an original idea or solution. g. Examine real-world limits to adopting ideas. h. Demonstrate creative thinking (preparation, insight, evaluation, elaboration, and communication) to create a new idea or concept. i. Assume shared responsibility for collaborative work, and value the individual contributions made by each team member. j. Evaluate evidence, arguments, claims, and beliefs to identify connections. k. Identify bias, prejudice, propaganda, self-deception, distortion, and misinformation. l. Produce intellectual, informational, or material products that serve an authentic purpose. m. Work effectively and respectfully with those from diverse backgrounds or cultures. n. Demonstrate respect, trust, commitment, and the ability to compromise in collaborative projects.		10 11	8 9 11	9-10 11-12.1 11-12.1d 11-12.2 **WS** 11-12.7 11-12.6	7b,c, d
3. Leaders and Teams: Roles and Responsibilities	**CTE - PS**	**CRP**	**CTE - AS**	**CCSS**	**ISTE**
a. Determine the individual and team members' roles and responsibilities. **b. Demonstrate leadership skills and qualities (i.e., reliability, negotiation skills, initiative, positive reinforcement, recognition of others' efforts, problem-solving skills, conflict resolution, and delegation).** c. Explain the importance of technical, social, and communication skills to team success. d. Compare and contrast leadership styles and their effectiveness in various situations. e. Organize and delegate responsibilities in a team setting to encourage ideas, perspectives, and contributions from all team members. f. Develop a strong sense of team identity by brainstorming solutions, volunteering, assisting others, practicing respect and courtesy, and taking initiative. g. Examine situations in which a follower becomes the leader. h. Describe twenty-first-century skills required across all occupations. i. Identify and discuss the characteristics of a successful team (i.e., leadership, cooperation, and effective decision-making). j. Leverage social and cultural differences to increase innovation and quality of work.		7 8 9	3 7 8 9 11	**SLS** 11-12.2 9-10 11-12.1 11-12.1d **WS** 11-12.6	7a,c
4. Legal, Ethical, and Environmental Considerations	**CTE - PS**	**CRP**	**CTE - AS**	**CCSS**	**ISTE**
a. Demonstrate industry specific ethical and legal practices. **b. Identify eco-friendly industry specific practices and resources.** c. Identify local, state, and federal regulatory agencies, entities, laws, and regulations.		5 7 8	3 5 7	**WS** 11-12.6 11-12.7	2a,b 3a,b 5c

d. Identify discrimination based on race, nationality, religion, gender, age, disability, or sexual orientation. e. Summarize the ethical and legal implications of workplace discrimination and harassment. f. Explain the concept of corporate citizenship. g. Examine an employer's role in protecting the health and welfare of employees, the community, and the environment. h. Analyze current environmental laws and regulations and their impact on industry. i. Compare and contrast both society's and industry's impact on the environment.		12	8 9 11	**SLS** 9-10 11-12.1 11-12.1d 11-12.2	6c
5. Personal Growth and Career Planning	**CTE - PS**	**CRP**	**CTE - AS**	**CCSS**	**ISTE**
a. Demonstrate continued personal development and growth. **b. Develop and manage a personal growth and career plan.** c. Explain the relationship between sound financial habits and financial security. d. Create and manage a personal financial plan. e. Demonstrate initiative in achieving personal and professional goals. f. Apply time management strategies to meet deadlines. g. Demonstrate a growth mindset through flexibility and a positive attitude. h. Select and demonstrate appropriate job-search and retention techniques. i. Demonstrate strategies to prepare for employment. j. Demonstrate interpersonal skills appropriate for the workplace. k. Elaborate on the importance of perseverance to personal and professional success. l. Discover personal career interests, aptitudes, and skills.		1 2 3 4 6	2 3 4 7 8 11	**LS** 9-10 11-12.6 **SLS** 9-10 11-12.1 11-12.1d 11-12.2 **WS** 11-12.6	1a 3a,c 4d 6a,d 7b
6. Workplace Safety and Personal Wellness	**CTE - PS**	**CRP**	**CTE - AS**	**CCSS**	**ISTE**
a. Demonstrate proper industry specific safe work practices to prevent injury or illness. **b. Assess the potential impact of goal setting on personal and professional success.** c. Describe the role of security and emergency procedures in workplace safety. d. Describe the effect of preventative measures on emergencies in the workplace. e. Identify and describe the causes, prevention, and treatment of common accidents. f. Identify local, state, and federal agencies that regulate workplace safety. g. Explain the role of the California Occupational Safety and Health Administration (Cal-OSHA) and the Environmental Protection Agency (EPA). h. Discuss the basics of system operations. i. Demonstrate the proper use of personal protective equipment (PPE). j. Explain the purpose of and accurately interpret a Safety Data Sheet (SDS). k. Identify hazardous materials and chemicals. l. Demonstrate proper procedures to respond to work-related accidents and injuries. m. Describe how ergonomics, housekeeping, and maintenance are related to accidents and injuries.		2 5 6 8 12	2 5 6 7 8 10 11	**LS** 9-10 11-12.6 **WS** 11-12.7 11-12.6 **SLS** 9-10 11-12.1 11-12.1d	1a,d 2a,d 5b

n. Demonstrate cyber ethics, cyber safety, and cybersecurity. o. Assess the potential impact of preventative physical and mental health measures on workplace safety.					
Get in the Water: Careers with a Future Units of Instruction					
7. Water Career Exploration – Looking for a Career	**CTE - PS**	**CRP**	**CTE - AS**	**CCSS**	**ISTE**
a. Demonstrate knowledge of the professional standards and expected behaviors customary throughout the water industry. **b. Demonstrate understanding about key careers within the water industry.** c. Explain the role of certification, training, regulatory compliance, and continuing education in the operation and management of water systems. d. Explain career pathways in water distribution, water treatment, wastewater operations, and water-use efficiency, including certification levels, experience requirements, and advancement opportunities. e. Discuss labor market data, projected job growth, career progression, required education and/or certifications, and the roles and responsibilities of key occupations within the water industry. f. Identify colleges, training programs, apprenticeships, and employers that provide education, training, and career opportunities within the water industry. g. Identify global job opportunities and career possibilities available within the water industry.	A1.4	1 2 3 7	1 2 3 7	**LS** 9-10 11-12.6 **SLS** 11-12.2 **SLS** 9-10 11-12.1	
8. The World of Water	**CTE - PS**	**CRP**	**CTE - AS**	**CCSS**	**ISTE**
a. Demonstrate understanding of the complexities of water supply and its role in public health and the economy. b. **Demonstrate knowledge of the role water treatment, water distribution, wastewater, water reuse, and water-use efficiency play in public health, the economy, and environmental sustainability.** c. Discuss the connection between a safe, reliable water supply and public health, economic stability, and quality of life in communities in California and around the world. d. Describe the social, educational, and economic impacts of limited access to safe water in communities around the world. e. Explain the effects of agriculture on water supply during drought and identify potential water-management solutions. f. Explain how water quality and water supply reliability are jeopardized by climate change. g. Explain the effect of water rate structures on utilities, customers, conservation, and long-term water system sustainability.	A2.3 A3.1 A3.2 A3.3 A 5.3 A 9.2	1 2 4 5 8 9 11 12	1 2 4 5 8 9	ESS2 ESS3 SEP1 SEP4 SEP5 SEP7 **LS** 9-10 11-12.6 **WS** 11-12.6 11-12.7 **RSTS** 9-10	

