Environmental Engineer

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As our world progresses, the steps of the design process are becoming more and more essential for STEM professions to be more successful. The profession of Environmental Engineering is an excellent example of this fact. The issues they are faced with require identification of issues, research on how they can solve the issues, consideration of the most practical solutions, creating a plan to resolve said issues with the identified solutions, and test environments for the solutions while documenting the process as well as making improvements where possible to identify the most effective and efficient solutions.

An example of issues Environmental Engineers are faced with is making water safe for humans to drink in all different parts of the world. First, they have to identify and confirm a water supply is unsafe. They would do this by a chemical analysis of the water itself. After confirming the water is unsafe, they have to research ways they can make it safe. They would do this through more chemical analysis of the soil, the rainwater as well as any other environmental factors that may affect the drinking water. After all this research, they can effectively identify and brainstorm multiple possible solutions for solving the problem.

While considering all the possible solutions, they then have to figure out which solution is the most practical and effective. Some of the factors/constraints to consider would include the budget they are given to solve the problem, the time they have to complete the project, as well as any laws or regulations that might have to be followed.

After consideration of the most practical solutions, they then have to test them all to see which is the most effective and, most importantly, efficient. They would do this by creating models and documenting the process of using them to see which one is the better solution to the problem. While also making various improvements to the designs. After finding out the best solution to the said problem, an environmental engineer would make sure the solution works properly with little to no mistakes or problems. Then they would make a final prototype of the idea to pitch to their team or company.

If a result was not found, they would re-run through the design ideas starting from the first step. Beginning with once again identifying the problems and the constraints that follow. Then research ideas, brainstorm ideas to solve the problem, figure out how to execute the design, create a prototype, test and adjust the prototype, and finally make the final prototype and pitch the solution to their company or team.

Environmental engineers help develop solutions to a variety of modern problems, such as safe drinking water, hazardous waste disposal, as well as a lot of other problems. They use their understanding of biology, soil science, engineering, and also chemistry to solve these problems.

Their average pay (in 2021) comes in at around $96,820 annually and around $46.55 per hour. They work in a variety of different settings because of the wide variety of problems they face.