

Environmental Science & Natural Resources Careers Discussion Guide

Teachers: These discussion questions may be used at any point in exploring environmental science and natural resources careers with your students. If your students do not have significant prior knowledge of this career area, it may be best to use this guide after viewing some of the other links on our [Environmental Science & Natural Resources careers page](#). At the bottom of this guide, there are “Suggested activities” to try with your class.

Discussion questions

1. If you have taken the Student Interest Survey for the career areas on our site, do your results align with this career area? What interests and skills do you possess that may be a good fit for environmental science, natural resources, water systems or geoscience?
2. Many professionals in this field have had a lifelong love of nature and the outdoors. Do you enjoy working outside? Do you have an interest in plant and animal life? What activities or experiences have you had that indicate an interest in nature, farming, outdoor recreation or wildlife?
3. Environmental science and natural resources includes careers in water systems, geoscience and other career pathways. Jobs in these fields are very diverse. They might include a fish and game officer, wildlife biologist, toxicologist, environmental engineer, forest firefighter, geologist or meteorologist. These include careers working outside, as well as in offices, working with the public or even in laboratories. Which aspect of environmental science and natural resources appeals most to you, and why?
4. **Scenario practice:** Use the following scenario and questions to explore the field of environmental science and how it might relate to you.

You work for a local waste management company as a biologist. The waste engineers there are looking to use anaerobic bacteria (bacteria that do not require oxygen) in their landfills to break down waste in an environmentally safe way. You are responsible for identifying a bacterium that might work for this project. You are also responsible for gathering data from the landfill, once it is constructed, to see if the waste is being broken down and if there are any harmful byproducts.

Problem solving:

- What specific data will you need to collect to determine if the bacteria are effective in the landfill?
 - How could bacteria that break down waste in an environmentally safe way positively impact the world? Brainstorm some direct and indirect ways this innovation could serve the world’s population.
 - Consider the whole process of using bacteria in landfills, from determining effective bacteria for this project, to engineering the landfill, to monitoring the bacteria and their output. All of these tasks involve careers connected to environmental science and natural resources. What part of this process interests you most? Where could your talents and skills best fit into this process?
5. There are many ways to get involved in environmental science and natural resources even before you graduate. You could join a related school club or start one yourself. You may contact one of the GrowNextGen industry leaders and ask them to visit your school or share some resources. You could help coordinate a virtual field trip to an industry leader. What other ways can you think of to learn more about environmental science and natural resources as a high school student?

Curriculum connection question

- Please reflect on the material you have learned this year. Make one connection between the content you are learning and the environmental sciences. For example: Have you discussed demand on biotic and abiotic factors in biology and how that influences the survival of organisms or the quality of our water? Have you learned about sustainability or living “green” in an environmental science class? How about renewable sources of energy, or “fracking” (a major topic in modern geoscience)? What relevance might these topics have to the field of environmental science?

Suggested activities

- Environmental science and natural resources provides a foundation for many of the other career paths found on GrowNextGen and other agricultural career sites. Have students use the GrowNextGen website to construct a concept map of the career areas found on GrowNextGen, and how they relate specifically to the environmental sciences & natural resources area. On connection lines between other career areas and environmental sciences, students should record the relationship between the two. (For example, between animal science and environmental science, students may record “environmental science studies relationships between organisms and their resources”).
- Current event: Environmental science involves some of the most heated topics of debate in the news and in politics: global warming, fracking, our ecological footprint, conservation, the rising human population, and genetic engineering, just to name a few. Have students look through reliable news sources and select an environmental issue on which to write a brief summary. Students may practice public speaking and debate by presenting their news summary (an opinion on the subject) in class. Classmates may respond with respectful feedback on the subject, verbally or in the form of an exit ticket.
- Have students take the [Water Quality e-learning course on GrowNextGen](#), and then describe or discuss three strategies soybean farmers use to limit their environmental impact.
- As an entrance or exit ticket, ask students to brainstorm 3 ways they could take some “next steps” toward a career in environmental science and natural resources before they graduate.

Scenario practice solution

- Possible data points to collect: sample of waste to analyze microscopically for a bacterial count (to make sure they are reproducing), air and water sample from around and underneath the landfill to analyze for harmful byproducts, meteorologic data from around the landfill site (to analyze the effect of weather on the bacteria)
- Faster breaking down of waste could leave more space for the growing human population, reduce pollution due to the burning of waste, and possibly reduce greenhouse gas emission. A cleaner world leaves less hazardous bacteria to create infection and widespread illness. Encourage students to think further and brainstorm other positive effects of this bioinnovation.