

ADVANCED BIOLOGICAL SYSTEMS
Unit #1: Evolution
Instructional resource #8: Ecosystem disrupted

Instructors' notes

This is the culminating activity for the evolution unit. For this assignment, students must research into the impact human industry has on a small part of our world. Students have had a brief introduction to the history of the planet and the role that carbon dioxide concentration play in climate change. The role of climate and weather patterns is important in a discussion of a chosen place on the planet. Students have spent a large amount of effort in understanding evolutionary theory and mechanisms and seen it in practice as they read about speciation. With this assignment, students can synthesize all of their previous learning into one presentation.

Beyond detailing that humans have on an ecosystem, an important aspect of this assignment is to seek out solutions to the problems that they find. Students are asked to propose solutions of their own.

NGSS addressed in this lesson:

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| HS-ESS3-4 | Evaluate or refine a technological solution that reduces impacts of human activities on natural systems. |
| HS-LS2-6 | Evaluate claims, evidence, and reasoning that the complex interactions in ecosystems maintain relatively consistent numbers and types of organisms in stable conditions, but changing conditions may result in a new ecosystem. |
| HS-LS2-7 | Design, evaluate, and refine a solution for reducing the impacts of human activities on the environment and biodiversity. |

Ecosystem disrupted

For your final project of this unit on evolution, we want you to explore the environment and ecosystems of the planet with particular attention being paid to recent changes that result from human activity. Just based on the sheer numbers of people, humanity exerts an immense force in the environment. In addition, the expansive nature of our industry has accelerated that impact. Your task with this assignment is to research and present the impact of humanity on a specific ecosystem of the world. You will have to detail two different source of human impact on this ecosystem. It makes sense to choose two different locations on the planet where the ecosystem can be found. In this way, different impacts can be researched.

After choosing your ecosystem, you and a partner will conduct your research, looking specifically at the following concentrations. Both parts will be put together into a 10-minute video presentation.

- ⊕ What we know about the geological history of the area that continues to influence it today
- ⊕ Environmental characteristics: notable geology, water systems, etc.
- ⊕ Climate and weather patterns for the area
- ⊕ The scope of human impact, providing two different examples
- ⊕ Detail each example of our human impact with its source or cause, and consequences that follow.
- ⊕ Efforts underway or in planning seek remediation.
- ⊕ Your potential solutions to the two issues

Your presentation will be submitted as a video. The video will be captured in front of the green screen. Your presentation script will be visible to you during the session using a teleprompter. You will be able to view the background visuals you choose to complement your oral presentation during the session. The duration of your presentation should be about 10 minutes.

This is a research project. Anything that you read to gather pertinent information for your presentation must be listed in a bibliography (submitted separately, APA format please). Citations must be made orally in your presentation.

A SPECIAL NOTE ABOUT IMAGES:

The wonderful thing about making a green screen presentation is that you can interact with the images in your presentation. Standing within your image might provide a desired effect. However, it might also mean that your presence in the field of view could obscure parts of your images that you want to display. Plan careful. If you want to show the entire image, like you would with a graph or data table, it is better to restrict it to the

center of the slide. If the image fills the slide, then you will be within the image for your finished presentation.

Each group will submit a folder with three items:

- { A word document containing the script of your presentation. Do not include your bibliography in this document.
- { A second word document with your bibliography saved separately from your script.
- { The PowerPoint slides saved as jpegs.