

# Living Systems

## INVESTIGATIONS GUIDE



## Investigation 1 - Systems

### PART 4: Recycling

NGSS Standards:

5-PS3-1  
5-LS2-1  
5-ESS2-1

4 sessions



## LIVING SYSTEMS—*Investigation 1, Part 4*

### *Investigation 1, Part 4:* **Recycling**



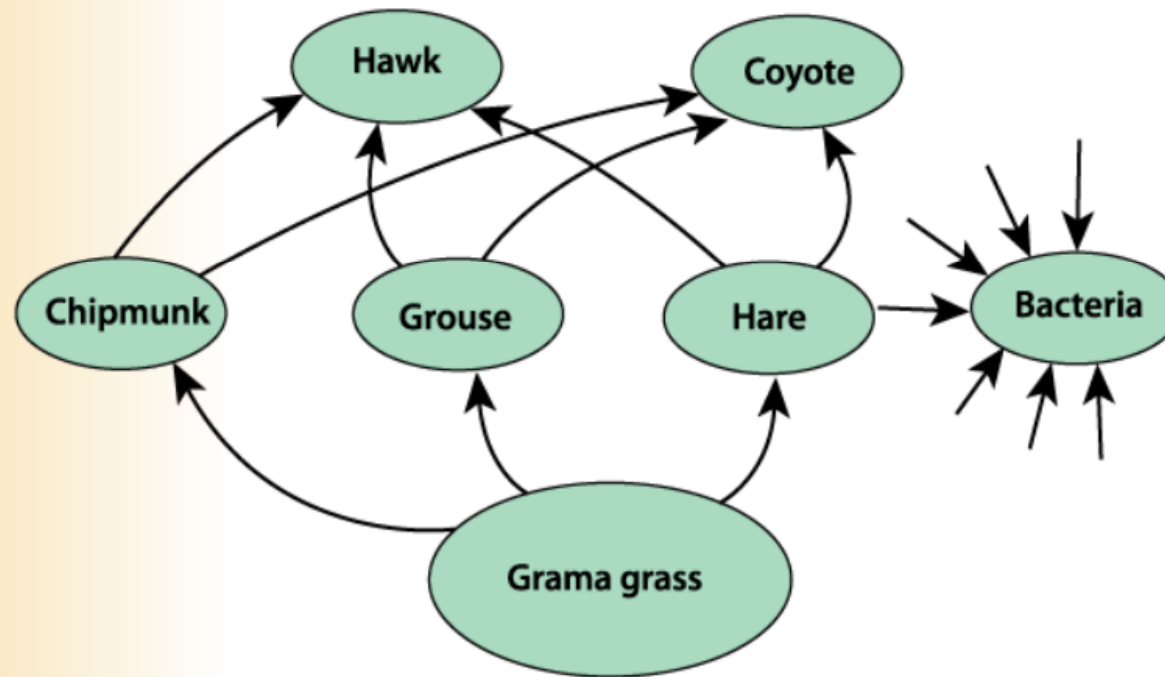
**FOCUS**

**What happens when compost worms interact with organic litter?**

# Reviewing Food Webs



Which organisms in this woods ecosystem food web are producers, which are consumers, and which are decomposers?



