

**ITQ ARTS AND SCIENCE INTEGRATION
GRADE 4
DANCE AND LIFE SCIENCE**

**Everything is Connected!
Ecosystems
Lesson #1**

FOSS California, Grade 4, Environments, Investigation 3, Parts 2 and 3

CONTENT STANDARDS

Dance Grade 4

- 1.1 Demonstrate mental concentration and physical control in performing dance skills.
- 2.1 Create, develop, and memorize set movement patterns and sequences.

Science Grade 4

- LS2a** Students know plants are the primary source of matter and energy entering most food chains.
- LS2b** Students know producers and consumers (herbivores, carnivores, omnivores, and decomposers) are related in food chains and food webs and may compete with each other for resources in the ecosystem.

ESSENTIAL QUESTIONS (*Questions students might ask about the topic*)

- What is an ecosystem?
- What is a producer?
- How can I use dance to learn about producers and how they relate to the ecosystem?

OBJECTIVES & STUDENT OUTCOMES (*Students will be able to.....*)

- memorize and perform in a group, dance sequences that include changes in level, direction, speed and dynamics from beginning to end with control and focus.
- describe the role of producers in the ecosystem.

ASSESSMENT (*Various strategies to evaluate effectiveness of instruction and student learning*)

- **Feedback for Teacher**
 - Student performance
 - Student response to inquiry
 - Science notebook entries
- **Feedback for Student**
 - Teacher Feedback
 - Peer feedback
 - Videotape

WORDS TO KNOW

Dance

- **Dance Sequence:** The order in which a series of connecting movements and shapes occur.
- **Dance Study:** A short work of dance that investigates a specific idea or concept and shows a selection of movement ideas.

Science

- **Algae:** A large group of water organisms.
- **Ecosystem:** A system of living things, all the nonliving things that surround it, and the relationship

between them.

- **Producer:** An organism, such as a plant or alga, that makes its own food.
- **Thrive:** To grow and be healthy.

MATERIALS

- Chart paper and markers
- Diagram #1, Food Pyramid
- Diagram #2, Chart of Rap #1 and Rap #2 for overhead
- Computer with access to youtube
- CD Player and music
- Science notebooks (1/student)

RESOURCES

- *FOSS California*, Grade 4, *Environments*, Investigation 3, Part 2 and the first part of Part 3.
- *List of herbivorous animals*: http://en.wikipedia.org/wiki/List_of_herbivorous_animals
- Food Chain: Kids' Corner: <http://www.sheppardsoftware.com/content/animals/kidscorner/foodchain/producersconsumers.htm>
- Food Chain: Kids' Corner: <http://www.sheppardsoftware.com/content/animals/kidscorner/foodchain/producersconsumers.htm>
- <http://idahoptv.org/dialogue4kids/season4/ecology/facts.cfm>
- It Starts With Producers Song: http://www.youtube.com/watch?v=oMo3xbgBB_k&feature=related
- Ecosystem Song: http://www.youtube.com/watch?v=GUY_-LK_I0c&feature=related
- You're an Omnivore Song: <http://www.youtube.com/watch?v=YVh2fGI9Jgo&feature=related>
- Flocabulary: <http://flocabulary.com/ecosystems/> (you must become a member to use this site) content is included at the end of this lesson.
- What is Rapping? <http://en.wikipedia.org/wiki/Rapping>
- Bobby Brown Dance: <http://www.youtube.com/watch?v=bllpBPHgfgA>, <http://www.youtube.com/watch?feature=endscreen&v=P0FKzPfsxA4&NR=1>
- The Prep Dance: <http://www.youtube.com/watch?feature=fvwp&NR=1&v=1gjlI5-CC4k>
- Encarta® World English Dictionary © 1999 Microsoft Corporation. All rights reserved. Developed for Microsoft by Bloomsbury Publishing Plc.

PREPARATION

- Teach *FOSS California*, Grade 4, *Environments*, Investigation 3, Part 2
- On a piece of large chart paper, draw a picture of a large triangle to represent the food pyramid (see diagram #1).
- Optional: 10 copies of the Rap 1 and 2 sheet (diagram #2)
- Frontloading:
 - Have students read the rap text several times prior to teaching this lesson. It is recommended that students spend about five minutes for three or more days to become acquainted with the words. If you can teach the rhythm and students can speak the lines in rhythm, they will be better prepared for the dance portion of this lesson.
 - Select portions from Wikipedia about "Rapping" to present to students to pique their interest for dance lessons 1-3 in Life Science.
 - Play some rap music with acceptable lyrics. Suggestions: "It's the Food Web" at <http://www.youtube.com/watch?v=sbWyrCY5i3s>

WARM UP (*Engage students, access prior learning, review, hook or activity to focus the student for learning*)

(5 minutes)

- **Ask:**
 - *What is an environment?* [Discuss in pairs. Review from investigations 1 and 2, and Theatre/Life Science Lessons 1-3].

