Name
TA

Science 9
2023-2024

Learning Guide # 10: The Environment and Interconnectedness

BIG IDEA: The biosphere, geosphere, hydrosphere, and atmosphere are interconnected, as matter cycles and energy flows through them.

Fundamental Knowledge (I know:)

- ☐ The details of the four spheres of Earth and how they are interconnected.
- ☐ How a basic food web/chain works and how it is affected by the environment.
- ☐ Why the sun is the main source of energy for Earth where its energy goes.

Curricular Competencies (I can:)

	Proficiency Scale Teacher and Student self assessment (Circle one)	**Evidence (How do you know?)**
I can: **Experience and interpret the local environment:** Analyze and interpret the key components of an ecosystem and relate them to the Earth sphere they belong to. I can understand how material and energy is moved around Earth's spheres.	**Emerging (EMG)** **Initial Understanding** **Developing (DEV)** **Partial/Near Complete Understanding** **Proficient (PRF)** **Complete Understanding** **Extending (EXT)** **Sophisticated Understanding**	
I can; **Analyse Cause and Effect Relationships:** Use logic to understand how the entire ecosystem can be disrupted by a single chain to a component.	**Emerging (EMG)** **Initial Understanding** **Developing (DEV)** **Partial/Near Complete Understanding** **Proficient (PRF)** **Complete Understanding** **Extending (EXT)** **Sophisticated Understanding**	

Instructions To help guide your learning, make your way through the activities in Option 1, Option 2, or Option 3. You may "mix and match" between the different Option columns.

<table>
<tr><th>TOPIC</th><th>OPTION 1</th><th>OPTION 2</th><th>OPTION 3</th></tr>
<tr><td>Earth Spheres and Interconnectedness</td><td>A. Complete the "Earth Spheres and Interconnectedness" worksheets.</td><td rowspan="3">Craft an ecosystem that is either based on a real ecosystem on Earth or a <u>school appropriate</u> ecosystem you create with made up creatures and flora.

Your ecosystem can be demonstrated using art, digital work, written work, or other media approved by your teacher. Additionally, you must explain the ins and outs of your work either in a written way or a verbal way (in the great hall).

Your ecosystem must include:
Organisms on all levels of the food chain
Any adaptations your organisms have had to make to survive
The surrounding geology. Please make the geology similar to the rock cycle of Earth.
The water cycle or a suitable substitute
The atmosphere of your planet, including a Karmen line and a layer of ozone.
An energy source and the energy source budget
The type of biome
<u>Keep your creation for the next learning guide!</u></td><td rowspan="3">Choose your own adventure!

Pick up a planning sheet from the Science Kiosk.

Create a plan!

Make sure you read through the first page of this LG, as you will need to design ways to learn/practice and show your understanding of the topic(s) and skill(s) (competencies.)

You will need to have a teacher approve your plan before beginning the LG.</td></tr>
<tr><td>Food Chains</td><td>B. Complete the "Food Chains" worksheets. You may wish to use technology to google some of the aquatic organisms mentioned in the questions.</td></tr>
<tr><td>Energy on Earth and Biomes</td><td>C. Complete the "Energy on Earth and Biomes" worksheets.</td></tr>
<tr><td>Lab</td><td colspan="3">Nope. However, optional extension projects are always welcome.</td></tr>
<tr><td>Self Assessment</td><td colspan="3">Reflect on the Fundamental Knowledge and Curricular Competencies. Use the rubric and make goals to improve for your next learning guide.</td></tr>
<tr><td>Interview or Quiz</td><td colspan="3">See your teacher for an interview or to have a quiz slip signed for the test center. Bring your work and staple it to your quiz when complete.</td></tr>
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Resources can be found at www.THSSscience.com or the Science Kiosk
*User: **THSS***
*Password: **science***