h. Discuss the current and future availability of water needed to meet the needs of agriculture, industry, commerce, recreation, and communities, including the role of conservation, reuse, and supply reliability.				11-12.4 **SLS** 11-12.1d 11-12.1b	
9. Water-Use Efficiency: Reducing Demand Through Conservation	**CTE - PS**	**CRP**	**CTE - AS**	**CCSS**	**ISTE**
a. Demonstrate understanding of the importance of planning documents used in the water industry, including sustainability, emergency, financial, and water shortage response plans. b. **Demonstrate knowledge of the impact that non-native plants can have on water supply, water demand, and the environment.** c. Explain the importance of habitat restoration and sustainable landscaping practices in supporting water conservation, water quality, and ecosystem health. d. Discuss the effects of turf and high-water-use landscapes on California's water supply. e. Explain the purpose and significance of an Urban Water Management Plan (UWMP) and a Water Shortage Contingency Plan (WSCP). f. Describe the difference between native and non-native plants and their impact on water use and local ecosystems. g. Discuss the effects of current state laws, regulations, and policies on residential water use, conservation, affordability, and water service reliability.	A3.1 A3.2 A3.4 A3.5 A6.1 A6.2 A6.4 A9.1 A12.1 A12.3	1 2 5 7 9 11 12	1 2 5 7 9 11	ESS2 ESS3 SEP1 SEP3 SEP7 SEP8 **LS** 9-10 11-12.6 **WS** 11-12.7 **SLS** 9-10 11-12.1 11-12.1b	
10. Distribution and Treatment – A Safe and Reliable Supply	**CTE - PS**	**CRP**	**CTE - AS**	**CCSS**	**ISTE**
a. Demonstrate knowledge of water distribution systems for delivering water to consumers with the appropriate water quality, quantity, and pressure to meet user needs. b. **Demonstrate knowledge of the role of water treatment systems in protecting public health and safety.** c. Demonstrate knowledge of water meters, metering data, and their importance to water utility operations and water-use efficiency. d. Describe the significance of water loss, including the relationship among net production, consumption, unaccounted-for water (UFW), and non-revenue water (NRW). e. Explain the importance of drinking water regulations, including the Safe Drinking Water Act (SDWA), and the roles of the State Water Resources Control Board and the United States Environmental Protection Agency in protecting public health. f. Demonstrate knowledge of chlorination and other common disinfection methods used to protect drinking water quality. **g.** Explain why public water system compliance information and regulatory violations are made available to consumers.	A9.1 A9.2 A9.4 A10.1 A12.1 A12.2	1 2 5 6 8 11 12	1 2 5 6 8 11	ESS2 ESS3 SEP4 SEP5 SEP7 SEP8 ETS1 LS2 **LS** 9-10 11-12.6 **WS** 11-12.7	

h. Discuss emerging drinking water contaminants, including PFAS, and the role of treatment, monitoring, and regulation in protecting public health.				**RSTS** 9-10 11-12.4 **SLS** 11-12.1d	
11. Wastewater – Is It a "Dirty" Job?	**CTE - PS**	**CRP**	**CTE - AS**	**CCSS**	**ISTE**
a. Demonstrate understanding of the duties and responsibilities of wastewater treatment operators. b. **Demonstrate understanding of wastewater treatment processes.** c. Explain why wastewater collection and treatment systems are critical to protecting public health. d. Discuss the impacts of improper wastewater treatment and disposal on the environment and public health. e. Identify the benefits of treated wastewater, recycled water, and water reuse for environmental protection and sustainability. f. Describe wastewater treatment plant operations and identify the major components of preliminary, primary, secondary, and tertiary treatment processes. g. Explain the design, operation, and maintenance considerations of a wastewater treatment process.	A3.1 A5.1 A5.2 A5.3 A5.4 A9.1 A12.1 A12.3 A12.4	1 2 5 10 11 12	1 2 5 10 11	ESS2 ESS3 SEP4 ETS1 LS2 **LS** 9-10 11-12.6 **WS** 11-12.6 11-12.7	

