



STUDENT ACTIVATION



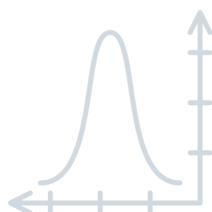
Water Quality Engineer

OVERVIEW

Water quality engineers are creative, problem-solving, leadership-oriented professionals who improve wastewater treatment, pollution control, and water distribution systems to solve environmental problems involving human access to clean, usable water. They use a specialized understanding of science and mathematics to address environmental problems related to water such as pollution, water treatment, and access. They plan and conduct investigations of water quality issues and draft reports on their findings. They design improvements to water treatment and distribution systems, and closely monitor these systems for signs of trouble. Water quality engineers help businesses adhere to government regulations and obtain permits. Some attend and testify at municipal water authority or public works meetings. Finally, water quality engineers give corporations and government agencies advice on how to clean up bodies of water and water systems that have been contaminated with pollutants.

EVALUATE YOUR INTEREST

- I love learning by doing. My favorite activities at school involve hands-on experiences such as labs, field trips, and research.
- I am a natural leader who works well with others. During group activities, people turn to me for help to overcome challenges.
- I enjoy bringing people together from different areas of expertise with different strengths.
- I am a problem-solver. I have a knack for asking smart questions that help others identify problems and issues. I work with others to formulate solutions to problems.
- I am a highly organized multi-tasker who can keep track of several projects at once, each with many moving parts.
- I love seeing how the complicated science and math concepts I learn about in the classroom apply to the real world.
- I have a passion for learning about and solving global problems, particularly those related to the environment, such as water scarcity.



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STUDENT ACTIVATION (CONTINUED)



CAREER CONNECTION



How does this career affect me?	What are some other similar careers?	How does this career affect the world?
<p>Consider what a single day might be like if you lacked access to clean and available water. Water is crucial not only for human consumption and agriculture, but for transportation, industrial use, and generating energy. Water quality engineers design systems to make sure people have access to water to meet this broad range of needs. They oversee the water treatment processes, and make sure distribution systems deliver water to your faucet as efficiently and cleanly as possible. In doing so, they contribute to preserving the health and safety of you, your loved ones, and your fellow citizens.</p>	<p>Hydrologists study the natural movement of water on Earth.</p> <p>Environmental engineers design systems for addressing environmental problems such as pollution, climate change, and natural resource scarcity.</p> <p>Chemical engineers apply scientific and mathematical principles to solve problems that involve fuel, drugs, food, and other products.</p> <p>Civil engineers design, build, and oversee infrastructure systems such as roads, pipelines, power lines, and sewage systems.</p>	<p>In an increasingly interconnected world, human activities and resource consumption contribute to global environmental problems that threaten public health, peaceful interactions between nations, and the maintenance of the natural world as we know it. As the world's people grapple with climate change, one of the most important and pressing issues that has emerged is increased scarcity of water for human consumption and agricultural and industrial use. Water quality engineers design systems to address this issue maximizing human access to a clean and ample water supply.</p>

TAKE ACTION

- Join a science-oriented club at school that is involved with using principles of math and science to construct products, conduct outside research, or address community problems. Possibilities include a robotics club, a recycling club, or an engineering society. Establish as a personal goal when working to earn the opportunity to occupy a leadership position on a specific project or within the group as a whole.
- Select a human activity that is of interest to you, such as production or consumption of a good or resource, and conduct research on that activity's environmental footprint. In doing so, consider these questions: What resources are needed for this human activity? How does extraction of these resources affect local and distant environments? What steps do humans take to minimize the environmental footprint of this activity?
- Conduct research on how your community accesses and distributes clean water. Identify issues that might emerge as the population increases or the climate changes in your area. Consider visiting a local water treatment facility to interview a public works expert, or complete a project on the history of water distribution in your community. How has it changed over the years?