- *What is an **ecosystem**? [Think, pair share and report answers].*
- *Say: An **ecosystem** is an interaction of the living and non-living components in an environment. Let's list some living and non-living things in an aquatic environment.*
- *Chart on the left side of the paper living things, and on the right side of the paper, non-living things found in an aquatic environment. (E.g., living: snails, fish, phytoplankton, **algae**, elodea, etc. and nonliving: sand, rocks, water, oxygen, salt {if talking about the ocean}, etc.).*
- *Ask: What is a rap song? How would you describe it? [Accept student answers].*
- *Say: Rap is spoken or chanted rhyming lyrics and can be traced back to African roots. Today we are going to learn some raps and perform some **dance sequences** to help us learn about ecosystems. When we are all finished, we will have a complete **dance study** about the food chain.*

MODELING (Presentation of new material, demonstration of the process, direct instruction)

(20 minutes)

- Post vocabulary and review if necessary: **algae, ecosystem, producer, thrive, dance sequence, and dance study.**
- *Say: We are going to create a **dance study** all about **ecosystems** and the food chain. Today, we will learn the first two **dance sequences** that are all about the **ecosystem** and **consumers**. This will be part one of our **dance study**.*
- Teach the following raps in rhythm:
- Rap #1
 1. *Say (and students repeat): Small as a puddle or large as the sea, living and non-living **thrive** in harmony. Animals, plankton, water, soil, air. **Ecosystems** are everywhere!*
 - You may want to quickly discuss what plankton is (a mass of tiny animals and plants floating in the sea or in lakes usually near the surface and eaten by fish and other aquatic animals).
 - Remind students about the reading "Freshwater Environments", pg. 117 in *Science Resources*, Grade 4.
 - Teach the Steps (in partners):
 - Rap #1 **Thrive/Ecosystems** Step:
 - Drop to a crouch (beat 1), stand (beat 2), raise arms up (beat 3), put hands on knees, legs bent (beat 4). Rib isolation toward partner (partner A moves right, partner B moves left) and away from partner (partner A moves left, partner B moves right) (beats 5-8).
 - Rehearse both rap and movement several times.
- *Post the pre-made chart of the food pyramid. Section off a small portion of the pyramid at the bottom and label it **producers** (see diagram #1).*
- *Say: **Producers** are at the bottom of the food chain. **Producers**, such as plants and algae, make their own food from sunlight, water and carbon dioxide. They make and store sugar. Animals, insects and people eat plants and small fish and snails eat **algae**,*
- Rap #2
 - *Say (and students repeat): What do **producers** need to make their own food? Sunlight, water and CO2. **Algae**, grass, plants and vegetables, too. **Producers** make, make their own food.*
 - Rap #2 (The **Producer's** step):
 - Feet: Single basic step (step to the side with right foot (beats one-two), cross left foot behind right foot while flexing at waist (beats three-four). Repeat on the left (beats three and four). Repeat single basic on the right and left for a total of eight beats. Pump the arms and shoulders up and down one for each beat one through eight.
 - On the second set of eight beats (beats 9-16), continue the same steps but this time, raise the arms up and out to the sides (like simulating sunlight).
 - Repeat this entire 16 beat phrase one more time for a total of 32 beats.

GUIDED PRACTICE (Application of knowledge, problem solving, corrective feedback)

(20 minutes)

- Organize students into smaller groups of even numbers (six or eight).
- Post the two raps on the overhead or distribute a copy to each group.

- Say: *You will be rehearsing in small groups. Practice each line of the first rap, one at a time, until you are able say the rap and perform the steps at the same time. When you feel comfortable with the first rap, go on to the second rap. I will give you 10 minutes to do the first rap then I will stop and check to see how you are doing. You will then have another 10 minutes to work on the second rap.*
- Move from group to group checking on progress. Take notes on which students seem to prefer, moving or rapping. This will be significant information for lesson three.
- After 10 minutes, have students begin working on rap #2.
- Optional teaching strategy: Divide the class in half. One half of the class will chant, the other half of the class will dance. Reverse roles and repeat.
- Videotape rehearsal.

DEBRIEF & REFLECT (*Identify problems encountered, ask and answer questions, discuss solutions and learning that took place. Did students meet outcomes?*)

(5 minutes)

- Record answers in your science notebooks to the following prompts:
 - What is an **ecosystem**?
 - What role do **producers** play in an **ecosystem**?
 - Have students work in pairs or small groups to recall the words and dance steps for rap 1 and rap 2. Have each student make notes of the dance steps that correspond to each rap. Refer to Diagram #3: Food Chain Rap and Dance Study.
 - How did the rap and dance steps help you to understand the role of producers in an ecosystem?

