

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

**Everything is Connected!
Decomposers and the Food Chain
Lesson #3**

FOSS California, Grade 4, Environments, Investigation 3, Part 4

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.
- 2.4 Create a dance study that has a beginning, a middle, and an end. Review, revise, and refine.

Science Grade 4

- LS2c** Students know decomposers, including fungi, insects, and microorganisms, recycle matter from dead plants and animals.

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

- What are decomposers and their types in an ecosystem?
- How can I use dance to learn about decomposers and how they relate to an 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, consumers and decomposers in an ecosystem.

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

- **Feedback for Teacher**
 - Student performance
 - Student response to inquiry
 - Performance Rubric – “The Food Chain Dance”
 - Science notebook entries
- **Feedback for Student**
 - Teacher Feedback
 - Peer feedback
 - Performance Rubric – “The Food Chain Dance”

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

- **Bacteria:** Microorganisms that act as decomposers.
- **Decomposer:** An organism that breaks down plant and animal material into simple chemicals. The chemicals can then be reused in the ecosystem.
- **Decomposition:** The process by which organic materials break down through chemical change.

- **Food Chain:** A description of the feeding sequence of one set of organisms in an ecosystem, such as grass seeds, chipmunk, and hawk. Arrows point in the direction of the flow of energy from one organism to another.
- **Food Web:** A description of the feeding relationships between all the organisms in an ecosystem. Arrows show the flow of energy from one organism to another.
- **Fungus:** An organism that lacks chlorophyll and absorbs nutrients from dead or living organisms.

MATERIALS

- CD Player and music
- Food Pyramid Chart (from lesson #1) and markers
- Diagram #1, "Example of a Food Chain and Explanation"
- Diagram #2, Chart of "Rap #4" for overhead.
- Diagram #3, "Food Chain Rap and Dance Study"
- Diagram #4 - Performance Rubric
- Computer with access to youtube
- CD Player and music
- Science notebooks (1/student)

RESOURCES

- *FOSS California, Grade 4, Environments, Investigation 3, Part 4*
- See link for a discussion (p. 6-7) about decomposers by a CSUSB professors @ k12alliance.org/newsletters/Whats_The_Big_Idea_02-11_Web.pdf
- Food Chain: Kids' Corner: <http://www.sheppardsoftware.com/content/animals/kidscorner/foodchain/producersconsumers.htm>
- Food Chain "Totally 3rd Grade", www.totally3rdgrade.com/food_chain.html
- Discuss beatboxing. Refer to Wikipedia <http://en.wikipedia.org/wiki/Beatboxing>
- Show videos at www.youtube.com/watch?v=jLN63bRcY5I or www.youtube.com/watch?v=gM_APUxKVL0 or kids beatboxing at <http://www.youtube.com/watch?v=NeMroBJOxFg> or <http://www.youtube.com/watch?v=334tgZ-So1U>
- "How to do the Cat Daddy", youtube, <http://www.youtube.com/watch?v=vPu4BbB4StI>
- "How to do the Pick-it-up-and-Chuck-it", youtube, <http://www.youtube.com/watch?v=ik21XE5ozeo>

PREPARATION

- Teach *FOSS California, Grade 4, Environments, Investigation 3, Part 4*
- Frontload:
 - 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.
 - Discuss beat boxing. Refer to <http://en.wikipedia.org/wiki/Beatboxing>. Ask for student volunteers who might be able to do a modified beat box while the raps are taking place.
 - Show video(s) of beatboxing at www.youtube.com/watch?v=jLN63bRcY5I; www.youtube.com/watch?v=gM_APUxKVL0; or kids beatboxing at <http://www.youtube.com/watch?v=NeMroBJOxFg> and <http://www.youtube.com/watch?v=334tgZ-So1U>

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

(5 minutes)

- Review Raps 1, 2 and 3 from lessons #1 and 2 with **dance sequences**.
- Say: *Today we will learn part three of our **dance study**. We will learn three more **dance sequences** about **decomposers** and that will complete our **dance study**.*

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

(20 minutes)

