

Strand: 8.3	Standard: 8.3.3	Episode 2	Big Idea: Change in the resources of an ecosystem will affect the stability in the cycling of matter and flow of energy through an ecosystem.
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Title: The Human Effect	Time: 180 min.	CCCs: <u>Cause and effect</u> <u>Stability and change</u> <u>Energy and matter</u>	Practices: Obtaining, evaluating and communicating information
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Episode Snapshot: Students *explore* and *explain* the phenomenon by researching a change happening in an ecosystem and writing a five paragraph essay **communicating** what they now know after **obtaining, evaluating information**.

(Teacher Note - This episode would work well as a collaborative assignment between English and Science classes)

Gather

For a starter have students write on sticky notes different things that might affect the stability of an ecosystem. If necessary give them a few ideas to start with. Be sure to let them know that it could be human caused or natural. Have the students compare their sticky notes with students at their table or with a group of 4. Have them see if there are any repeats if there are stick the sticky notes together. Then have them bring their sticky notes to the board to make a list in two categories as shown below. If there are duplicates combine them. Write the names above the sticky notes so that the students can see them.

Naturally caused changes	Human caused changes
• <u>Drought</u> • <u>Disease in animals or plant</u> • <u>Flooding</u> • <u>Fires</u> • <u>not enough sunlight</u> • <u>volcanic eruptions</u> ○ <u>lava</u> ○ <u>ash or dust in the air reducing sunlight.</u> ○ <u>toxic gases released by the earth.</u>	• <u>Deforestation.</u> • <u>Urban Sprawl.</u> • <u>Habitat Fragmentation.</u> • <u>Aquaculture</u> • <u>Invasive Species.</u> • <u>Over fishing.</u> • <u>Over hunting.</u> • <u>Ocean Dead Zones</u> • <u>Acid Rain.</u> • <u>Fertilizers (nitrogen and phosphorus).</u> • <u>Plastic Pollution</u> • <u>The loss of or impact of endangered species (choose one).</u> • <u>removal of predators</u>

Have each student select one of the causes of change. You will need to have access to the computer lab, laptop lab or other computer resources for this portion of the episode. Using the internet students **obtain information** about their chosen topic from three reliable resources. Students focus will be on the effects of their topic (cause) on the energy and matter within the ecosystem, and if the ecosystem is stable or in a state of change. **Information** is organized on the “Resource Notes” page.

(Teacher Note - This may be a good time to go over what makes a good resource with your students.)

Reason

Students organize their notes using the “Preparation to Write: Essay Organization” page. Using their notes students **evaluate the information** and organize it so that the essay is understandable. The thesis of the essay should focus on the stability of the ecosystem and how matter and energy are affected within the ecosystem. This portion is done in class with paper and pencil. The students should be asking questions to get clarification and direction as they complete this **evaluation** phase.

Using a rubric each student paper is peer reviewed by another student in the class. Suggestions, mistakes and questions generated during the peer review are then used by the student to revise their final essay.

Communicate

You will need access to a computer lab, laptop lab or other computer resources for this portion of the episode. The students **communicate their findings** and new found understanding in a five paragraph essay. The students use computers to write their final essay which will be graded with the same rubric as the peer review.

When finished you can go back to the phenomenon page and have the students explain the phenomenon.

Assessment: The final essay is the assessment.	Materials, resources, handouts, etc: Access to the computer lab, a laptop lab or other computer resources. Lab book “Resource Notes” “Preparation to Write: Essay Organization” Rubric
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