Name KEY _____ Class _____ Date _____

3.2 Energy, Producers, and Consumers

Lesson Objectives

- Define primary producers.
- Describe how consumers obtain energy and nutrients.

Lesson Summary

Primary Producers Sunlight is the main energy source for life on Earth. Organisms that can capture energy from sunlight or chemicals and use that energy to produce food are called **autotrophs**, or **primary producers**.

- The process in which autotrophs capture light energy and use it to convert carbon dioxide and water into oxygen and sugars is called **photosynthesis**.
- The process in which autotrophs use chemical energy to produce carbohydrates is called **chemosynthesis**.

Consumers Organisms that rely on other organisms for their energy and food are called **heterotrophs**. Heterotrophs are also referred to as consumers. There are many different types of heterotrophs:

- **Herbivores**, such as cows, obtain energy by eating only plants.
- **Carnivores**, such as snakes, eat only animals.
- **Omnivores**, such as humans, eat both plants and animals.
- **Detritivores**, such as earthworms, feed on dead matter.
- **Decomposers**, such as fungi, break down organic matter.
- **Scavengers**, such as vultures, consume the carcasses of other animals.

Primary Producers

1. What do autotrophs do during photosynthesis?

Use light energy to convert inorganic molecules (water and carbon dioxide) into Energy rich carbohydrates like glucose.

2. Can some organisms survive without energy from the sun? Explain your answer.

YES. We call them chemotrophs/chemoautotroph.

3. Can organisms create their own energy? Explain your answer.

No. Producers use energy from the sun. Heterotrophs must consume energy from other organisims

Consumers

4. Complete the table about types of heterotrophs.

Types of Heterotrophs		
Type	**Definition**	**Examples**
Herbivore	**Heterotroph that obtains energy by eating plants only.**	cows, rabbits
Carnivore	Heterotroph that eats animals	**Snakes, owls, bears**
Omnivore	**Heterotrophs that eat plants and animals**	humans, bears, pigs
Detritivore	**Heterotroph that feeds on Detritus**.	**Earthworms, mites, snails**
Decomposer	**Heterotroph that breaks down organic matter**	Bacteria, fungi
Scavenger	Heterotroph that consumes the carcasses of dead animals but does not typically kill them itself	**Vulture, Hyena**

5. What is a consumer?

An organism that relies on other organisms for energy and nutrients.

6. How would you categorize a consumer that usually catches and eats prey, but also eats dead animal carcasses? **Carnivore**

Apply the Big idea

7. What role do producers play in establishing Earth as a living planet?

Producers have that ability to use light energy and inorganic material and convert them into carbohydrates. This is the basis of every food chain/web, which provides all life on Earth with usable energy, and therefore enables organisms to exist on planet Earth.