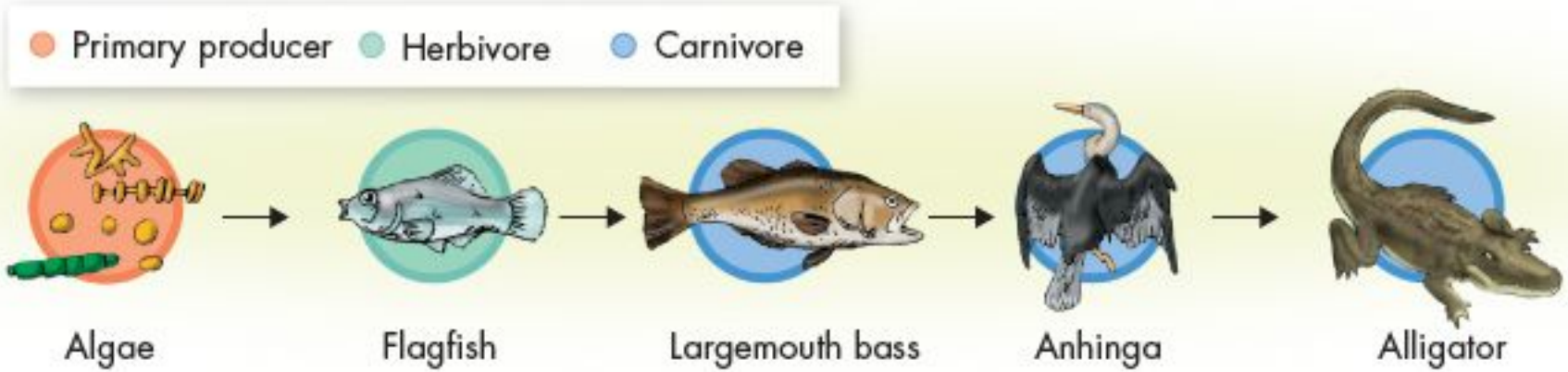
Food Chains and Food Webs

Food Chains

- A **food chain** is a series of steps in which organisms **transfer energy** by eating and being eaten.
- A **food chain** describes the **feeding relationships within an ecosystem**.



Food Chains

Draw an example of a **terrestrial food chain** that contains at least 4 organisms.

Food Chains

Draw an example of an **aquatic food chain** that contains at least 4 organisms.

Food Chains

<u>Draw</u> your terrestrial and aquatic food chains in your notes.

<u>Label</u> the organism using the following guide:

a. primary producer or consumer

b. photosynthetic, chemosynthetic, herbivore, carnivore, omnivore, decomposer, detritivore, scavenger

Food Chains

What is the ultimate source of energy in your terrestrial food chain?

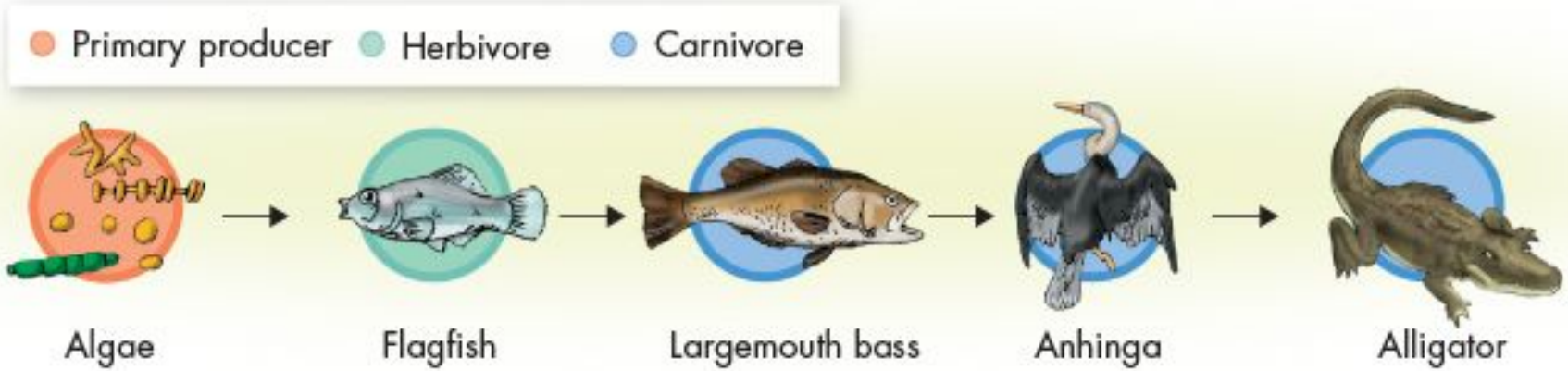
Food Chains

What is the ultimate source of energy in your aquatic food chain?

