

JSD 3D Learning Activity Template

Grade: 6th

Title:

Stability and Change

Utah Science with Engineering Education Standard (SEEd): Standard 6.4.1 Analyze data to provide evidence for the effects of resource availability on organisms and populations in an ecosystem. Ask questions to predict how changes in resource availability affects organisms in those ecosystems. Examples could include water, food, and living space in Utah environments.

Key crosscutting concept(s) (CCC): Patterns, Cause and Effect, System Models, Stability and Change

Key science and engineering practice(s) (SEP): Analyzing and Interpreting Data, Engaging in Argument from Evidence, Engaging in Argument from Evidence, Evaluating and Communicating Information.

Materials: Anchor chart paper, access to internet, 1 computer per 2 students, poster paper: 1 per student. Blank map of Utah for each student

Time: 2 hours

Teacher background, key content information and hints:

The less diverse an organisms diet the more likely they are to go extinct
Know the notes that are attached to this lesson. The ecosystems of Utah and where they are. Understanding of adaptations of living organisms.

Resources:

List of species in Utah

<https://ecos.fws.gov/ecp0/reports/species-listed-by-state-report?state=UT&status=listed>

Pandas only eat bamboo article

<https://www.worldwildlife.org/stories/giant-panda-no-longer-endangered>

Prior knowledge that students need: Knowledge of different habitats

Learning Activity Plan

These three aspects of a lesson should be identified in your learning activity.

Gathering: (Obtain Information, Ask Questions/Define Problems, Plan & Carry Out Investigations, Use Models to Gather Data and Information, Use Mathematics/Computational Thinking.)

Reasoning: (Evaluate Information, Analyze Data, Use Mathematics/Computational Thinking, Construct Explanations/Solve Problems, Develop Arguments from Evidence, Use Models to Predict & Develop Evidence.)

Communicating: (Communicate Information, Argue from Evidence (written & oral), Use Models to Communicate).

Phenomenon:

What is this graph showing and based off of this picture why do populations change? Record student answers on an anchor chart.

https://www.google.com/search?q=Predator+and+Prey+population+graph&safe=active&rlz=1C5CHFA_enUS683US683&espv=2&source=lnms&tbm=isch&sa=X&ved=0ahUKEwisj4fe7PnSAhXhIIQKHb2uAN0Q_AUIBigB&biw=1258&bih=480&dpr=1&surl=1#imgsrc=mBRaqiU2AW3n5M:

Use teaching notes (attached) to give direct instruction about ecosystems in Utah.

Learning Activity:

Gathering:

Look at a topographical map of Utah. Guide students into dividing Utah into the 5 different ecosystems that exist in Utah (forest, grassland, desert, riparian, marine). Have students shade Utah to show where each ecosystem exists in Utah if needed.

Gathering:

Have student pairs pick 1 of those ecosystems to do 10 minutes of research with and come up with a list of 10 animals and plants that live in that ecosystem. Then have them draw the ecosystem that includes the 10 organisms on a poster paper.

Communicating:

Lead in a discussion about why specific animals and plants live in each ecosystem. Identify adaptations that allow each organism to live in that ecosystem.

Reasoning:

Have student make a list under each of the 10 organisms of what they need to live (sunlight, specific food, temperature range, housing etc.) and share with the class their findings.

Reasoning and Communicating:

Ask students to discuss what would happen if one or several of those needs did not exist (water, habitat etc.) and discuss how those things disappear.

Reasoning and Communicating:

Show picture of dodo birds and alligators. Have students justify why dodo birds are now extinct and why alligators are still alive.



Reasoning and Communicating:

Go back to original anchor chart, revisit this graph and revisit (either justify or throw out) answers they shared about why populations change.

https://www.google.com/search?q=Predator+and+Prey+population+graph&safe=active&rlz=1C5CHFA_enUS683US683&espv=2&source=lnms&tbm=isch&sa=X&ved=0ahUKEwisj4fe7PnSAhXhIlQKHb2uAN0Q_AUIBigB&biw=1258&bih=480&dpr=1&surl=1#imgsrc=mBRaqiU2AW3n5M:

Gathering:

Watch these videos and discuss any words they didn't understand

Ecosystem video:

<https://www.youtube.com/watch?v=v6ubvEJ3KGM&t=76s>

<https://www.youtube.com/watch?v=izRvPaAWgyw>

Assessment of student learning

Completion of both poster papers and participation in discussion.

Student Page

Name _____

Title: