

Grade Level: 6

Science Concept: This lesson is aimed at helping students understand how energy can flow through an ecosystem through interactions between different organisms (producers and consumers). These relationships can be represented by a food web.

Relationship to California Science Content Standards:

5. a. Students know energy entering ecosystems as sunlight is transferred by producers into chemical energy through photosynthesis and then from organism to organism through food webs.

Learning Objective:

Students will work in groups to create an illustrated and labeled food web with organisms of their choosing. Students will label the sun, producers, consumers, and decomposers on their food webs.

Evaluation Ideas:

1. formative:

a) I will walk around to different groups while they work on their food webs and ask questions to gauge their understanding.

b) I will walk around to different groups while they work on their food webs and assess their illustrations and labels.

2. summative:

a) In a two-minute presentation, students will describe the flow of energy through their food web and identify the different components and the roles played by each.

b) Students will write a paragraph detailing the flow of energy through the food web that they created.

Conceptual Background:

Plants convert sunlight into energy through a process called photosynthesis. Plants are called producers because they can produce their own energy. Animals that gain energy from eating other organisms are called consumers. When plants and animals die, their bodies are broken down by organisms called decomposers. Many decomposers, such as bacteria, are microscopic and cannot be seen without a microscope. Others, such as fungi and flies, are not microscopic.

Energy flows through an ecosystem through a complex network of relationships between producers, consumers, and decomposers.

Lesson Implementation Plan: This lesson is designed as a collaborative effort with groups of four students working together. Students will work together to create a thorough food web.

Engage- I will show the students the Chilean Rose tarantula and give them basic information about it. I will then ask the students questions about what it eats and what its natural predators might be. I will use their suggestions to draw a food web for them to observe and ask questions about. After a brief discussion about food webs, I will put students into groups of four and have them create their own food webs with animals of their choosing.

EXPLORE – Drawing from my illustration, students will discuss and ask questions about the concept of a food web and how it applies to the tarantula. Afterward, groups of four students will illustrate their own food web with organisms of their choosing. While students are working, I will circulate around the room to answer questions and guide inquiry.

EXPLAIN – Each group will briefly present their work to the rest of the class, highlighting each organism's role in the food web and its relationship to other organisms on the food web. Groups will

also discuss where on the poster a tarantula might be placed (if appropriate). I will facilitate the discussion, adding comments and asking guiding questions, until the class as a whole can articulate an understanding of a food web.

ELABORATE – I will elaborate on learning the same concepts by discussing the importance of the interdependence of organisms in maintaining a stable food web. I will facilitate a class discussion on the implications that any one species has (i.e. tarantula) on promoting the survival of all other species in the food web. I will address that food webs are universal and apply to all ecosystems.

EVALUATE –

formative – I will assess students' understanding of a food web by asking them questions while they create their own food webs.

summative – I will assess students by the content of their food webs. Food webs should include illustrated organisms that are clearly labeled as producers, consumers, and decomposers.

DIFFERENTIATION PLANS:

Behavioral for Student A – Place student with behavioral deficit (ADHD) in a group of students who have high levels of self-regulation.

Cognitive for Student B – Place student with cognitive difficulties in a group of students who are competent readers.

Cognitive for Student C – Provide student with cognitive difficulties with additional explicit instruction.

Affective for Student D – Provide student with high irritability with a sense of empathy and social support during the activity.

Language Demands for Student E – Provide English learners with additional time for group presentation.

Language Demands for Student F- Provide English learners with extra scaffolding in the form of clarifying questions and minor linguistic corrections when necessary.

Language Demands for Student G- Seat English learners at the front of the class so that you can provide them with extra attention and scaffolding.