Students, write your response!

Food Chains

- The ultimate source of energy in most food chains is **sunlight**.
- Some food chains get energy from **chemicals**.



Food Chains

How does energy get into your terrestrial food chain?

Students, write your response!

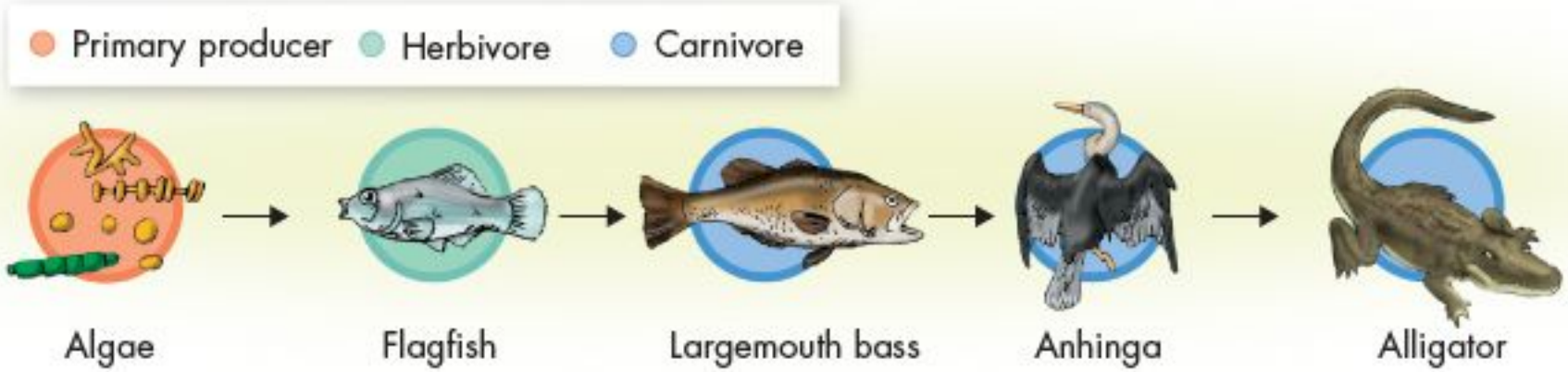
Food Chains

How does energy get into your aquatic food chain?

Students, write your response!

Food Chains

- **Primary producers** are at the base of every food chain.
- Energy enters the food chain either by **photosynthesis** or **chemosynthesis**.



Energy flows through an ecosystem in a one-way stream.

What does that mean?

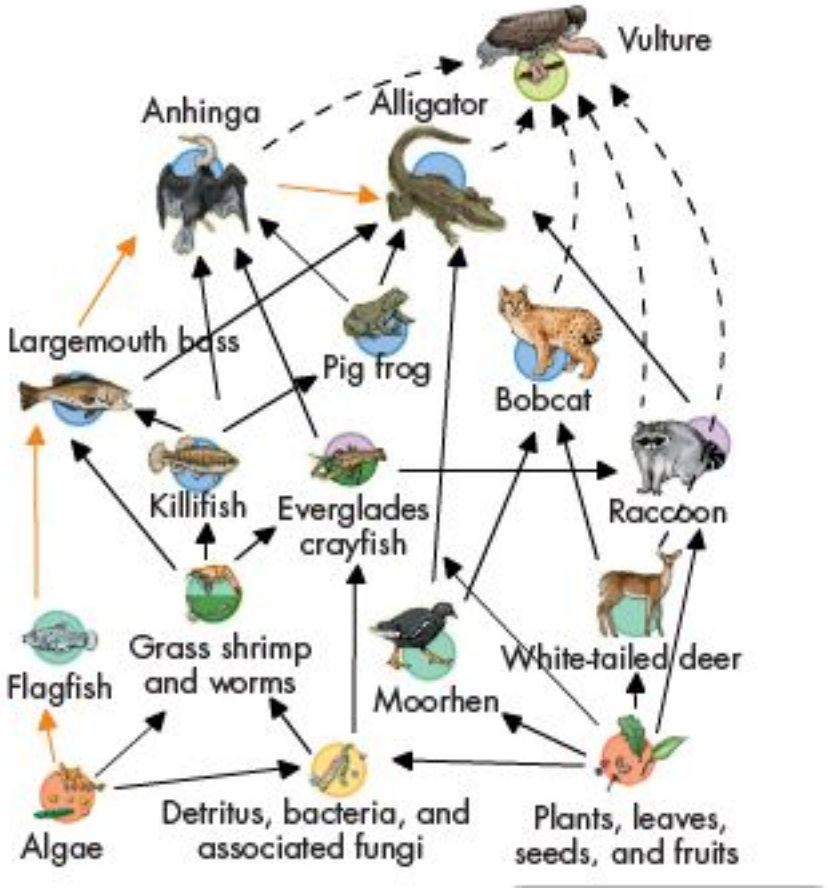
Students, write your response!

Energy flows through an ecosystem in a one-way stream.

Energy flows through a food chain from **primary producers** to various **consumers**.

Food Webs

- A **food web** is a network of all the food chains in an ecosystem.
- A food web is the **linking together of all the food chains in an ecosystem**.
- Food webs are very complex.

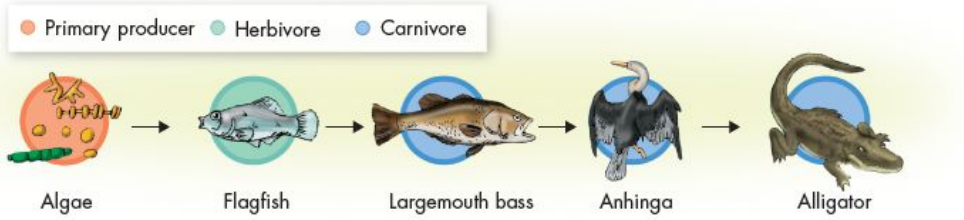


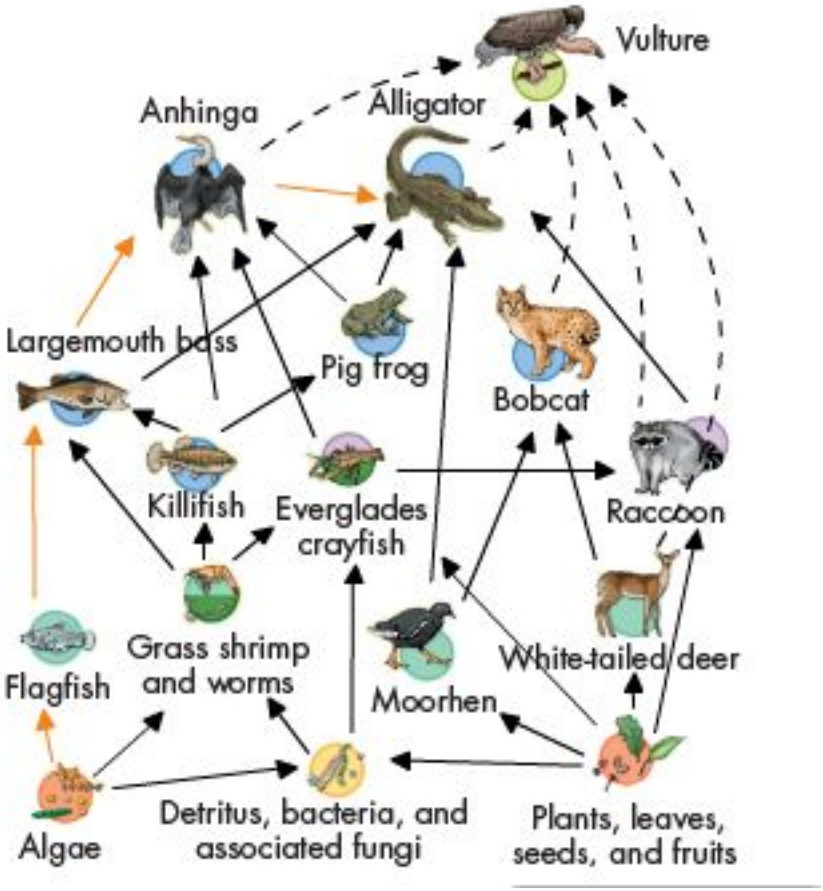
Food Web in the Everglades

Food Webs

- Identify 2 food chains that are part of this food web.

- Example:

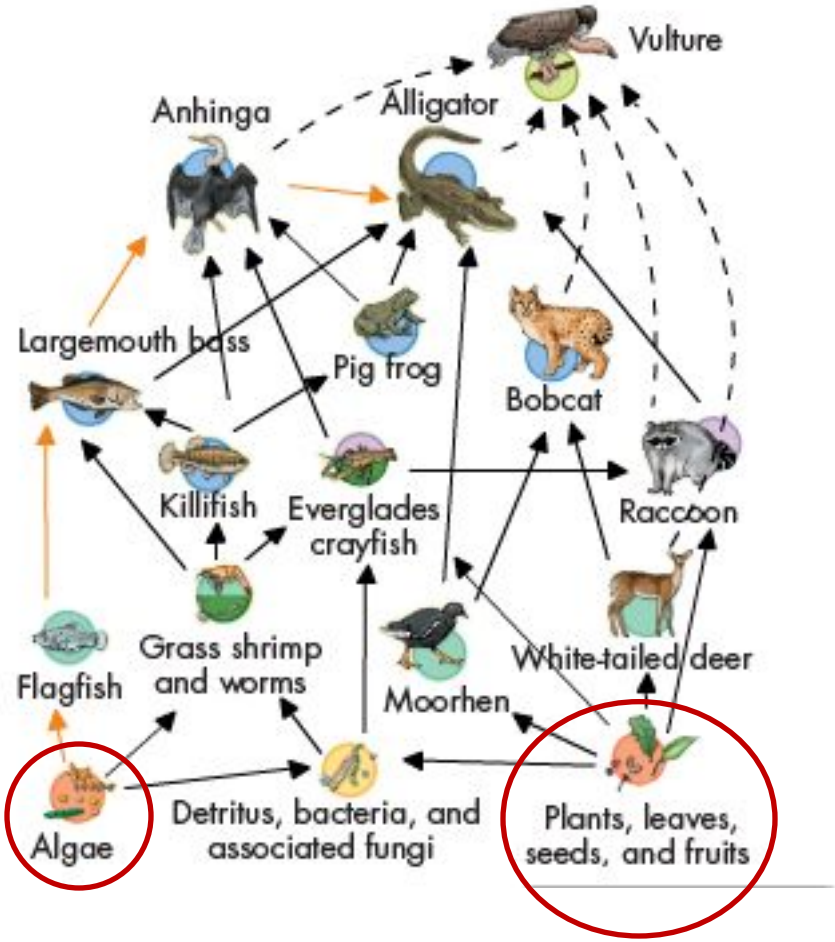




Food Web in the Everglades

Decomposers and Detritivores in Food Webs

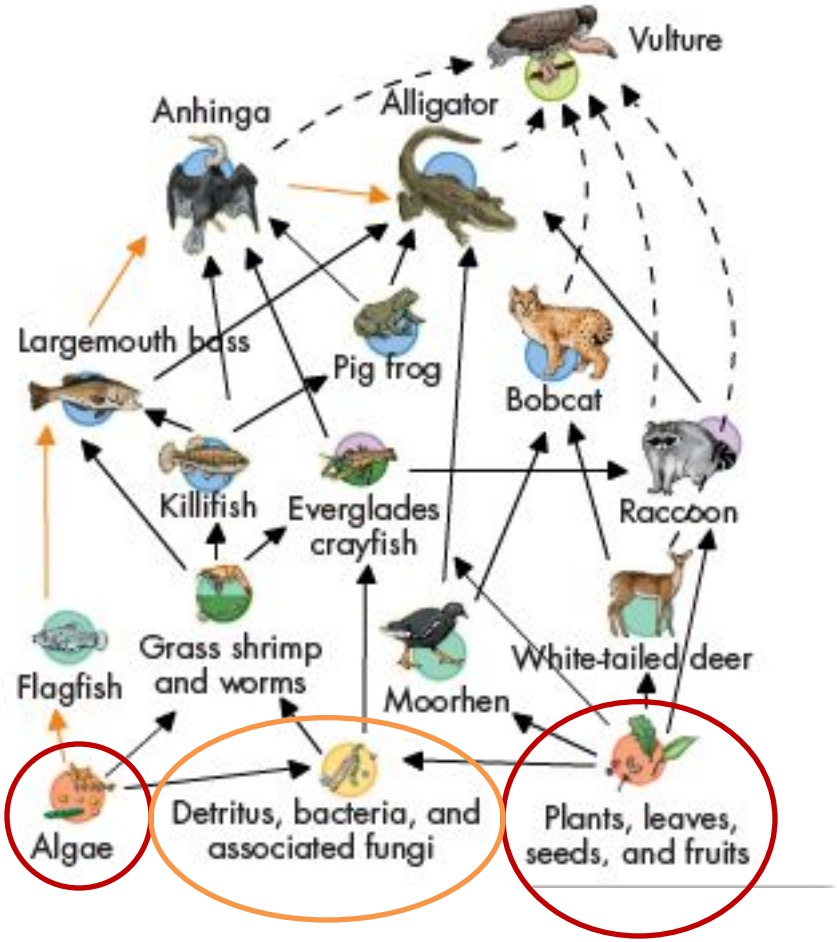
- Most producers die without being eaten.



