Trout in the Classroom Essay – Andrew Houston

I am interested in the *Trout in the Classroom* essay contest because it combines learning, hands-on experiences, activities, and conservation in a way that encourages me to learn more about the subject. The camp being offered is appealing because it allows students to participate in hands-on activities outside of the classroom while also expanding their knowledge of trout, freshwater ecosystems, and environmental responsibility. I personally have a strong interest in conservation efforts due to my love of the outdoors and nature. I have a pond at home, and when I have time—such as during a break from school and extracurricular activities—I enjoy going down to the pond to fish for a few hours. When I was younger, I used to go there with my friends, and we would sit and fish until dark. Those are some of my fondest memories.

Programs such as this camp help teens understand how their actions affect the environment and how they can make either a positive or negative impact. This scholarship opportunity is important to me because it would make attending this camp possible and remove financial barriers that might otherwise prevent me from participating. Being awarded a scholarship would allow me to focus more on learning, personal growth, and contributing to conservation efforts without added stress, while also allowing me to relive those old memories and create new ones to pass on for years to come.

Stream conservation highlights the importance of protecting waterways to ensure they remain healthy for fish, wildlife, and humans. In class, we learned that water quality is one of the most essential parts of stream conservation. One measure of water quality is temperature, because trout require cold water, typically between 50 and 65 degrees Fahrenheit. If the water becomes too warm, trout can die, and oxygen levels may decrease, harming other aquatic organisms. Another measure of water quality is dissolved oxygen, which is essential for trout and even insects living in the water.

Eutrophication is an example of a process that can disturb dissolved oxygen levels by enriching bodies of water with nutrients such as nitrogen or phosphorus from human activities. This can cause algal blooms that lead to "dead zones" in water and create health risks for aquatic organisms. Eutrophication can result from agricultural runoff, sewage, industrial discharge, and atmospheric

deposition. We also learned about pH levels, as water that is too acidic or too basic can harm aquatic organisms. Turbidity can indicate pollution or erosion, because muddy water blocks sunlight and can smother habitats beneath it. By measuring these factors, we can better understand the health of a stream and take the necessary actions to protect it. Learning about these water quality measures showed me how science plays a direct role in conserving streams and maintaining a well-balanced ecosystem.

The Trout in the Classroom project began with trout eggs, which required careful supervision and patience. Over time, the eggs developed into alevins and eventually into fry, allowing us to observe each stage of their life cycle. As the trout grew, we learned how important tank maintenance is to their survival. One factor that stood out to me the most was the nitrate level, as it tended to fluctuate. This meant that consistent monitoring was necessary to maintain safe levels, which were sometimes high. We took steps to correct this issue by keeping the tank clean, ensuring the water stayed cold, and making sure the filtration system worked properly.

We also noticed that changes in water quality directly affected the trout's health and behavior. Compared to a natural habitat, the tank is a controlled environment where issues such as nitrate buildup can be managed quickly. In the wild, however, pollution and runoff can cause long-term damage. This experience helped me understand how fragile trout habitats are and why clean, healthy streams are essential for their survival.

Through the Trout Project, I learned that stream conservation requires constant care, attention, and an understanding of how different factors work together. One of the most important lessons was that water quality directly affects the survival of trout and other aquatic organisms. By monitoring temperature, dissolved oxygen, pH, and nitrate levels in the tank, I learned how easily water conditions can change and how quickly those changes can impact living things. This helped me understand that streams in nature face similar challenges on a larger scale due to pollution, erosion, and runoff.

I also learned that stream conservation is not just about protecting fish, but about maintaining entire ecosystems, including insects, plants, and microorganisms that support life in the water. The Trout Project showed me that human actions play an important role in stream health, and even small efforts, such as reducing pollution or protecting stream banks, can make a difference. Overall, this project taught me that stream conservation takes time and cannot be accomplished overnight. It is an ongoing process that affects water quality in various ways, including temperature, dissolved oxygen levels, pH, and nitrate levels.

In conclusion, stream conservation is essential for protecting trout and maintaining healthy ecosystems, and the Trout in the Classroom program helped me understand this in a meaningful way. Through the Trout Project my teacher assigned, I learned how closely water quality, habitat conditions, and human actions are connected to survival. Monitoring the trout tank showed me how sensitive trout are to changes in temperature, oxygen, and pollution, highlighting the challenges they face in natural environments. This experience made it clear that conservation is not just about learning facts, but about taking responsibility and making informed decisions to protect the environment. Overall, Trout in the Classroom taught me the importance of caring for streams so wildlife can survive today and for many years into the future.