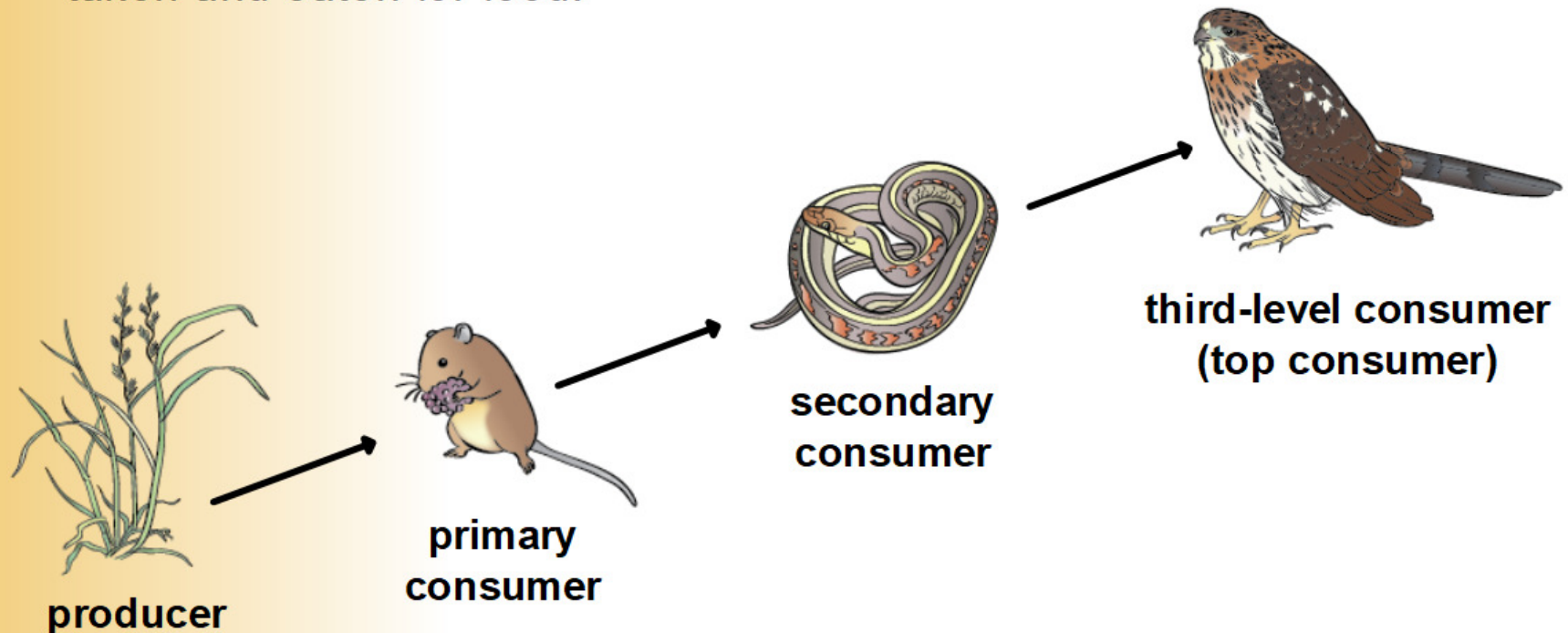
Why do animals eat other organisms?

**NOTES:** Most food webs start with plants. Because plants make their own food, using energy from the Sun, they are called **producers**.

# Consumers



- Animals that eat plants only are primary consumers.
- Animals that eat primary consumer animals are secondary consumers.
- Animals that eat plants and animals are third-level consumers.
- Animals at the top of the food web are top consumers. They are rarely taken and eaten for food.



**NOTES:** Animals can't make their own food, so they get their food by eating producers or other animals. Animals are **consumers**.



# Decomposers



What happens to the system when the top consumers and individual members of other food levels are not eaten?

What happens to organisms that are not eaten by other animals when the organisms die?

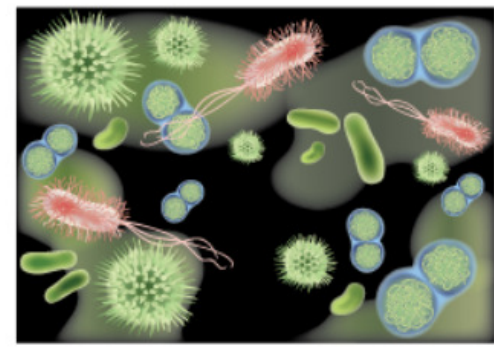


The organisms that clean up the ecosystem are called decomposers. There are two groups of decomposers:

## Grinders



## Finishers

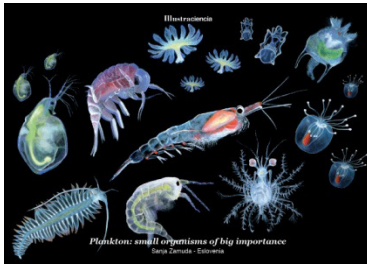


**NOTES:** The organisms that clean up the ecosystem are called **decomposers**. Decomposers consume all the waste and dead plant and animal material in an ecosystem.

# Producers, Consumers, Scavengers, Decomposers



**Producers** (*grass, plants, trees, plants*)  
*Organisms that make their own food*



**Primary Producers (1<sup>st</sup>)** (*plankton and algae*)  
*The main producers in oceans and lakes  
created by photosynthesis*



## Types of Consumers:



**Herbivores:** *consumers that eat ONLY plants*

**Carnivores:** *consumers that eat ONLY animals*



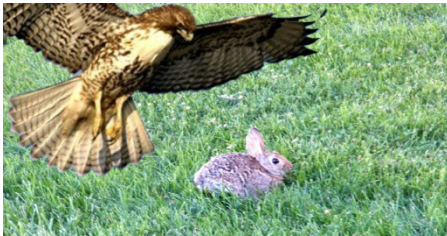
**Omnivores:** *consumers that BOTH plants & animals*