Food Web in the Everglades

Decomposers and Detritivores in Food Webs

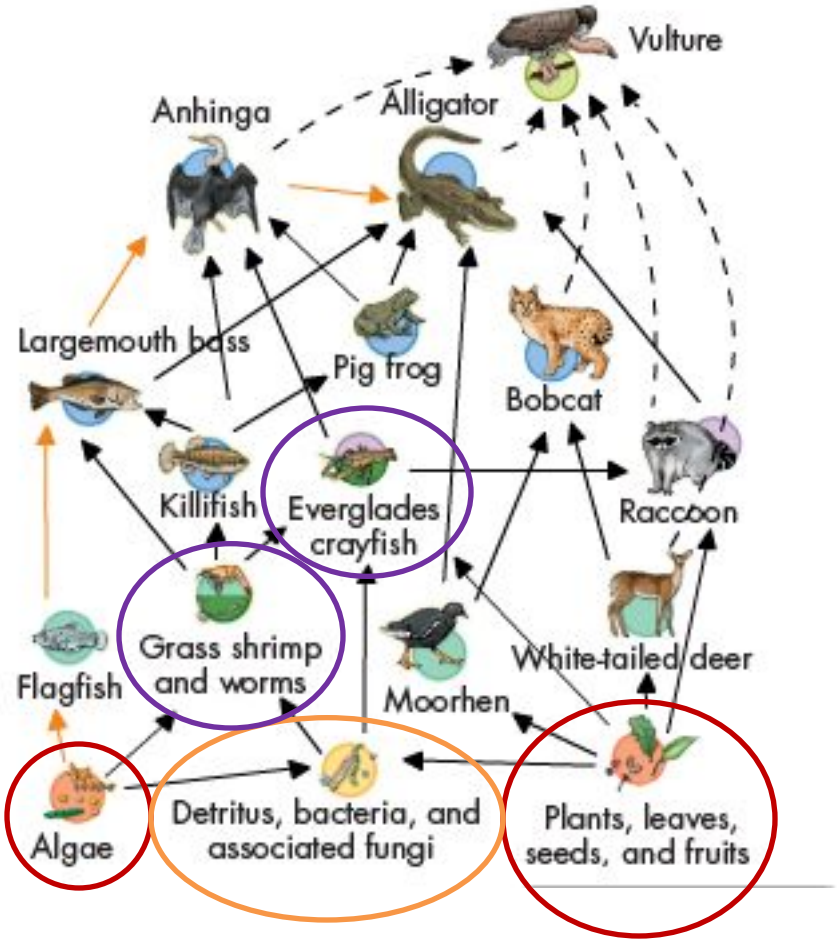
- Most producers die without being eaten.
- In the detritus pathway, decomposers convert that dead material to detritus.



Food Web in the Everglades

Decomposers and Detritivores in Food Webs

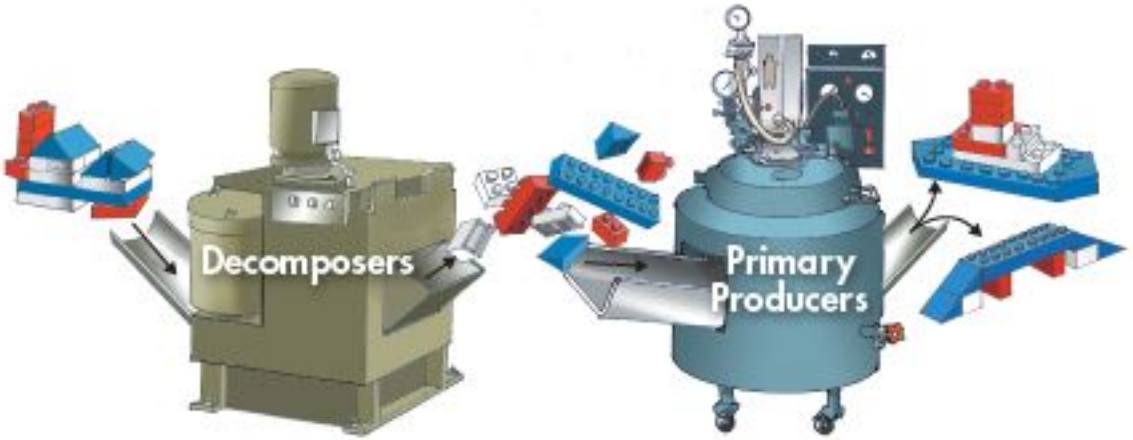
- Most producers die without being eaten.
- In the detritus pathway, decomposers convert that dead material to detritus.
- Detritivores feed upon the detritus.