EXTENSION (*Expectations created by the teacher that encourage students to participate in further research, make connections, and apply understanding and skills previously learned to personal experiences.*)

- Allow students to rehearse raps 1 and 2 throughout the week until they are memorized.
- Introduce raps 3 and 4 so that students are prepared to begin rapping and dancing in lesson #2.
- Continue to take notes on which students perform the rap or dance best.
- Show videotape to students and ask them to observe and make corrections.

Diagram #1 – Food Pyramid

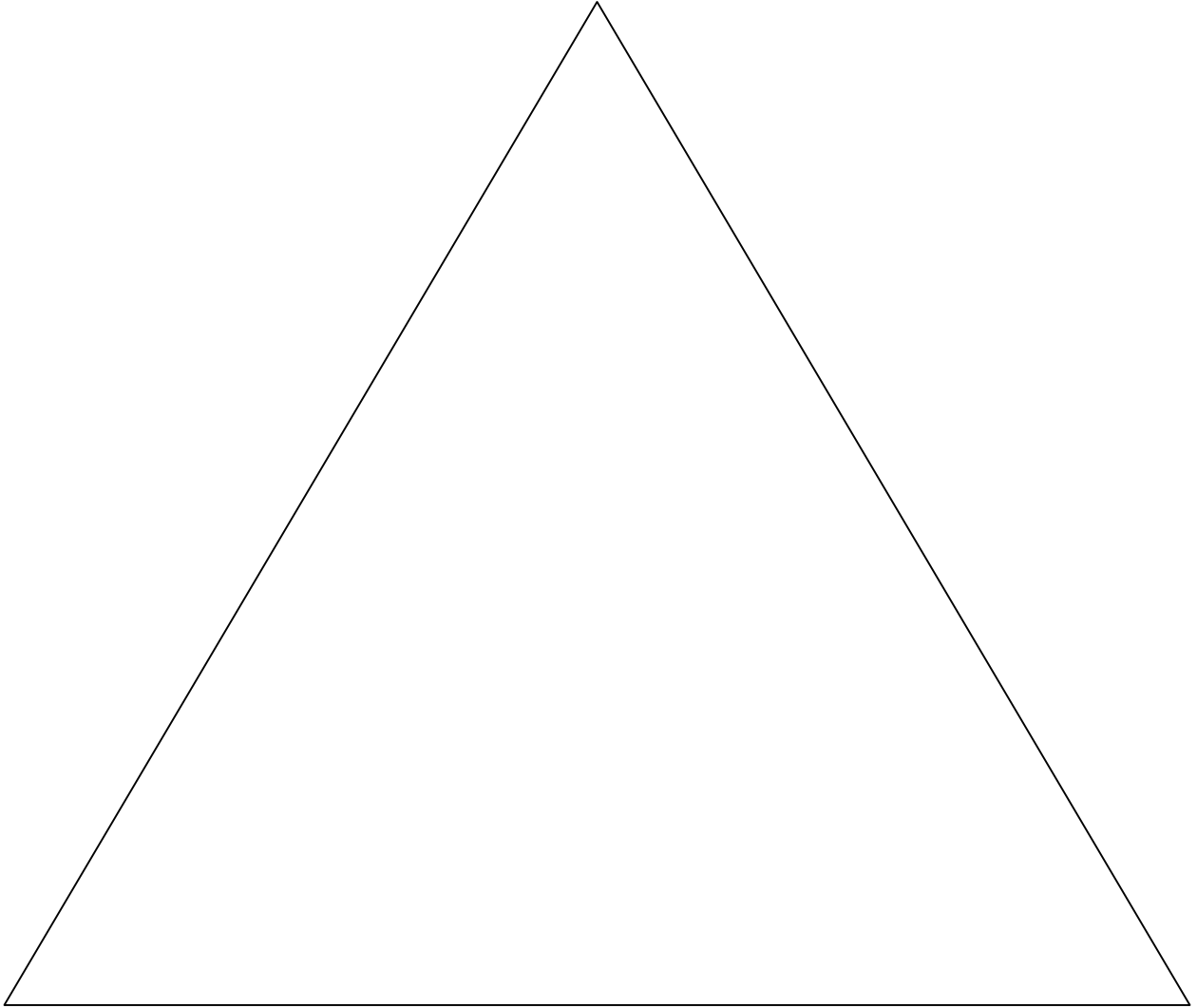


Diagram #2 – Raps

RAP #1

Small as a puddle or large as the sea,
living and non-living **thrive** in harmony.
Animals, plankton, water, soil, air.
Ecosystems are everywhere!

RAP #2

What do **producers** need to make their own food?
Sunlight, water and CO₂.
Algae, grass, plants and vegetables, too.
Producers make, make their own food.