

4.3 DIY Ecosystem

Story Extension for This Lesson:

Building their own ecosystems, will make the students aware of all that goes into a system and what can go wrong.

Grade: 4

Strand: Habitats and Communities

Big Ideas:

- Plants and animals are interdependent and are adapted to meet their needs from the resources available in their particular habitats. (Overall expectations 1, 2, and 3)
- Changes to habitats (whether caused by natural or human means) can affect plants and animals and the relationships between them. (Overall expectations 2 and 3)

Overall Expectations:

2. investigate the interdependence of plants and animals within specific habitats and communities
3. demonstrate an understanding of habitats and communities and the relationships among the plants and animals that live in them

Specific Expectations:

- 1.1 analyze the positive and negative impacts of human interactions with natural habitats and communities (e.g., human dependence on natural materials), taking different perspectives into account (e.g., the perspectives of a housing developer, a family in need of housing, an ecologist), and evaluate ways of minimizing the negative impacts
- 2.1 follow established safety procedures for working with soils and natural materials (e.g., wear gloves when handling soils to set up a working terrarium)
- 2.2 build food chains consisting of different plants and animals, including humans
- 3.4 demonstrate an understanding of a community as a group of interacting species sharing a common habitat
- 3.9 demonstrate an understanding of why all habitats have limits to the number of plants and animals they can support

Inquiry Skills :

Recording, Designing, Constructing

Other 21st Century Skills

Stewardship

Instructions:

Taking care of actual living things will give students a better perspective on the time, effort and responsibility needed to maintain an ecologically balanced system. In this assignment, the students can choose which type of biome they choose to create, but they must maintain it for the duration of the unit.

This is a Do it Yourself (DIY) or homemade build project where the students are asked to choose a type of biome to create in a contained space. There are several types of DIY terrariums, fish tanks, and ant colonies online, which are easy for student in the junior age range to build or craft with a teacher/parent.

The students must maintain their biome for at least three weeks or the duration of the unit. This will create a sense of ownership in the students, and it is a physical tool that they can refer to when discussing changes in the environment.

Students need to keep a log of how they have kept their biome going, and any issues that occur. At the end they will chronicle their success and summarize their experience.

Materials List:

- depending on the design
- bottle or jar
- soil, dirt and/or rocks
- water
- plants, fish, amphibian, and/or ants

Subject Area:

Environmental, Science

Connects to:

Grade 4, Grade

Assessment Strategy:

The Learning Process

Use The Learning Process to guide students to learn how to research, define and assess the right solutions to the challenge.

Begin the investigation by asking the students to consider what they believe is the main idea of the assignment. This creates an opportunity for the students to take charge of their learning. The students will create their own main topic sentence. This can be done using The Learning Process Sheet. The student can write down the "Big Idea" and then conference with the teacher about whether or not this is accurate. On The Learning Process sheet there is room for the student to write down any new information or suggestions that come up during the conference. Once the student has the correct concept, they are ready to move forward.

From the teacher's perspective, you could level (grade) the depth of their understanding of the big idea from the content of their conversation. This process is repeated at each of the four stages of The Learning Process: Introduction; Searching; Outline; and Ta Da. In this way, the teacher has observed the thinking of the students throughout the process of creation and can identify the actual

learning of the student. Each stage can receive a level (grade), which the student can see and improve upon, or move forward (if the work is only defined as Level 2 work quality, does the child accept that or want to do better?).

Handouts/Assessments:

- DIY Ecosystem

D.I.Y. Ecosystem

Name:

This is a Do it Yourself (DIY) or Homemade build project where the students are asked to choose a type of biome to create in a contained space. There are several types of (DIY) terrariums, fish tanks, or ant colonies online, which are easy for students in the junior age range to build or craft with a teacher/parent.

The students must maintain their biome for at least three (3) weeks or the duration of the unit. This will create a sense of ownership in the students, and it is a physical thing that they can refer to when discussing changes in the environment.

During the time they need to keep a log of how they have kept it going, and any issues that occur. At the end they will chronicle their success and summarize their experience.



The Learning Process

Inquiry Process: Introduce – <i>What is the BIG idea?</i>																																																		
Traits																																																		
- Where should I look? - Draw and write ideas down - Works with groups to create a plan	- Main (“Big”) Ideas - Completed a meeting about Main (“Big”) Ideas																																																	
Step 1: The BIG Question																																																		
Step 3: Meeting Notes																																																		
Excellence = 4, Better = 3, Okay = 2, Needs work = 1																																																		
Inquiry Process: Search – <i>Developing Questions, Searching for Information and Answers</i>																																																		
Traits																																																		
- Listens, talks, views, and reads - Uses the Q-chart	- Works with teams - Completed a meeting to improve questions																																																	
Guiding Questions (One (1) guiding questions from each column and each row.)																																																		
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<i>Write out the completed questions in full. (You may change these or add to them during the process.)</i>																																																		
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Step 3: Meeting Notes																																																		
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Inquiry Process: Outline – <i>Intensify research, Synthesize Information, Connect Knowledge</i>																																																		
Traits																																																		
Engages in deeper reading and researching: Books, articles, and websites.																																																		

- Checks sources, are they truthful
- **Joins information**
- Cooperates
- Use appropriate technology
- Completed a meeting with teacher about notes

Step 3: Conference Notes	Level:
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Excellence = 4, Better = 3, Okay = 2, Needs work = 1

Inquiry Process: **“Ta Da!”** – *Sharing Learning*

Traits

- Completed a meeting
- Demonstrates their thinking
- **Teaching others**
- Reflects upon **the learning process**
- Works well and sharing with teams to complete project

Step 3: Conference Notes	Level:
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Excellence = 4, Better = 3, Okay = 2, Needs work = 1

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