Food Web in the Everglades

Decomposers and Detritivores in Food Webs

- **Decomposition** releases **nutrients** that can be reused by **primary producers**.
- Without decomposers, **nutrients would remain locked in dead organisms**.
- **Decomposers = Recycling Center**



Food Webs

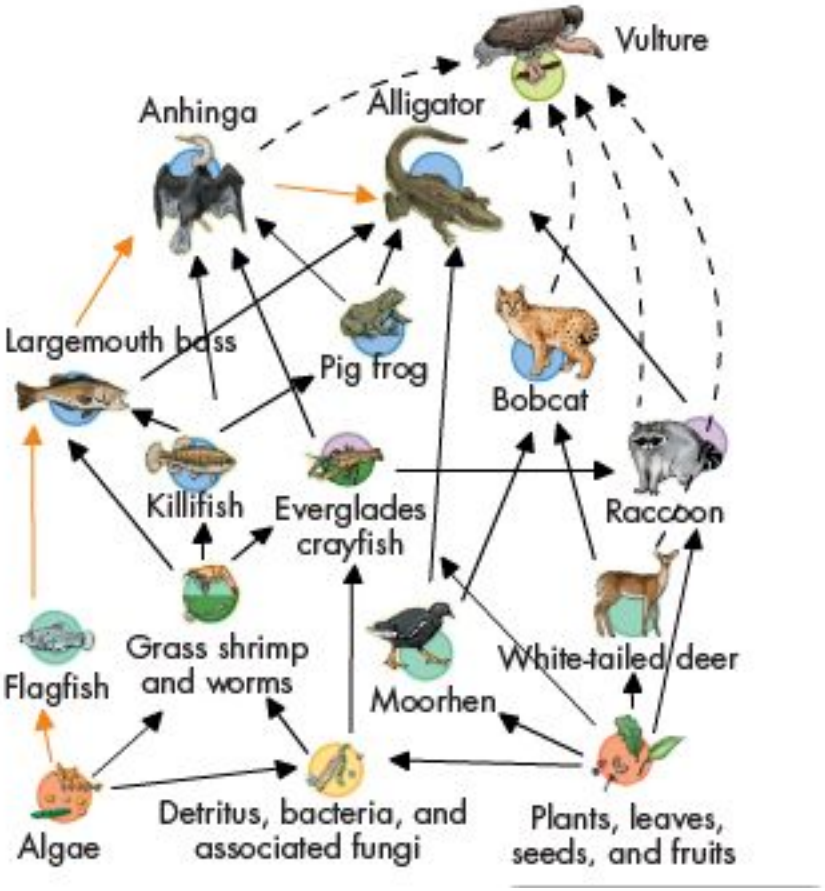
Why is a food web a more accurate representation of the feeding relationships in an ecosystem than a food chain?

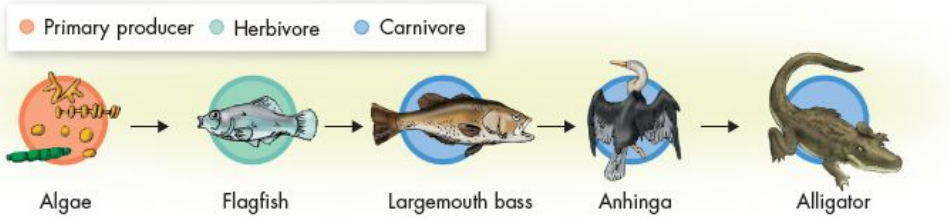
Food Webs - Ecological Models

An organism is rarely food for or feeds on just one other organism; therefore, a food web **shows the many different feeding relationships that exist between organisms in an ecosystem**.

