



i-STEM LESSON Plan Template:

Title: Understanding Ecosystems

Time Frame:		Learning Standards:	
Two weeks		Goal 1.1: Understand Systems, Order, and Organization	4.S.1.1.1 Explain that a system consists of an organized group of related objects that form a whole. (588.01.a)
Grade Level(s):			
4 th Grade			
Learning Objectives:			
<ul style="list-style-type: none"> • Explain in writing what an ecosystem is. • Create an ecosystem diorama. 			
NGSS and CCSS-M Practices to be Addressed:			
NGSS: Practice 8			
Background Information:			
<ul style="list-style-type: none"> • Prior knowledge of mountain animals, organisms. • Be familiar with terminology. 			
Materials:			
Cards for <u>Eat or Be Eaten!</u> ; lined loose leaf paper (cards need to be made in advance) <i>One Big Puzzle</i> Ecosystems Hierarchy Non-fiction Science Readers Series Science Notebooks Student Science Dictionaries			
Procedure:			
<ol style="list-style-type: none"> 1. Introduction/Review activity: <u>Eat or Be Eaten!</u> At the top of a chalkboard display the following cards: Producers, Primary Consumers, Secondary Consumers, and Tertiary Consumers (these will be the headings for the categories). Have students label a sheet of paper with the categories. Off to the side display the following cards: Gray Wolf, Bald Eagle, Bighorn Sheep, Grizzly Bear, Coyote, Red-Tailed Hawk, Osprey, Bison, Pronghorn, Beaver, Elk, Cutthroat Trout, Mayfly, Deer Mouse, Wheatgrass, Pond Lily, Lodgepole Pine, Quaking Aspen, Green Algae, Gray Willow. Students need to talk within their groups and decide the correct order the cards should be placed. Then they should write the names of the organisms below the correct heading. We will then check their work to see how well they know which organism fits into which category. This paper should be kept as a study guide for their assessment. This activity will help activate student's prior knowledge about the different organisms that play a vital role in the park's ecosystem. 2. Using dictionaries have students define the following terms in their Science notebooks: Individual, Ecosystem, Community, Population, Predator, Prey, Consumer, and Producer. 3. Show the web page called Eat or Be Eaten! to the class, being sure to discuss the different 4. organisms and the part they play in the park's ecosystem. <p>www.visityellowstonenationalparkyall.weebly.com</p>			

5. One Big Puzzle Reading Activity.
6. Introduce Ecosystem Diorama Project.
7. Research through books and internet on the type of ecosystem they are creating.
8. Build Dioramas in class.
9. Review concepts.
10. Share dioramas with classmates.
11. Students will write a paragraph about their ecosystem using the correct vocabulary words.
12. Producers, Consumers & Decomposers Assessment.

Project/Activity:

Ecosystem Diorama Project <http://www.teacherspayteachers.com/sStore/Carol-Weiss>

(I purchased this activity from the Teacher's Pay Teachers Website).

Assessment Plans and Documents: (Attach: e.g. tests, checklists, observation protocols, and rubrics)

Students will be given a blank Eat or Be Eaten! Chart to complete (the categories and organisms will be listed in a box).

Ecosystem Diorama Project: <http://www.teacherspayteachers.com/sStore/Carol-Weiss>

Producers, Consumers & Decomposers Assessment, By: Cammie's Corner (from Teacher's Pay Teachers website)
I purchased the packets from the Teacher's Pay Teachers Website.

Integrated Approach to Teaching STEM:

Explaining, Creating (see attached rubric)

21st Century Skills:

Critical thinking, Communication, Collaboration, and Creativity (see attached rubric).

References and Resources:

www.visityellowstonenationalparkvall.weebly.com

One Big Puzzle Ecosystems Hierarchy Non-fiction Science Readers—Elizabeth Schmidt
<http://beachteach5.blogspot.com> (Free)

Producers, Consumers & Decomposers Assessment, By: Cammie's Corner (from Teacher's Pay Teachers website)

Ecosystem Diorama Project <http://www.teacherspayteachers.com/sStore/Carol-Weiss>

Place-Based Connections and Contacts:

Forest Service Ranger, College Science Professor, Secondary Science Teacher



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Attainment of Learning Objectives

Learning objective	12 Exemplary	9 Proficient	6 Developing	3 Minimal	SCORE
Write a paragraph about their ecosystem.	Paragraph includes: topic sentence, contains an explanation of each animals, plants, & landform shown on diorama. Paragraph has a concluding sentence.	Paragraph’s topic sentence doesn’t name ecosystem; paragraph explains all but 1 animal, plant, or landform shown on diorama; concluding sentence, does not connect to the paragraph.	Paragraph’s topic sentence is vague; paragraph does not explain more than 1 animal, plant, or landform shown on diorama; concluding sentence is incomplete.	Paragraph does not include a topic sentence; paragraph does not explain any of the animals, plants, or landforms shown on diorama; no concluding sentence; difficult to read.	
Create an ecosystem diorama.	Diorama contains: 3 animals, 2 plants, 1 landform, all parts clearly & neatly labeled, the quality is above average, objects are the appropriate size & shape.	Diorama contains: 2 animals, 1 plant, wrong landform, all but 1 part are clearly & neatly labeled, the quality is average, and 1 object is not appropriate size or shape.	Diorama contains: 1 animal, 1 plant, no landform, missing several labels, the quality shows little effort, objects are appropriate size & shape.	Diorama is missing: animals, plants, landforms, nothing is labeled, messy, objects are the in appropriate size or shape. Little effort.	

Attainment of Stem Practices

Stem Practices	12 Exemplary	9 Proficient	6 Developing	3 Minimal	SCORE

Explaining and reasoning	Uses vocabulary in a structured paragraph. Thoughts are expressed with no grammatical errors.	Uses some vocabulary in a structured paragraph. Thoughts are expressed with no grammatical errors.	Uses vocabulary in a structured paragraph. Thoughts are expressed with no grammatical errors.	Uses vocabulary in a structured paragraph. Thoughts are expressed with no grammatical errors.	

Attainment of 21st Century Skills

21st Century Skills	12 Exemplary	9 Proficient	6 Developing	3 Minimal	SCORE
Capacity to Lead	Works well with others, a natural leader.	Works fairly well with others, contributes to the group.	Does not work well with others	Refuses to do their share of work.	
Collaboration	Works well with others; is flexible and considerate of others ideas. Goes above & beyond to help group be successful.	Works well with others; is flexible and considerate of others ideas.	Struggles to work well with others; is hard to work with and does not do their share of the work.	Does not work well with others; does not contribute to the diorama.	
Creativity and Innovation	Diorama contains: 3 animals, 2 plants, 1 landform, all parts clearly & neatly labeled, the quality is above average, objects are the appropriate size & shape.	Diorama contains: 2 animals, 1 plant, wrong landform, all but 1 part are clearly & neatly labeled, the quality is average, and 1 object is not appropriate size or shape.	Diorama: 1 animal, 1 plant, no landform, missing several labels, the quality shows little effort, objects are appropriate size & shape.	Diorama is missing: animals, plants, landforms, nothing is labeled, messy, objects are the in appropriate size or shape. Little effort.	