

Inspiring Students to Pursue Careers In Environmental Engineering

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Project Focus	Classroom Implementation	Future Work																				
<p>Early experiences working in STEM projects can attract rural high school students to pursue their educational and career paths in the STEM area. The goal is to design educational lesson plans for high school students that will introduce students to different aspects of environmental engineering. The lessons include lectures, videos, and hands-on activities. We are now in starting the second year of implementing these lessons with students.</p>	<p><i>Desired Outcomes</i></p> <p>My goal for students is that they gain an awareness of our local drinking water resource. Families in the area are on one of three sources of water: well, county or city. Knowing the primary source and it's treatment is important.</p> <p><i>Student Engagement</i></p> <p>Based on the pretest results students were not confident/didn't know the official source of their tap water or if there was any treatment for this source.</p> <p>The post-test showed that the majority of students were not aware of their tap water source, whether or not it is treated.</p> <p>During the lessons, students were engaged and there were no discipline problems.</p>	<p><i>Wastewater Management</i></p> <p>Wastewater management in rural areas is crucial for protecting public health, preserving the environment, and ensuring sustainable development.</p> <p>Current systems</p> <p>On-site sanitation systems - In areas without centralized sewer systems, on-site sanitation systems like septic tanks are utilized. These systems require proper design, construction, and maintenance of these systems to prevent contamination of groundwater or surface water.</p>																				
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<p><i>Student Demographics</i></p> <table border="1"> <caption>Gender Demographics</caption> <tr><th>Gender</th><th>Percentage</th></tr> <tr><td>Boys</td><td>76.2%</td></tr> <tr><td>Girls</td><td>23.8%</td></tr> </table> <table border="1"> <caption>Full Pay Demographics</caption> <tr><th>Category</th><th>Percentage</th></tr> <tr><td>Free & Reduced</td><td>90.0%</td></tr> <tr><td>Full Pay</td><td>10.0%</td></tr> </table> <table border="1"> <caption>Age Demographics</caption> <tr><th>Age</th><th>Percentage</th></tr> <tr><td>Age 16</td><td>57.1%</td></tr> <tr><td>Age 15</td><td>28.6%</td></tr> <tr><td>Age 17</td><td>14.3%</td></tr> </table>	Gender	Percentage	Boys	76.2%	Girls	23.8%	Category	Percentage	Free & Reduced	90.0%	Full Pay	10.0%	Age	Percentage	Age 16	57.1%	Age 15	28.6%	Age 17	14.3%	<p>Train the Trainers on YouTube!</p> <p>LEARN EDUCATE GROW</p>	<p><i>Community Outreach</i></p> <p>Conduct education campaigns to:</p> <ul style="list-style-type: none"> - Raise awareness about proper wastewater management practices - Emphasize the importance of sanitation and the potential health risks associated with improper disposal of wastewater - Teach residents about the benefits of proper wastewater management and involve community leaders to promote behavior changes <p>References</p> <ol style="list-style-type: none"> Hossain, Mokter & G Robinson, Michael. (2012). How to Motivate U.S. Students to Pursue STEM (Science, Technology, Engineering and Mathematics) Careers. US-China Education Review A. 2. 442-451. Zych, Ariel, et al. "A DIY Aquifer Model For The Classroom." <i>Science Friday</i>, 21 Dec. 2018, www.sciencefriday.com/educational-resources/diy-groundwater-model/. <p>Acknowledgements</p> <p>This work was funded by the NSF EPSCoRTrack-2 project (NSF Award # 2019561): IGM--A Framework for Harnessing Big Hydrological Datasets for Integrated Groundwater Management.</p>
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