Food Webs - Ecological Models

What type of predictions could be made using a food chain or food web?

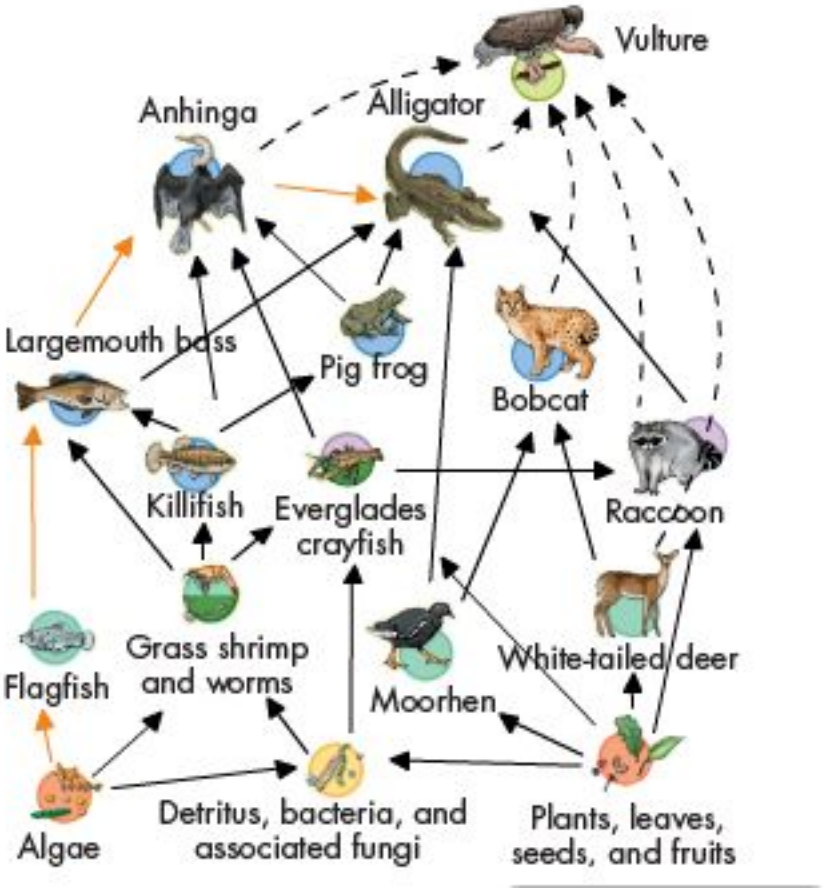


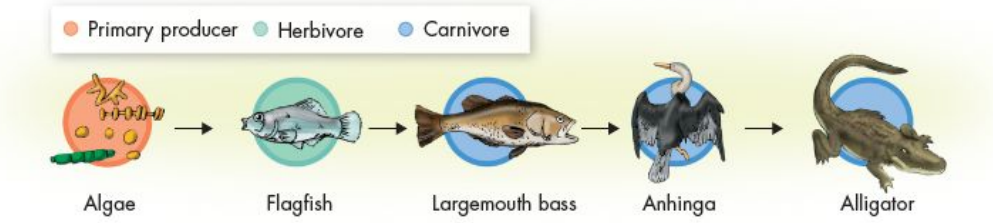


Ecological Models

What type of predictions could be made using a food chain or food web?