A-G Approved Key Assignments	
1.	Research one of four career pathways: water-use efficiency, distribution, treatment, or wastewater. The research will be gathered from both the internet and an informational or career presentation provided by a local utility. Information collected must include salary ranges, job qualifications, necessary experience, working conditions, a typical day on the job, advancement opportunities, required or desired certifications, and a description of how relevant certifications can be earned. To develop a global perspective, students will also research water-related careers that are available in other countries. Each student will create a 5-minute multimedia presentation that demonstrates a thorough understanding of the career opportunities available within the industry. *Unit(s) 7*
2.	Investigate, evaluate, and propose solutions to human activities that negatively impact groundwater, and create a persuasive presentation for a mock board of investors or decision-makers. *Unit(s) 8*
3.	Research the water portfolio and water rates for an assigned local water provider. Using this information, students will create a chart or infographic that includes usage pricing tiers for the following customer types: single-family residential, commercial, industrial, institutional, and multi-family. *Unit(s) 8*
4.	In small groups, locate and read the Water Shortage Contingency Plan (WSCP) for the assigned water provider. Students will identify the following information: the amount of required reduction, the procedure for declaring a water shortage, and any triggers for the declaration of a shortage. Students will then conduct further research to determine when or whether the WSCP has been used and why. Finally, students will present their findings to the class and record the information in their notebook. *Unit(s) 9*
5.	Calculate the amount of water needed for both a traditional turf lawn and a native landscape during various times of the year in different regions of the state. Students will use the data to create a chart that visually represents the findings. *Unit(s) 9*
6.	Visit a native plant garden (either virtually or in person) and select two plants to research. The research will include information and pictures of each plant, as well as native birds, bees, or other animals that use the selected plants as a food source, nesting site, or shelter. All research will be compiled into a digital document that can be used as reference material for future projects. *Unit(s) 9*
7.	Identify and research state, regional, or local programs that encourage consumers to transition their landscapes to native, drought-tolerant plants. Research will include the organization or entity supporting the program, samples of outreach efforts and materials, benefits of transitioning, dates of implementation, an end date if applicable, and data regarding the program's success or failure. Research will be used to support or oppose the program in a class discussion. *Unit(s) 9*
8.	Research various types of meters and perform mathematical calculations to determine accuracy. Using the Urban Water Management Plan (UWMP), students will identify their assigned water provider's water loss percentage, the steps the utility is taking to address the issue, and record that information for future reference. *Unit(s) 10*
9.	Use the Exceedance/Compliance Status of Public Water Systems interactive map to identify 10 out-of-compliance systems or locations. The data for each location will be entered into a spreadsheet to identify the most and least common compliance issues. Unit(s) 10 https://waterboards.maps.arcgis.com/apps/webappviewer/index.html?id=573c97635cc747b8bb73cf1c8706fc22&mobileBreakPoint=480
10.	In small groups, read the Importance of Water Quality document, the most recent Annual Water Quality Report, and the Consumer Confidence Report. Groups will select one bacterium, one virus, and one intestinal parasite to research and document, including their harmful effects. In addition, groups will note whether any water quality violations were reported and whether those violations included any of their selected contaminants. This information will be compiled into a lab report. *Unit(s) 10*
11.	Participate in two hands-on lessons to learn about chlorine's use in disinfecting water. *Unit(s) 10* Both lessons can be found at the links below:

	Part 1: https://www.safewater.org/operation-water-biology-1/2017/2/3/lesson-one-chlorination-and-dechlorination Part 2: https://www.safewater.org/operation-water-biology-1/2017/2/2/lesson-two-chlorination-and-chlorine-demand
12.	Use knowledge of water distribution and treatment to prepare a multimedia presentation on the value of tap water in comparison to bottled water. Students will select one or two major bottled water companies and research regulations and water sources to compare their value to that of the assigned local water provider. *Unit(s) 10*
13.	Research careers at water treatment facilities and write a two-page paper that outlines education and training requirements, a typical day on the job, and required exams and/or certifications. *Unit(s) 11*
14.	Complete a comprehensive written assessment on wastewater treatment. Topics will include types of waste discharges, effects of waste on human health, processes and engineering used at a wastewater treatment facility to clean water, and the major components of a wastewater facility. *Unit(s) 11*
15.	Complete two different practice examinations for industry certifications. Students will then participate in a mock three-person panel interview for a position in one of the areas in which a practice examination was completed. *Unit(s) 12*

Standards Alignment

The curricula have been aligned with the CTE Model Curriculum Standards released in 2013. Each industry sector was updated to meet the increased rigor and relevancy requirements of the Common Core State Standards. The curriculum also includes the new Standards for Career Ready Practices.

Standards for Career Ready Practice

1. *Apply appropriate technical skills and academic knowledge.*
2. *Communicate clearly, effectively, and with reason.*
3. *Develop an education and career plan aligned with personal goals.*
4. *Apply technology to enhance productivity.*
5. *Utilize critical thinking to make sense of problems and persevere in solving them.*
6. *Practice personal health and understand financial literacy.*
7. *Act as a responsible citizen in the workplace and the community.*
8. *Model integrity, ethical leadership, and effective management.*
9. *Work productively in teams while integrating cultural and global competence.*
10. *Demonstrate creativity and innovation.*
11. *Employ valid and reliable research strategies.*
12. *Understand the environmental, social, and economic impacts of decisions.*

CTE Anchor Standards—Common Core English Language Arts Alignment

Anchor Standard 1: Academics

Analyze and apply appropriate academic standards required for successful industry sector pathway completion leading to postsecondary education and employment. Refer to the industry sector alignment matrix for identification of standards. Note: alignment listed within each sector.

Anchor Standard 2: Communications

Language Standard: Acquire and accurately use general academic and domain-specific words and phrases sufficient for reading, writing, speaking, and listening at the (career and college) readiness level; demonstrate independence in gathering vocabulary knowledge when considering a word or phrase important to comprehension or expression. LS 9-10, 11-12.6

Anchor Standard 3: Career Planning and Management

Speaking and Listening Standard: Integrate multiple sources of information presented in diverse formats and media (e.g., visually, quantitatively, orally) in order to make informed decisions and solve problems, evaluating the credibility and accuracy of each source and noting any discrepancies among the data. SLS 11-12.2

Anchor Standard 4: Technology

Writing Standard: Use technology, including the Internet, to produce, publish, and update individual or shared writing products in response to ongoing feedback, including new arguments and information.

Anchor Standard 5: Problem Solving and Critical Thinking

Writing Standard: Conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem, narrow, or broaden the inquiry when appropriate, and synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation. WS 11-12.7

Anchor Standard 6: Health and Safety

Reading Standards for Science and Technical Subjects: Determine the meaning of symbols, keywords, and other domain-specific words and phrases as they are used in a specific scientific or technical context. RSTS 9-10, 11-12.4

Anchor Standard 7: Responsibility and Flexibility

Speaking and Listening Standard: Initiate and participate effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners, building on others' ideas and expressing their own clearly and persuasively. SLS 9-10, 11-12.1

Anchor Standard 8: Ethics and Legal Responsibilities

Speaking and Listening Standard: Respond thoughtfully to diverse perspectives; synthesize comments, claims, and evidence made on all sides of an issue; resolve contradictions when possible; and determine what additional information or research is required to deepen the investigation or complete the work. SLS 11-2.1d

Anchor Standard 9: Leadership and Teamwork

Speaking and Listening Standard: Work with peers to promote civil, democratic discussions and decision making; set clear goals and deadlines; and establish individual roles as needed. SLS 11-12.1b

Anchor Standard 10: Technical Knowledge and Skills

Writing Standard: Use technology, including the Internet, to produce, publish, and update individual or shared writing products in response to ongoing feedback, including new arguments or information. WS 11-12.6

Anchor Standard 11: Demonstration and Application

Demonstrate and apply the knowledge and skills contained in the industry-sector anchor standards, pathway standards, and performance indicators in the classroom, laboratory, and workplace settings, and the career technical student organization. Note: no alignment evident for this standard. WS 11-12.6

CTE Model Curriculum Standards—Industry Sectors and Pathways

Energy, Environment, and Utilities

A. Environmental Resources Pathway

A1.4 List jobs in the community that result from, or are influenced by, processing and using energy resources.

A2.3 Analyze the impact of climate upon human activities and needs.

A3.1 Describe the sources of, and impacts attributable to, pollution and contamination.

A3.2 Recognize the actions that cause resource depletion.

A3.3 Define the causes of erosion and soil depletion.

A3.4 Describe the attributes and proliferation of hardscape.

A3.5 Identify the sources of, and impacts attributable to, habitat alteration.

A5.1 Understand the role of waste and storm water management systems, their operation, and their impact on the environment.

A5.2 Explore the causes and effects of pollution linked to wastewater treatment facilities.

A5.3 Identify wastewater treatment processes that lessen environmental impacts and improve water reuse.

A5.4 Explain the types and sources of hazardous waste and associated safety practices and legal requirements for handling and disposing of such waste.

A6.1 Describe the need for, and role of, habitat preservation.

A6.2 Describe the composition, role, and function of ecosystems, including trends affecting viability.

A6.4 Identify the aspects of land use planning and describe current trends.

A9.1 Understand water reuse: issues, strategies, technologies, and applications.

A9.2 Analyze strategies for improving energy efficiencies in water collection and distribution.

A9.4 Understand the functions and operations of water storage, reservoirs, aqueducts, and dams.

A10.1 Understand the designs and tools used in water flow management.

A12.1 Identify and discuss major environmental laws and policies, including the regulatory and legislative processes used to create such laws.

