EXPLORING CAREERS IN THE WATER INDUSTRY – HIGH SCHOOL LESSON PLAN

OVERVIEW:

Every community needs water for its economic vitality and every person needs water for daily survival. It takes a knowledgeable and skilled workforce to provide each community with a daily supply of safe and reliable drinking water and treat the generated wastewater so it can be safely discharged back to the environment. Students often overlook such job opportunities because this workforce effectively executes their daily tasks "behind the scenes" ensuring that the water purification and delivery process is so reliable that the liquid appears "as if by magic" in our faucets and "mysteriously disappears" down the drain after use. If this workforce failed and water did not flow, you would definitely know!

According to the U.S. Department of Labor Occupational Outlook Handbook 2016-17 edition, the water industry will require 7,000 new water and wastewater operators from 2014-2024 as the current workforce ages and retires.

(Visit https://www.bls.gov/careeroutlook/2017/article/water-utility-jobs.htm?view_full to see job projection graphs, hour wage rates and job replacement projections)

Requirements to secure a job in the water industry can range from simply requiring a high school degree to advance graduate academic work or civil engineering certification. By completing this lesson module, students will be exposed to the wide variety of employment positions, job qualifications and benefits of a career working in water.

OBJECTIVE:

1. Students will be able to introspectively explore, analyze and describe their:
    a. Aptitudes toward academic and vocational disciplines and preferred life-experiences
    b. Preferred work responsibilities and tasks
    c. Preferred work environments
2. Students will be able to browse through a video library and view short, self-recorded testimonies of water professionals describing their job positions. Students will be encouraged to compare their career aspirations to selected water jobs and identify those water jobs that closely align with their aspirations as well as those positions that do not align.
3. Students share their findings in a group discussion.

NEXT GENERATION SCIENCE STANDARDS:

Although this lesson plan does not embed students with practicing the scientific method and critical thinking skills addressed in the NGSS, it does expose students to professionals who earn a living at questioning natural systems around them, generating hypotheses, developing methods to collect and analyze data, and determining the best communication tools for interpreting that data to others. This lesson plan exposes students to professionals who are employed to conduct the following science standards:

HS-ESS2-5. Plan and conduct an investigation of the properties of water and its effects on Earth materials and surface processes.

HS-ESS3-5. Analyze geoscience data and the results from global climate models to make an evidence-based forecast of the current rate of global or regional climate change and associated future impacts to Earth systems.

HS-ESS3-1. Construct an explanation based on evidence for how the availability of natural resources, occurrence of natural hazards, and changes in climate have influenced human activity.

HS-ESS3-4. Evaluate or refine a technological solution that reduces impacts of human activities on natural systems.

HS-ESS3-6. Use a computational representation to illustrate the relationships among Earth systems and how those relationships are being modified due to human activity.

ACTIVITY (3 hours total)

Writing Pre-assignment (30 min)

1. Give the students the following question prompts to contemplate and answer:
    a. Identify three of your best skills or talents which may serve as your career foundation…what do you do best? Describe how this talent was nurtured… through practice, internally gifted, intuition? Such skills can be based on academic or vocational preferences…English, Math, computer programming, woodworking, cooking, etc.
    b. What type of work schedule would you prefer? Standard 8 hours, Monday-Friday? Night shift? Irregular, self-established hours?
    c. What type of work environment would you prefer?... indoors, outdoors or both? Describe why.
    d. Of the talents, skills and work environment you have listed, what job position which you are familiar with would you be most interested or qualified to fill? Describe why.

Small Group Discussion (30 min)

2. Describe that students will be divided into small discussion groups to share personal reflections and gain additional thoughts and observations from classmates. Have students generate a list of "safe space" guidelines to abide by for open discussion. (To encourage open small group discussion, have the group agree to safe space guidelines)
3. Divide students into small discussion groups.

Video Library Viewing (40-60 min)

4. Share Water Careers "Speed Matchmaking Card" to complete. Each student is to select 4 short career videos to watch and record observations on the card. Although each video is only 6-8 minutes, allow time for thoughtful student note taking and time to "surf" through additional career video segments.
    a. View video library here.
5. Students can also visit the Brown & Caldwell Water Jobs website to further explore available job descriptions and salary ranges here.

Small Group Discussion (30 min)

6. Reconvene into small groups and share any career match observations and findings or lack thereof. Compare perspectives of job description videos viewed. If no positions were of interest to a student, were there any related job positions that these professionals interacted with or hired that students could potentially embrace as a future career?

Large Group Discussion (30 min)

7. For a concluding discussion, pass out salary schedule and job benefits summary sheet for students to read, analyze and discuss as a group. Possible question prompts include:
    a. Can students interpret the salary information? Who earns the least/most at this agency and what could be their job responsibilities?
    b. What student questions arise from reviewing the job benefits information sheet?
    c. Can students relate to topics such as retirement, disability insurance, health insurance or holidays? What do they think such terms are?

    Resources:
    - West Basin Municipal Water District salary schedule
    - Water Replenishment District salary schedule
    - West Basin Municipal Water District benefits summary

WORK IN WATER "SPEED MATCHMAKING CARD"

CHECK OFF FOUR PROFESSIONAL VIDEOS THAT YOU WATCHED:

◯ Water Resources Engineer

◯ GIS Analyst

◯ Operations Analyst

◯ Sr. Government Affairs Representative

◯ Hydrogeologist

◯ Operations Manager

Job Title: What interested you about the position?	What did not interest you about this position?

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