

Lesson Plan Title

Acting Out Energies through Ecosystems

Grade Level

6th Grade

Subject Area

Science

MSCCRS

L.6.3.4 Investigate organism interactions in a competitive or mutually beneficial relationship (predation, competition, cooperation, or symbiotic relationships).

L.6.3.5 Develop and use food chains, webs, and pyramids to analyze how energy is transferred through an ecosystem from producers (autotrophs) to consumers (heterotrophs, including humans) to decomposers.

Art Form

Theatre

MSCCR Creative Arts Standards

TH: CR1.1.6 Generate and conceptualize artistic ideas and work.

c. Explore a scripted or improvised character by imagining the given circumstances in a drama/theatre work.

TH: CR3.1.6 Refine and complete artistic work.

b. Identify effective physical and vocal traits of characters in an improvised or scripted drama/theatre work.

TH: Pr4.1.6 Select, analyze, and interpret artistic work for presentation.

b. Experiment with various physical choices to communicate character in a drama/theatre work.

Duration

2-3 hours - can be broken down into segments

Materials

Pencil and paper (for students)

Organism assignment cards

Images of food chains, food webs, and energy pyramids

Objectives

Students will create skits that portray the flow of energy through a food chain.

Students will perform skits for an audience.

Students will discuss their findings about food webs, energy pyramids, and food chains after watching the skits and make connections between those models.

Vocabulary

Producer (autotroph)

Consumer (heterotroph)

Food chain

Food web

Energy pyramid

Personal space

Body- element of dance

Lesson Description

1. Conduct a brief review of food chains in ecosystems. Students should already have an understanding of food chains, including producers, consumers, and decomposers. This lesson is going to help them connect the concepts of food webs and energy pyramids to what they've already learned about food chains.
2. Inform students that they will be acting out different types of organisms in this lesson. They will be assigned an organism to act out, but it is up to them how to portray those organisms and their actions to their audience. **If students are not already familiar with acting out skits and/or portraying a plant, animal, etc., introduce them to this concept with the mini-lesson found below the lesson description.***
3. Assign students an organism and a color group (found below). Give them approximately 15 - 20 minutes to collaborate with their groups to decide how they will act out their food chain skit. Each skit should begin with one character "on stage" (the producer). Then each character gets eaten by its predator when it enters. Encourage the students to be creative with these skits. They can create dialogue, sound effects, etc. The ultimate goal is that they act out the food chain in the correct order to show the transfer of energy from producer to top predator. Walk around the room and facilitate as needed.

Group Organism Assignments (write these on individual cards)

Red Group: Grass, Grasshopper, Frog, Hawk

Orange Group: Grass, Rabbit, Hawk

(These groups can combine to form a food web)

Yellow Group: Kelp, Crab, Squid, Shark

Green Group: Kelp, Fish, Squid, Elephant Seal, Killer Whale

(These groups can combine to form a food web)

Blue Group: Mango Tree, Beetle, Monkey, Jaguar

Indigo Group: Mango Tree, Parrot, Jaguar

Violet Group: Banana Tree, Monkey, Boa Constrictor

(These groups can combine to form a food web)

4. Once groups have had ample time to rehearse their food chain skits, have them perform one by one. Remind the audience about good audience manners -- to listen carefully, watch closely, and clap when appropriate.
5. After each group performs, discuss with the class what organisms they saw portrayed. On their papers, have them write out the food chain that the group performed.
Ex: grass → grasshopper → mouse → owl
Emphasize the correct direction of the arrows when writing the food chains.
Students should do this after each performance (even their own).
6. After every group has performed, ask students to look at their food chains on their papers. How many organisms are in each food chain? Allow students to take a guess as to why there are not more than 5 organisms on any of the food chains. Use this opportunity to introduce (or review) energy pyramids.
7. Ask students to look at the food chains on their papers again. Do they see any similarities or overlaps between the food chains? Explain that the overlapping food chains in an ecosystem can create a food web, showing that organisms may compete for the same food source. Show examples of food webs on the board.
8. Now groups that had the same/similar organisms will combine to complete a similar skit activity. This time, instead of just performing a food chain skit, they will portray a food web, meaning that some of the organisms may be competing for the same resource. Follow similar instructions to step 3 - 4.
9. Finally, have students draw one food web on their papers. It can be a food web from any of the groups that performed. Again, emphasize the correct direction of the arrows. You may use this for a simple formative assessment.

***Mini-Lesson - for classes that are not already familiar with creating and performing skits**

1. Have students stand and become aware of their personal space by stretching, bending, etc.
2. Explain that when we perform skits, especially without props, our bodies have to tell the story just as much as our words.
3. Conduct an acting exercise by asking students to act out different types of organisms in their own space beside their chair. Explain and model that our bodies need to show what types of organisms we are portraying without ever having to explicitly say what they are. For example: a tree would be tall, mostly motionless, and have arms up high to show branches, whereas a grasshopper would be low to the ground and would hop quickly. (Have them act out organisms such as a tree, grasshopper, hawk, etc.). What kinds of details can we add to these organisms to help our audience understand what we are portraying?
4. Once you feel like students have a grasp on these skit concepts, resume the lesson at step 3.

Recommended Resources

Helpful Images:

Food Chain: <https://i.ytimg.com/vi/hLq2datPo5M/maxresdefault.jpg>

Energy Pyramid: <https://cdn.britannica.com/92/180492-050-9389FB50/energy-pyramid-level-organisms-producers-flow-consumers.jpg>

Simple Food Web:

<https://www.google.com/url?sa=i&url=https%3A%2F%2Fdesertoasisgarden.wordpress.com%2F2015%2F05%2F13%2Funderstanding-our-garden-better-with-a-food-web%2F&psig=AOvVaw0IYddPeIMQr0fb3nNJNg18&ust=1589551663362000&source=images&cd=vfe&ved=0CAIQjRxqFwoTCKimoMjDs-kCFQAAAAAdAAAAABAD>

Extended Learning Activities

You may use the same conceptual theatre lesson to teach symbiotic relationships.

Sources

N/A

Tips

1. If time and/or resources allow, you may let students choose fitting instrumental music for their skits.
2. If the groups are uneven or if there are not enough parts for the students in your class, you may assign a few leadership-oriented students to be directors of their groups.

Author

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