A12.2 Understand current regulations concerning recycling, solid waste, land use management, water quality, and renewable and nonrenewable energy.

A12.3 Compare and contrast environmental laws and regulations that may have a positive or negative impact on the environment and the economy.

A12.4 Create an environmental law or regulation and explain how it will impact the environment.

ISTE Standards for Students

1. Empowered Learner- Students leverage technology to take an active role in choosing, achieving, and demonstrating competency in their learning goals, informed by the learning sciences.

a) Students articulate and set personal learning goals, develop strategies leveraging technology to achieve them, and reflect on the learning process itself to improve learning outcomes.

b) Students build networks and customize their learning environments in ways that support the learning process.

c) Students use technology to seek feedback that informs and improves their practice and to demonstrate their learning in a variety of ways

d) Students understand the fundamental concepts of technology operations, demonstrate the ability to choose, use and troubleshoot current technologies and are able to transfer their knowledge to explore emerging technologies.

2. Digital Citizen- Students recognize the rights, responsibilities, and opportunities of living, learning, and working in an interconnected digital world, and they act and model in ways that are safe, legal, and ethical.

a) Students cultivate and manage their digital identity and reputation and are aware of the permanence of their actions in the digital world.

b) Students engage in positive, safe, legal, and ethical behavior when using technology, including social interactions online or when using networked devices.

c) Students demonstrate an understanding of and respect for the rights and obligations of using and sharing intellectual property.

d) Students manage their personal data to maintain digital privacy and security and are aware of data-collection technology used to track their navigation online.

3.Knowledge Constructor- Students critically curate a variety of resources using digital tools to construct knowledge, produce creative artifacts, and make meaningful learning experiences for themselves and others.

a) Students plan and employ effective research strategies to locate information and other resources for their intellectual or creative pursuits.

b) Students evaluate the accuracy, perspective, credibility, and relevance of information, media, data, or other resources.

c) Students curate information from digital resources using a variety of tools and methods to create collections of artifacts that demonstrate meaningful connections or conclusions.

d Students build knowledge by actively exploring real-world issues and problems, developing ideas and theories, and pursuing answers and solutions.

4. Innovative Designer- Students use a variety of technologies within a design process to identify and solve problems creating new, useful, or imaginative solutions.

a) Students know and use a deliberate design process for generating ideas, testing theories, creating innovative artifacts, or solving authentic problems.

b) Students select and use digital tools to plan and manage a design process that considers design constraints and calculated risks.

c) Students develop, test, and refine prototypes as part of a cyclical design process.

d) Students exhibit a tolerance for ambiguity, perseverance, and the capacity to work with open-ended problems.

5. Computational Thinker- Students develop and employ strategies for understanding and solving problems in ways that leverage the power of technological methods to develop and test solutions.

a) Students formulate problem definitions suited for technology-assisted methods such as data analysis, abstract models, and algorithmic thinking in exploring and finding solutions.

b) Students collect data or identify relevant data sets, use digital tools to analyze them, and represent data in various ways to facilitate problem-solving and decision-making.

c) Students break problems into component parts, extract key information, and develop descriptive models to understand complex systems or facilitate problem-solving.

d) Students understand how automation works and use algorithmic thinking to develop a sequence of steps to create and test automated solutions.

6. Creative Communicator- Students communicate clearly and express themselves creatively for a variety of purposes using platforms, tools, styles, formats, and digital media appropriate for their goals.

a) Students choose the appropriate platforms and tools for meeting the desired objectives of their creation or communication.

b) Students create original works or responsibly repurpose or remix digital resources into new creations.

c) Students communicate complex ideas clearly and effectively by creating or using a variety of digital objects such as visualizations, models, or simulations.

d) Students publish or present content that customizes the message and medium for their intended audiences.

7. Global Collaborator- Students use digital tools to broaden their perspectives and enrich their learning by collaborating with others and working effectively in teams locally and globally.

a) Students use digital tools to connect with learners from a variety of backgrounds and cultures, engaging with them in ways that broaden mutual understanding and learning.

b) Students use collaborative technologies to work with others, including peers, experts, or community members, to examine issues and problems from multiple viewpoints.

c) Students contribute constructively to project teams, assuming various roles and responsibilities to work effectively toward a common goal.

d) Students explore local and global issues and use collaborative technologies to work with others to investigate solutions.