# Producers, Consumers, Scavengers, Decomposers

## Order of Consumers:



**Primary Consumers (1<sup>st</sup>):** *herbivores, consumers that eat plants*



**Secondary Consumers (2<sup>nd</sup>) :** *carnivores, animals that eat plant-eating animals*



**Tertiary Consumers (3<sup>rd</sup>):** *carnivores, animals that eat meat-eating animals*



**Scavengers:** *animals that eat dead organisms*



# Producers, Consumers, Scavengers, Decomposers



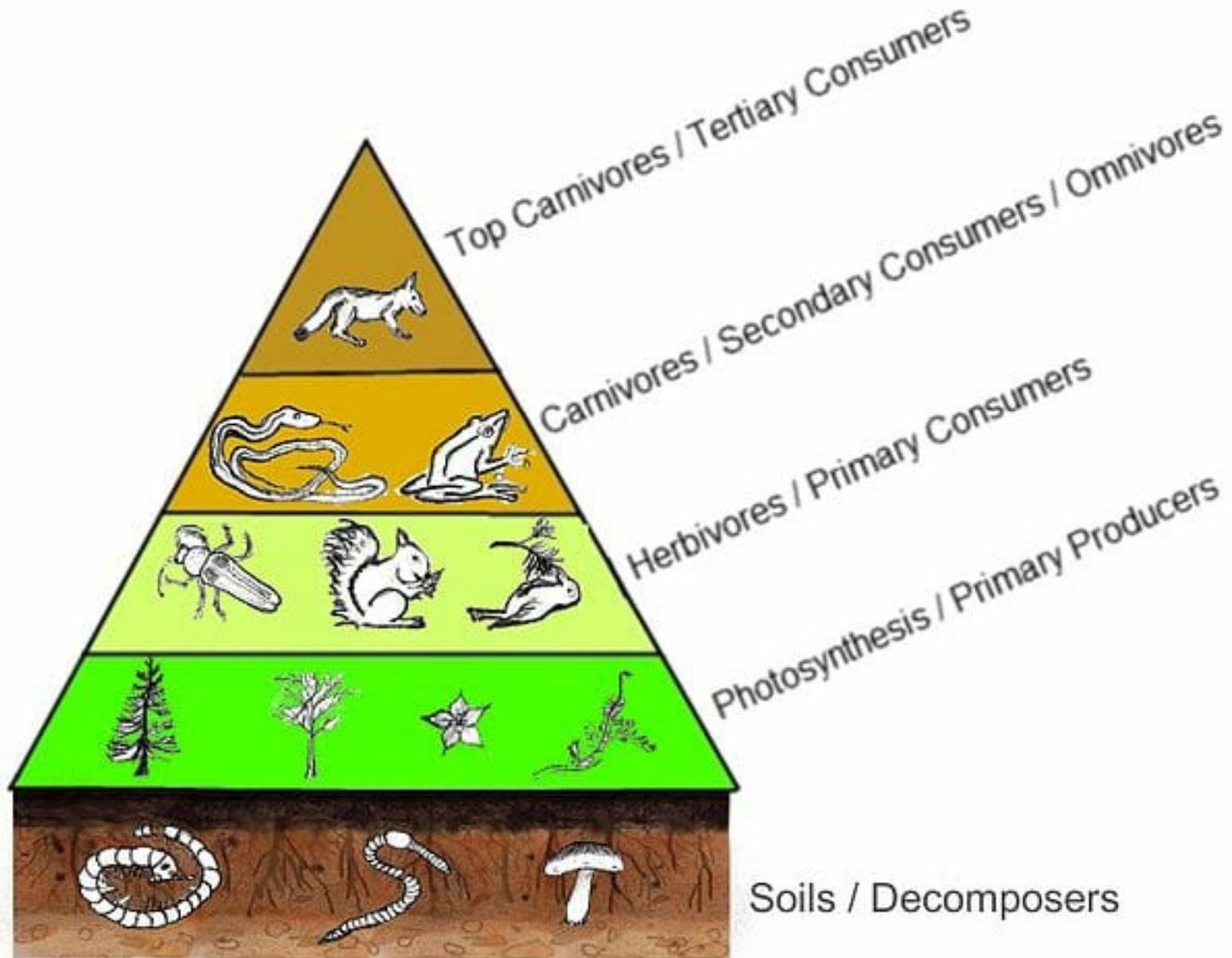
## Decomposers:

*Organisms that break down the wastes or remains of other organisms*





# Producers, Consumers, Scavengers, Decomposers



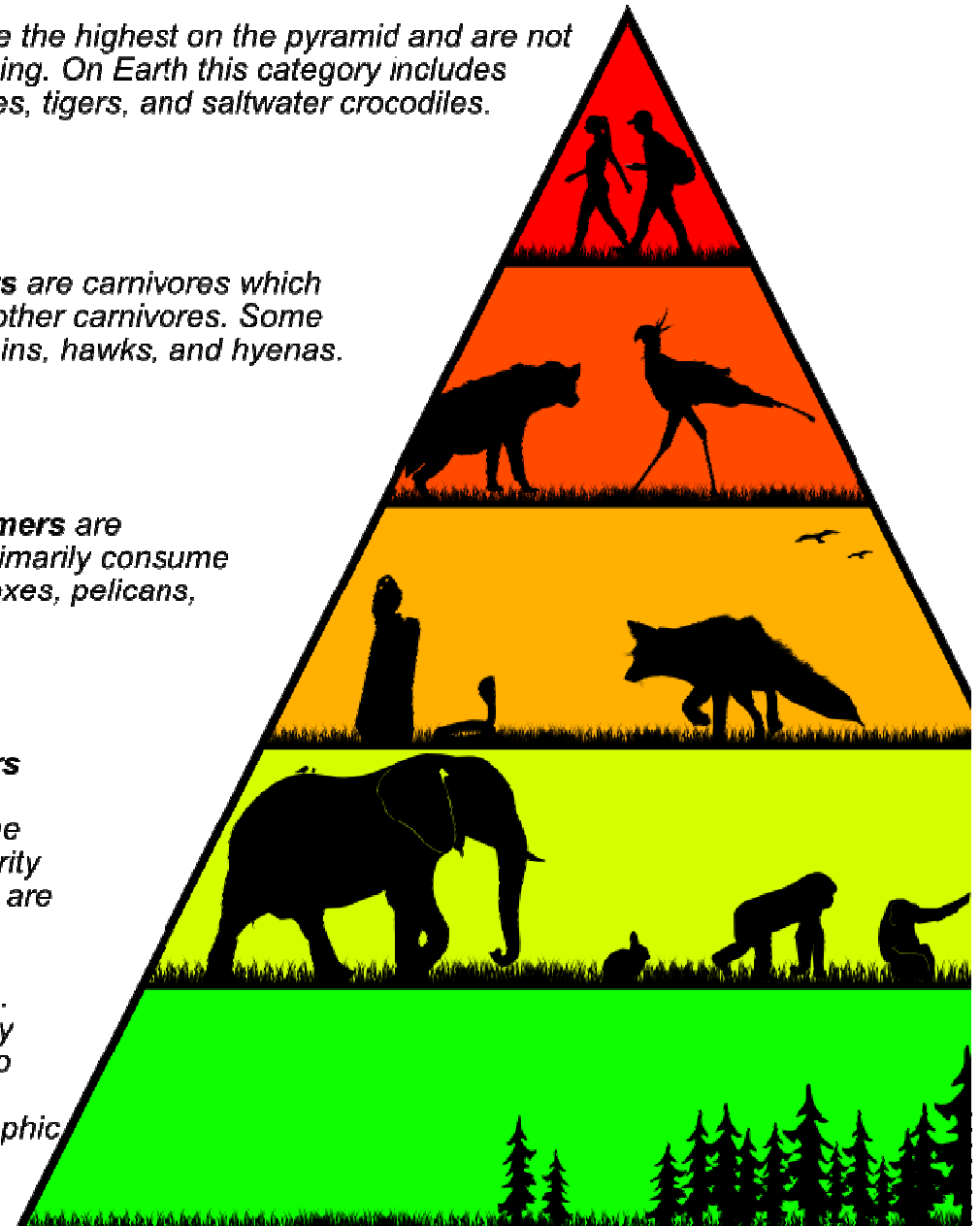
# Producers, Consumers, Scavengers, Decomposers

**Apex predators** are the highest on the pyramid and are not consumed by anything. On Earth this category includes humans, orca whales, tigers, and saltwater crocodiles.

**Tertiary consumers** are carnivores which primarily consume other carnivores. Some examples are dolphins, hawks, and hyenas.

**Secondary consumers** are carnivores which primarily consume herbivores. Think foxes, pelicans, snakes.

**Primary consumers** are herbivores. Percentage wise, the overwhelming majority of animals on Earth are primary consumers (ants, rabbits, phytoplankton, etc.). They convert energy from **producers** into energy that the remainder of the trophic levels consume.

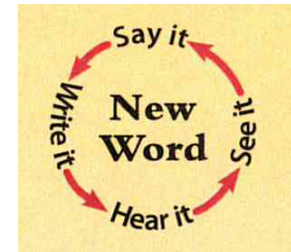


# Compost Worms

**Compost** worms live in the ecosystem in the space between the soil's surface and the top of the layer of leaf litter.



"Compost" is decaying organic material.



What happens when compost worms interact with **organic** litter?



**NOTES:** "Organic" means from living or once living organisms. Example: Newspaper is nonliving but was derived from trees that were once living, so it is organic!