- Ask: What is a **decomposer**? [Think, pair share and report answers].
- Say: When animals and plants die, **decomposers** break them down into chemicals and nutrients that enrich the soil. **Fungi** (or mushrooms), **bacteria**, and earthworms are examples of **decomposers**. **Decomposers** are not easy to put into the **food chain**. But are found beside the **food chain** ready to break organisms down when they die. You may have seen mushrooms growing in your or a neighbor's lawn. Those **fungi** are feeding on dead organisms or animal feces. **Fungi** will **decompose** that material into nutrients the grass needs to grow and make its food.
- Review diagram #1 with students. Describe the table and read together the explanation as you point to the appropriate line on the table.
- Teach Rap #4 rhythm:
 - Say (and students repeat): *Dead animals and plants disappear in the ground from microscopic organisms breaking them down. **Decomposing** matter's nutrients are good for the soil. Nothing is wasted. **Decomposers** are loyal. Fungi, bacteria, and earthworms too. **Decomposers** really benefit you. Yeah!*
 - The **Decomposers** Step (The Cat Daddy)
 - Starting with feet apart, shift weight to the left leg and turn one-quarter to face right. Move arms in a circular fashion (like a locomotive's wheels) on beat 1. Shift weight to the right foot and turn one-quarter to face left. Move arms in a circular fashion (beat 2). Shift weight back to the left leg, face right and do a double arm circle while changing level two times to a medium high level and a medium low level (beats 3 and 4). Steps should be done with a bounce.
 - Repeat beats 1-4 on the opposite side of the body. Begin with a right leg weight shift, left leg weight shift, right leg weight shift and two level changes (beats 5 through 8). Repeat two more times for a total of 32 beats.
 - On "Fungi, bacteria..." students will maneuver into a group shape for 16 beats. Create a frozen shape on the word *Yeah!* This ends the dance.
 - Rehearse the movement several times.

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

(20 minutes)

- Arrange students in smaller groups of even numbers and assign each group one rap to perform.
 - Group 1, the producers, should have the largest number of people.
 - Group 2, the consumers, should have a lesser number of people than group 1.
 - The remainder of the class will be the **decomposers**. For best results, place the students in this group who are quick learners (since they have just learned this dance).
- Distribute a rap sheet to each group so students can refer to the words if they have to.
- Post all the raps on the overhead along with **dance sequence** cues
- Say: *You will be rehearsing one part of the **food chain** dance in each of your groups. Select one or two people to say the rap while the rest of you dance (Note: Here you may have already decided and selected who will do the rap). I will give you 10 minutes to work on your rap then we will perform them.*
- Move from group to group checking on progress.
- Groups 1, 2 and 3 will perform in order. When it is each group's turn to perform, they will stand up and do their rap and **dance sequence**. The students who are watching can clap a steady beat, you can tap on a drum, or you can select a student to perform a beat box.
- When group 1 is finished, they will create a motion to introduce the next part of the **dance study**. They will sit down and group 2 will stand and perform. Group 2 will also create an introductory movement to introduce group 3. Group 3 will do the same. Group 4 will end the **dance study** with a frozen shape.
- Videotape each group.

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

(5 minutes)

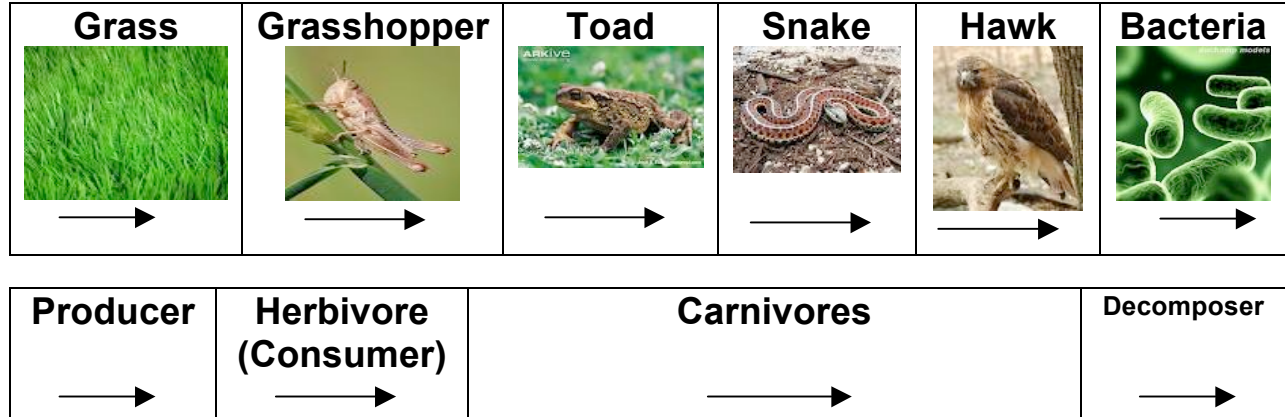
- Record answers in your science notebooks to the following prompts:
 - What are **decomposers**?
 - List three types of **decomposers**?
 - What role do producers, consumers, and **decomposers** play in an ecosystem?
 - Have students work in pairs or small groups to recall the words and dance steps for rap 4. Have each student make notes of the dance steps that correspond to the 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 decomposers 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.*)

- Watch the video. Refer to Diagram #4: Performance Rubric to revise and refine the **dance study** before performing before a live audience.
- Using the wording in diagram #1, create a rap with movement to add to the dance.

