

# Future Water Leaders

*A School Counselor's Guide to Great Water Careers*



# Introduction

## Future Water Leaders

Water utilities are essential to the health of every person and the success of every business in our communities. Every community needs dedicated and capable water professionals that make sure the water we drink is safe and reliable, and that our wastewater is removed and treated before it is returned to the environment.

Future Water Leaders aims to help your community build the water workforce needed for today and the future. Water careers are important, meaningful, well-paying, recession-proof, and located in the smallest towns to the largest cities. Students with a high school diploma can enter a career in drinking water, wastewater, or water reclamation. Students can also graduate college with a 2-year, 4-year or graduate degree program and find jobs that match their education level.

### The resources in this guide will help you:

- identify students who might have interest in a career in the water industry
- provide students with resources about water careers
- build curriculum, lessons, or events that introduce students to water professionals and careers

# Water Career Profiles

From engineers to financial specialists, biologists and chemists, and water operators and lab technicians, there are many paths to a career in the water industry. Water utilities are essential to healthy communities. Utility staff ensure that we have clean, safe, reliable drinking water everyday.

Use these profiles to share about water career opportunities with your students. Email them, print them, hand them out, post them on a bulletin board or social media, share them far and wide!

- [Water Operator Profile](#)
- [Wastewater Operator Profile](#)
- [Water/Wastewater Lab Technician Profile](#)
- [Water/Wastewater Systems Engineer Profile](#)

## **A few additional websites with great water career information are:**

- [Work for Water](#)
- [American Water Works Association Career Center](#)
- [Water Environment Federation Career Page](#)
- [AWWA Scholarship Program](#)
- [WEF Stockholm Junior Water Prize](#)

# Guest Speakers and Field Trips

A fun and inspiring way to get students interested in a career is to have someone who does that job, and loves it, come speak to them. Reach out to your local water utility and invite them to come to your school to talk about their careers. Or, set up a field trip to the water utility to see the water professionals in action!

## Ask the water professionals to share about:

- How did they get into their career? What was their career path?
- What do they enjoy about their career?
- What do they find meaningful about their work?
- What parts of their job are challenging?
- How could a student find a job at a water utility?

## Presentation

[Water Workshop PowerPoint](#) *with script in notes*

Use this presentation template to introduce students to the role and importance of water utilities in your community and the careers that support the meaningful work. Teachers, utility professionals, or both can conduct this 1-1.5 hour session. Feel free to adapt the presentation to fit your needs.

## Promotional Resources

We want to make it easy for you to plan a water career exploration event. Here are some promotional materials you can use to help share the event with your students:

- [Event Poster Template](#)
- [Social Media Graphic Template 1](#)
- [Social Media Graphic Template 2](#)
- [Short Water Video](#)
- [Handout or Newspaper Ad Template](#)

# Lesson Plans for Water Career Exploration

There are excellent lesson plans that counselors, teachers, water utility staff, or other educators can do with students to give them an overview of what they'll see on the field trip, or to just give them a deeper understanding about drinking water and wastewater services in their community.

## [Water Workshop PowerPoint](#) *with script in notes*

Use this presentation to introduce students to the role and importance of water utilities in your community and the careers that support the meaningful work. Teachers, or utility professionals, or both can conduct this 1-1.5 hour session. Feel free to adapt it to fit your needs.

## Help Wanted

Have students write a job ad for one of the jobs that they learned about related to water or waste water. Make sure the job lists salary range, education required, skills necessary and a job description.

## Bottle It?

Compare bottled water and tap water. Use [EPA's fact sheet on bottled water](#) and online resources. Compare the regulations that impact bottled water with the regulations that impact water from public water systems. How do the costs compare? How much tap water can you buy for the cost of a bottle of water? A can of pop? Etc.

## Money Down the Drain

Calculate the amount of water lost due to water leaks. Set a faucet to drip. Have students conduct their own experiment to answer the questions: how much water do I lose in a month, week, or year if my faucet drips at this rate.

## Water Droplet Journey

Have students write a journal or create a presentation, etc. about the journey of a water drop, falling as rain, and then traveling through the city's water system. Where does that water drop end up?

## Water Chemistry Debate

Research both sides of the fluoridation of municipal water supplies issue. Then hold a classroom debate on fluoridation of municipal water supplies. Be sure to discuss credible vs. non-credible websites. How do you tell the difference?

