

3.6 Energy Pyramid

Story Extension for This Lesson:

Students will understand the role plants play in the energy pyramid, and it will help build their understanding of what plants need and how they affect the rest of the ecosystem. With this exercise the class begins to understand the relationships between plants in a forest.

Grade: 3

Strand: Growth and Changes in Plants

Big Ideas:

- Plants are the primary source of food for humans. (Overall expectation 1)
- Humans need to protect plants and their habitats. (Overall expectation 1)
- Plants are important to the planet. (Overall expectation 1)

Overall Expectations:

1. assess ways in which plants have an impact on society and the environment, and ways in which human activity has an impact on plants and plant habitats

Specific Expectations:

1.1 assess ways in which plants are important to humans and other living things, taking different points of view into consideration, and suggest ways in which humans can protect plants

1.2 assess the impact of different human activities on plants, and list personal actions they can engage in to minimize harmful effects and enhance good effects

3.4 describe how most plants get energy to live directly from the sun (e.g., plants turn the energy from the sun into food for themselves) and how plants help other living things to get energy from the sun

3.5 describe ways in which humans from various cultures, including Aboriginal people, use plants for food, shelter, medicine, and clothing (e.g., food from rice plants; houses for shelter from the wood of trees; medicines from herbs; clothing from cotton plants)

3.6 describe ways in which plants and animals depend on each other

3.7 describe the different ways in which plants are grown for food, and explain the advantages and disadvantages of locally grown and organically produced food, including environmental benefits

Inquiry Skills:

Instructions:

Have the students create a 3-Dimensional Energy Pyramid from the design on the page. There are areas for them to give examples and a description of each level of the pyramid. Have the students cut out the pyramid and display it for others to see. Students must identify the characteristics and some examples of each of the levels of the energy pyramid. They can be creative with their designs and images. This could be done digitally with pictures being input and/or redesigned pyramid. The students could also redesign this completely in a digital sandbox.

Materials List:

- scissors
- pencil
- paper
- computer
- MineCraft

Subject Area:

Environmental, Science

Connects to:

Grade 2, Grade 3, Grade 6, Grade 7

Assessment Strategy:

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:

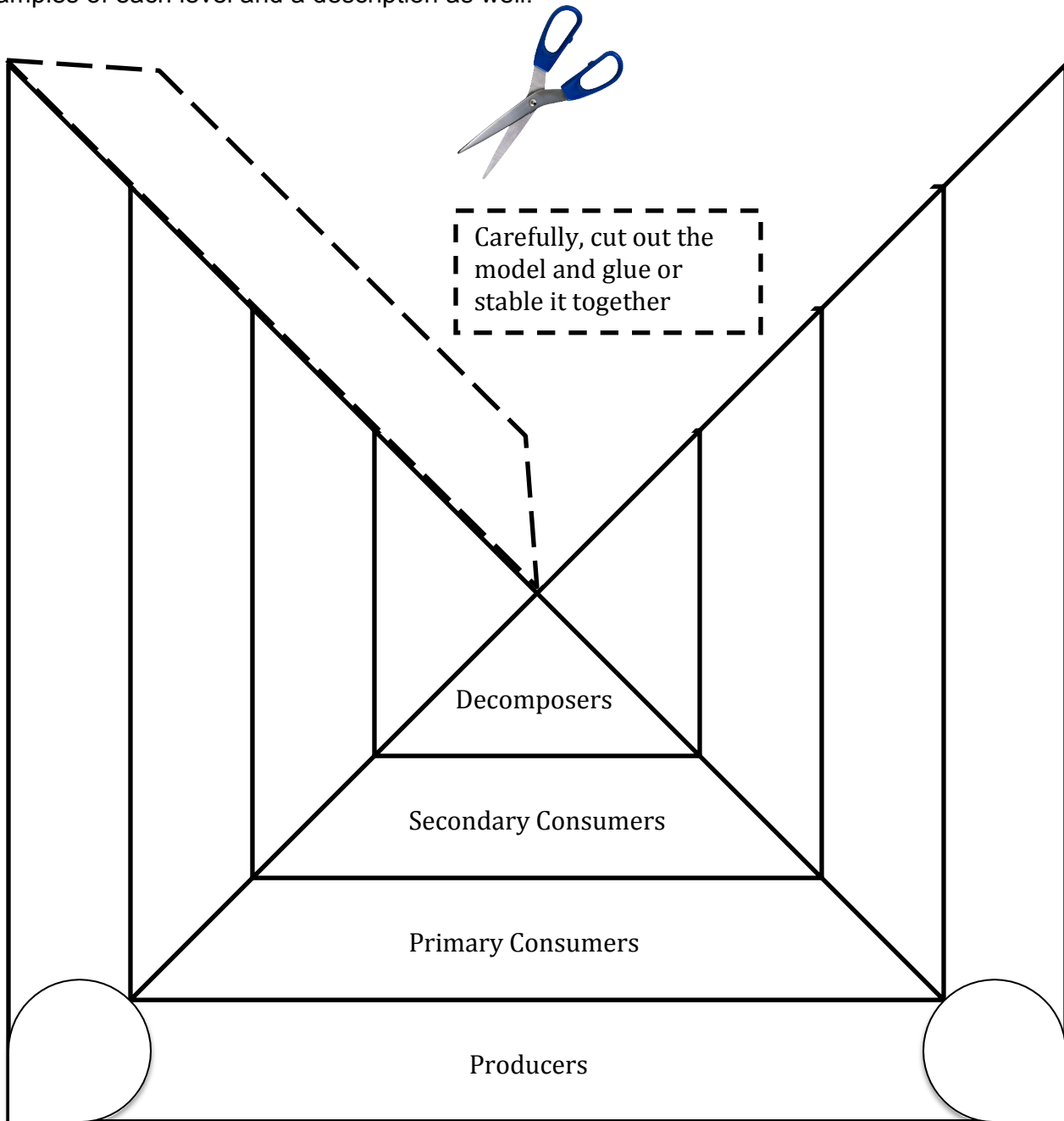
- Energy Pyramid
- Learning Process

Energy Pyramid

The Sun provides energy of everything on earth. But the energy that is used goes through a cycle and energy is lost along the way. There are many levels to the pyramid of energy on the planet and they go through different groups.

The Sun, Producers, Primary Consumers, Secondary Consumers, Decomposers.

Create a 3-Dimensional Energy Pyramid from the design below. There are areas for you to give examples of each level and a description as well.



The Learning Process

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

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

Excellence = 4, Better = 3, Okay = 2, Needs work = 1