Diagram #1
 Example of a Food Chain and Explanation

The table below gives one example of a food chain



Explanation:

The grass is a producer. It makes its own food.

The grasshopper is an herbivore (a consumer) that eats the grass.

The toad is a carnivore (a consumer). It eats the grasshopper.

The snake is also a carnivore (a consumer). It eats the toad.

The hawk is at the top of the food chain and is a carnivore (a consumer).

The hawk eats the snake.

The hawk eventually dies.

The hawk's body is broken down (decomposed) into chemicals and nutrients by the bacteria (decomposer).

These nutrients are absorbed into the soil that helps plants grow.

The process starts all over again!

Diagram #2
Rap #4

Dead animals and plants disappear in the ground,
From microscopic organisms breaking them down.

Decomposing matter's nutrients are good for the
soil.

Nothing is wasted. **Decomposers** are loyal.

Fungi, bacteria, and earthworms, too.

Decomposers really benefit you.

Diagram #3

Food Chain Rap and Dance Study

Rap #	Rap Words	Dance Sequence
1	<p>Small as a puddle or large as the sea, living and non-living thrive in harmony.</p> <p>Animals, plankton, water, soil, air. Ecosystems are everywhere!</p>	<p>The Thrive/Ecosystem Step (down, up, isolate ribs) – 16 beats</p> <p>Repeat 16 beats</p>
2	<p>What do producers need to make their own food? Sunlight, water and CO2.</p> <p>Algae, grass, plants and vegetables, too. Producers make, make their own food.</p>	<p>The Producer's step (step to the side, cross behind) – 16 beats</p> <p>Repeat 16 beats</p>
3	<p>Consumers depend on producers for food. They'll even eat each other for their dinner, dude!</p> <p>Herbivores, carnivores, and omnivores, too. Consumers eat organisms for food.</p>	<p>The Consumers Step (step forward, back, cha-cha-cha) - 16 beats</p> <p>Repeat 16 beats</p>
4	<p>Dead animals and plants disappear in the ground from microscopic organisms breaking them down.</p> <p>Decomposing matter's nutrients are good for the soil. Nothing is wasted. Decomposers are loyal.</p> <p>Fungi, bacteria, and earthworms too. Decomposers really benefit you.</p> <p>Yeah!</p>	<p>Decomposers Step (the Cat Daddy) – 16 beats</p> <p>Repeat 16 beats</p> <p>Move to ending group shape – 16 beats</p> <p>Freeze</p>

Diagram #4 - Performance Rubric

4 – The rap is clearly understood (rhythm, volume and articulation) and the dance sequences are clear and correctly executed. Both the words and the dance sequences are memorized and performed without hesitation. Students need no coaching from the teacher. The group cooperates well together. The dance clearly shows an introduction to the next part of the dance study (groups 1-3), or a frozen shape (group 4) to end the dance study. Students may add “beat box” or other rhythmic sounds.

3 – The rap is understood (volume and articulation) and the dance sequences are recognizably executed. The rap and dance sequences are mostly memorized and may show some hesitation. Students might need to stop, discuss briefly or receive prompting from the teacher as to dance sequence, rhythm of the rap, or coordination. The group cooperates well together. The dance clearly shows an introduction to the next part of the dance study (groups 1-3), or a frozen shape (group 4) to end the dance study.

2 – The rap is mostly understood (volume and articulation) and the dance sequences are identifiable. Students have some difficulty with memorization and may hesitate several times or may even stop and start over. Not all members of the group are fully engaged. The dance does not show a clear introduction or frozen shape.

1 – The rap is not understood and the dance sequences are roughly executed. Vocals and movement is sloppy. The rapper and dancers have difficulty getting through the rap without coaching or stopping and starting. Students do not work well as a team. The dance has no clear ending.

Rap No.	Voice	Dance	Teamwork	Score			
#1 Names:	Memorization Articulation Volume Rhythm	Memorization Correct placement Rhythm	Cooperation Leadership Encouragement	4	3	2	1
#2 Names:	Memorization Articulation Volume Rhythm	Memorization Correct placement Rhythm	Cooperation Leadership Encouragement	4	3	2	1
#3 Names	Memorization Articulation Volume Rhythm	Memorization Correct placement Rhythm	Cooperation Leadership Encouragement	4	3	2	1
#4 Names:	Memorization Articulation Volume Rhythm	Memorization Correct placement Rhythm	Cooperation Leadership Encouragement	4	3	2	1