“We’re all in this Together:” Intro to Human-Environment Systems

Date:

Estimated # of Students: 26/ class

**Lesson Learning Objectives:**

1. To **expand upon existing knowledge** of ecosystem services & food webs and incorporate human interactions into the ecological dimensions of the foothills.

2. Students will learn about citizen science & ways to get involved in environmental policy here in Boise, as well as the importance of an informed public.

3. To **understand how we as humans are a part of the sagebrush** **steppe** **ecosystem**.

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| **Classroom Resources** | **Field Materials & Resources** |
| News articles about foothills development, including:   * Grand openings * Sliding houses * Migration routes * Airstrips * Wildlife sightings * Fires   Maps of the Foothills Area | Notebooks  Clipboards  Pencils  Binos (if applicable) |

**Timeline:**

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| **Time** | **Activity** | **Materials** |
| 5 minutes | **Hook & Brainstorm 1:** Let’s talk about where we live & the field trip you took last week sagebrush seed harvesting.  **QUESTION:** What observations did you make?  **QUESTION:** What wildlife did you see? Did you see anything else? Was there any sort of development or infrastructure?  **QUESTION:** Show of hands—how many people think humans are a part of their environment? Why or why not? |  |
| 5 minutes | **Background Info & Intro to HES:** The study of how humans relate to their environment is nothing new. We’ve been studying it as long as we’ve been exploring our world, way back to the 1400s. What IS new is that we’re actually studying what sorts of impacts we have on our environment, and what the implications of those behaviors may be for the world we live in.  **QUESTION:** Can you think of any impacts we as humans are having on our planet today?  Our population is now over 7 BILLION people, and that is a LOT of impacts on our environment, just to eat and house ourselves, not to mention having fun, learning, working, and everything else we humans do.  **QUESTION:** What does it take to really hold THAT MANY people?  *Answer:* *Space & Resources*  Let’s break it down and put it into perspective in terms of Boise, Idaho. |  |
| 7 minutes | **Activity: Brainstorming**  Name all of the “natural” things you think about in Boise or the sagebrush steppe. These include rivers, specific plants, specific animals…anything that is NOT man-made. Think about both the biotic AND abiotic things that are out there.  What are the main resources in the sagebrush steppe?  Name all of the “human” things you can think about in Boise. These can include specific people, infrastructure, specific uses, & etc.  Who are the main actors in the sagebrush steppe?  *Record all responses on Whiteboard/blackboard* | Blackboard |
| 20 minutes | **Activity: Interactions**  Using the attached worksheet, put in as MANY of the “Natural” and “Human” things we listed on the board on their respective sides of the line. If you’d like, use the “Foothills” in the middle as a reference for space (see my example).  Once everything is in there, connect the dots! Draw lines between things that have some sort of relationship. For instance, in my example I drew lines between birdwatchers and trails, because birdwatchers often hike on trails. If they don’t, or if they walk too many people wide, erosion happens, which reduces habitat and expands the trails.  **QUESTION:** Is trails on the “correct” side of my dichotomy? Why or why not? *This could be a potential debate when comparing “man-made” trails to game trails, and whether or not the purpose is to conserve the rest of nature*.  Similarly, I drew lines between grass and both deer and homeowners, as well as between homeowners and deer. Homeowners love deer, and they love their grass, but hate that the deer eat their grass!  Get creative! A lot of other students played around with multi-sided arrows, dotted lines, symbols around their objects, and thickness of lines…see what kind of story you can tell about your interactions with symbology. | Worksheets; *leave brainstorm up* |
| 7 minutes | **Closing & Discussion**  Invite students to share their interactions maps on the overhead cam (if applicable).  **POSSIBLE DISCUSSION QUESTIONS:**   1. What were “natural” things that lots of groups seemed to have? What were “human” things that lots of groups had? 2. Which “interactions” lines were the most common? Why is that? 3. What would happen if we removed one natural thing? One human thing? 4. Are these maps messy or simple? Does this depict real life? Why or why not? 5. Could some “natural” things be considered “human”? What about the other way around? | Overhead projector camera (displays notebook pages)  (*webcams aimed at a surface or directly at the notebook work, too!)* |
| **44** | **TOTAL TIME** |  |

**Supplemental information:**

*Possible changes*:

* HES & Technology—make a mindmap of your interactions!
  + A lot of websites can be really powerful tools for making digital mind maps. These are also fun because you can incorporate color, symbols, font styles, line thickness (and dottedness), etc. It also makes them already digitized.
  + Additional bonus: The metadata behind each of those mindmaps makes it possible to statistically analyze these mind maps for relationships and trends. ☺
* FIELD TRIP:
  + Instead of doing this as a follow-up to a previously-done field trip, incorporate it into the field trip’s goals.
    - Before going out, discuss Human-Environment/Coupled Natural Systems.
    - Encourage students to “Be a Scientist!” and record observations as they see them while out and about on their field trip.
      * This can include objects, relationships, events, etc
  + See Chelsea Merriman’s Lesson Plan for EPSCoR’s Adventure Learning Workshop for an example of this setup.

*Sample (simple) interactions map:*

**Foothills**

**Nature**

**Human**

**Trails**

**Hikers**

**Deer**

**Grass**

**Bird watchers**

**Homeowners**