
# 3rd Grade, Unit 2: Energy in the Desert Lesson Plan

**Driving Question:** How do living things survive in the Sonoran Desert?

**Standard(s):**

- 3.L2U1.7- Develop and use system models to describe the flow of energy from the Sun to and among living organisms.
- 3.L2U1.8 - Construct an argument from evidence that organisms are interdependent.

**Materials:**

- Copies of student handout #1
- Copies of student handout #2 for each group of students or each student
- Copies of student handout #3
- Copies of student handout #4 and student handout #5 (these go together for Evaluate)
- Copy of picture cards (you will use these in Unit 3 as well)

- Envelope for each group with: a sun, two producers, four consumers (mix of carnivores, herbivores, and omnivores) and one decomposer (see suggested groupings in picture cards). These can be laminated so they can be used in the future.
- Slates
- Poster boards from Unit 1 to reference
- Class set of clothes pins (or something similar to attach pictures to clothes)

**Engage:** *Time: 15-20 minutes*

Prior to the start of the lesson draw a sun on the whiteboard or use one of the suns from the print out. Ask students to think-pair-share what they ate for breakfast that morning or what their favorite thing to eat for breakfast is. Make a list of their answers on the board. Ask students, 'Did anyone eat sunlight for breakfast?' Tell students that the energy in everyone's food can be traced back to the sun. They will be exploring how energy is transferred within the Sonoran Desert.

**Explore:** *Time: 30 minutes*

First, teach the students what a food chain is, using the vocab card to introduce. The slidedeck shows a couple of examples to give students an idea of what they need to do

when in groups. You will review the different roles in the ecosystem and students can use their note sheet from Unit 1 if they need a reminder about the roles. Be sure to check for understanding from your students and that they understand that all food chains start with the sun. Place students in groups of 4-5 students. Each group should be given an envelope with a variety of picture cards (use suggested grouping for group success with correct food chains), as well as a copy of student handout #1 and student handout #2. Students will work with their group to create multiple food chains. They will complete a sequence chart for a food chain of three and another of up to six chain links using student handout #2 as a resource. Students will use their slates to draw arrows and place between each picture to show the direction the energy is going. After creating the food chain with pictures and slates, they can copy it onto their student handout and identify each plant/animal as a producer, consumer (herbivore, carnivore, and omnivore), or decomposer. Their food chain should always start with the sun. Before letting students work, be sure to emphasize that the arrow points to where the energy is going and not what is eating what. When students are finished, have students come back to the whole group and share some of their food chains and discuss what they noticed and wonder. Add any new wonders on the wonder wall.

If there is time, students can work together with another group to create a longer food chain.

**Explain:** *Time: 20 minutes*

You will be explaining to the students how a food web is a model of intersecting food chains. Have students look at the food web in the slidedeck and think about why the arrows are different colors. You will introduce some new vocabulary (primary consumer, secondary consumer, apex predator) to help them understand the flow of energy through the food chain. You will also explain the interdependence of animals and plants in the Sonoran Desert and how they depend on each other for survival. Pass out student handout #3 to students to complete as a pair.

**Elaborate:** *Time: 30 minutes*

Use Sonoran Desert pictures and have students clothespin one picture each to the front of their shirts. Tell the students that they will make a food web. Have them stand in a circle and introduce themselves as the plant or animal they represent and their level in the food chain (producer, consumer, decomposer). The student with the sun picture should stand in the center. Direct the students to look around at the pictures and ask

themselves: Who in the circle could I give my energy to? (Who might eat me?) Who in the circle could give me energy? (Whom could I eat?)

Explain that the ball of yarn represents sunbeams, or energy from the sun. Ask the students representing the sun to hold the end of the yarn tightly and toss the ball to someone who can use that energy (a plant). When a student representing the plant catches the ball of yarn, they should hold a piece of the yarn and throw the ball to someone else who could use the energy. For example, the sun might throw the yarn to the grass, the grass to the Jackrabbit, and the Jackrabbit to the Red-tailed Hawk. After the yarn reaches a carnivore, break it off to represent one food chain. Ask students how all these other plants and animals get the energy they need? (Through different food chains.) Return the yarn to the sun to start another chain. Continue making chains until every student holds at least one strand of yarn. Some students may be holding multiple strands of yarn. Below are some questions to ask students to have a discussion about what they just did before they let go of the yarn.

**Ask:**

What does each strand of yarn stand for? (food chains)

What do all our food chains together look like? (A food web)

What is the difference between a food chain and a food web? (A food web is made up of several food chains. A web is more complicated than a chain because it has connections among the chains.)

Who is holding the most pieces of yarn? (The sun)

Why? (Because each food chain starts with the sun)

Who else is part of many food chains? (plants)

What would happen if all the plants died? (Nothing else in the food web could survive.) Why?

**Evaluate:** *Time: 10-15 minutes*

Pass out student handout #4. Students will be responding to a claim about what would happen if a specific Sonoran Desert plant was removed from the ecosystem. They will look at the provided food web and construct an argument about what changes would happen in the ecosystem if it were removed. When they finish, they can color the arrows based on what type of consumer the energy is going to. (herbivore=yellow, omnivore=orange, carnivore=red)