# Lesson Plans for Water Career Exploration

## **Water Pollution From Inside the House**

Have students research issues related to prescription drugs in wastewater. How are antibiotics, painkillers, endocrine disrupters, etc. impacting wildlife, fish and human water supplies? Have students develop a plan to reduce this type of pollution.

## **Fun Websites to Explore the Water Treatment Process**

- [Audio Blog](#) – What Happens to “Number 2” in the Second City
- [Interactive Online Graphics](#) for “Where Does Your Poop Go”

# Internships

If you have students who are interested in further exploring a water career, reach out to your local water utility and find out if they are accepting any summer or afternoon/weekend interns. It may or may not be a paid position, but it may also be work that the student could do for school credit.

Internships are great experiences for students to learn more about holding a job, being on time, and relating to coworkers, all while finding out if the work is something they enjoy and would be interested in doing for a career. Check out these [Intern Reflections](#) from our past Work in Water interns.

## **My Water Utility Internship - Every day a surprise**

*by Adam Schnurr, City of Lawrence, KS Work in Water Intern, 2022*

After I visited the Lawrence Water and Wastewater facilities on a school field trip my senior year, I applied to be an intern for the summer between my senior year in high school and my freshman year in college. After an application process and an interview, I started at the Kansas River Wastewater Treatment Plant.

I was never exactly sure what I'd be doing every week, so every day was a surprise.

The second week I helped with an IPT (Industrial Pre-Treatment) survey. This survey is sent out to industries in Lawrence to survey them about what kind of materials they might be dumping into the wastewater system, and if it's dirty enough, the city charges them extra and take samples of their wastewater. I sorted through a giant index of addresses and looked at satellite data to make an educated guess about what they might be putting into the wastewater system. It was A LOT of work.

All of the lab technicians are cross trained to move from wastewater to water treatment, so who you see every month in the lab changes. I shadowed several lab techs doing BOD (biological oxygen demand), TSS (total suspended solids), turbidity, and other fantastic things we learned about in my senior science class. I verified and calibrated every pipette in each lab at each treatment plant (no pressure!), along with scales, 2-3 times a week!

Once a month, I would also take a HPC (heterotrophic plate count) sample after disinfecting the sample points. I brought the samples back to the lab and was supervised as I set up HPC and coliform tests. You pour this media in with the sample and swish it around into these wells, and they fluoresce giving you an estimate for the HPC levels in the water tower. This was by far the most interesting part for me because of my interest in microbiology.

Then, I shadowed a former KU Chemistry lecture instructor for a week. This unlocked a wealth of educational knowledge I'll definitely be using next year. He's an analytical chemist. We both got curious about how some expensive lab machinery used for taste & odor worked, so we "took it apart", haha! It uses a plastic filament to pick up volatile chemicals, like geosmin, that give our water it's sometimes unpleasant smell. That machine goes through helium constantly, so it's very expensive!

Then it was back to the office for me, working on processing lab reports from some of the companies we already were monitoring for what they put in the wastewater system to determine how much they would be charged. I got lots of experience with Excel that I'm sure I will need later.

Then I was assigned Lead Service Line validation, working with Lawrence's GIS to try and figure out which houses need to be surveyed and inspected because they could potentially have lead pipes. I used logic and satellite data to determine if a house really needed to be inspected, or there was just missing data, in the 35,000 row excel sheet. There was a lot of data to sort through!

On my final day I said my goodbyes to all of the people I met; and asked one final request: may I use the microscope? At both the wastewater plants, they have fancy \$30,000 digital microscopes that are never used because they don't sample sewage to look at the bugs anymore. Riley granted my request so I got to spend an hour with a microscope, raw sewage and primary basin samples, and my curious eyes. Eye opening experience!

Every day this summer I thought to myself, man, this is so much better than working at McDonalds! I learned so many things I hope I won't forget and made connections with people I would've never known without this internship. I will never forget this experience, and it will benefit me for the rest of my life!

# Future Water Leaders Project Partners

## Project Partners

- [Wichita State University Environmental Finance Center](#)
- [Syracuse University Environmental Finance Center](#)
- [Southwest Environmental Finance Center at University of New Mexico](#)



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