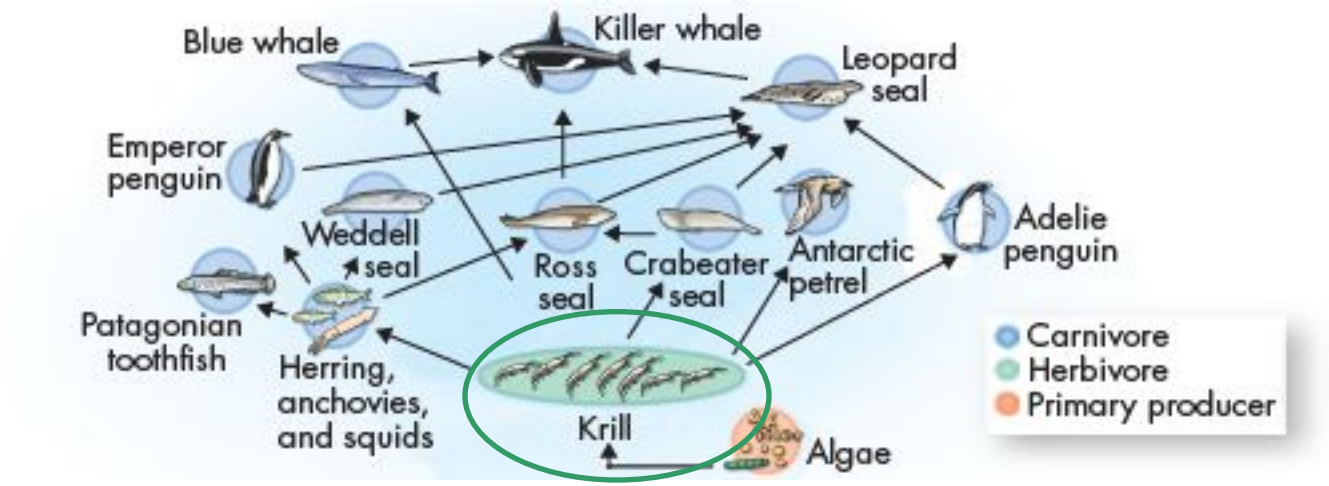
Predictions about how a population will **respond to disturbances (changes)** in the food web can be made.





Food Webs and Disturbance

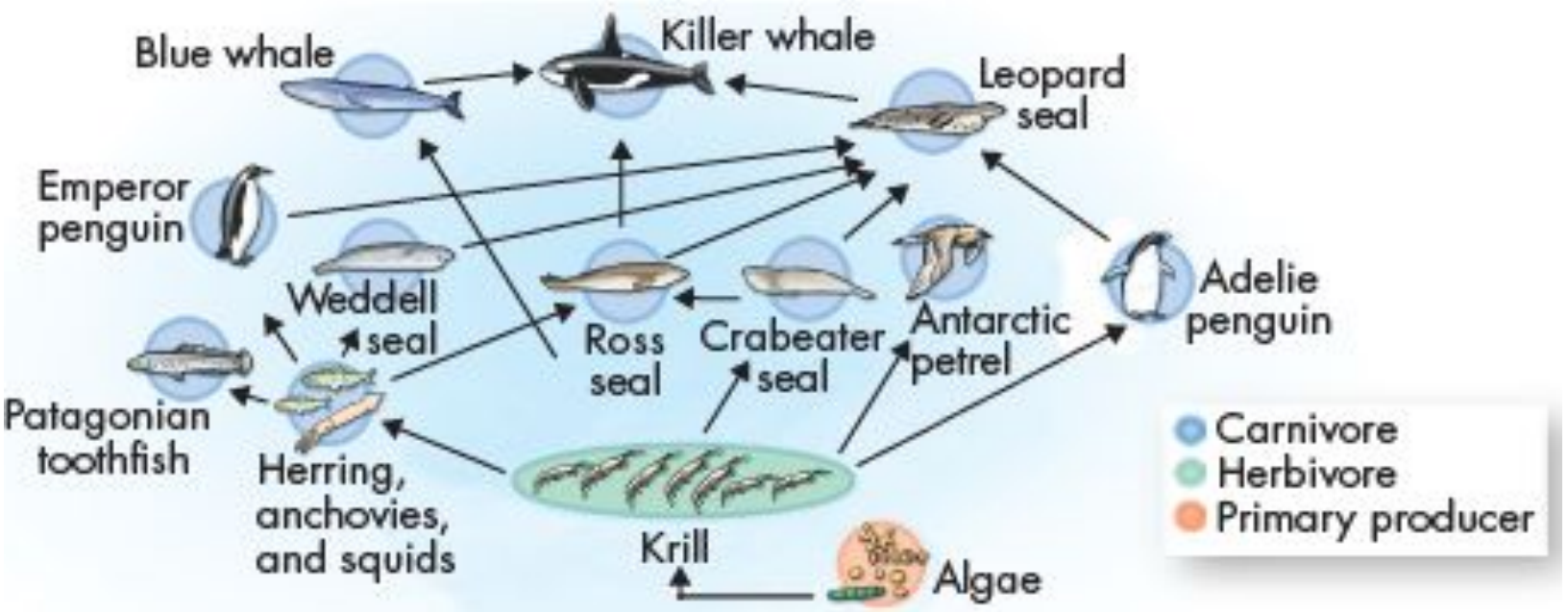
- Small disturbances to one population can affect **all populations in a food web**.



- Example: Changes in a krill population can affect all of the animals in a marine food web.

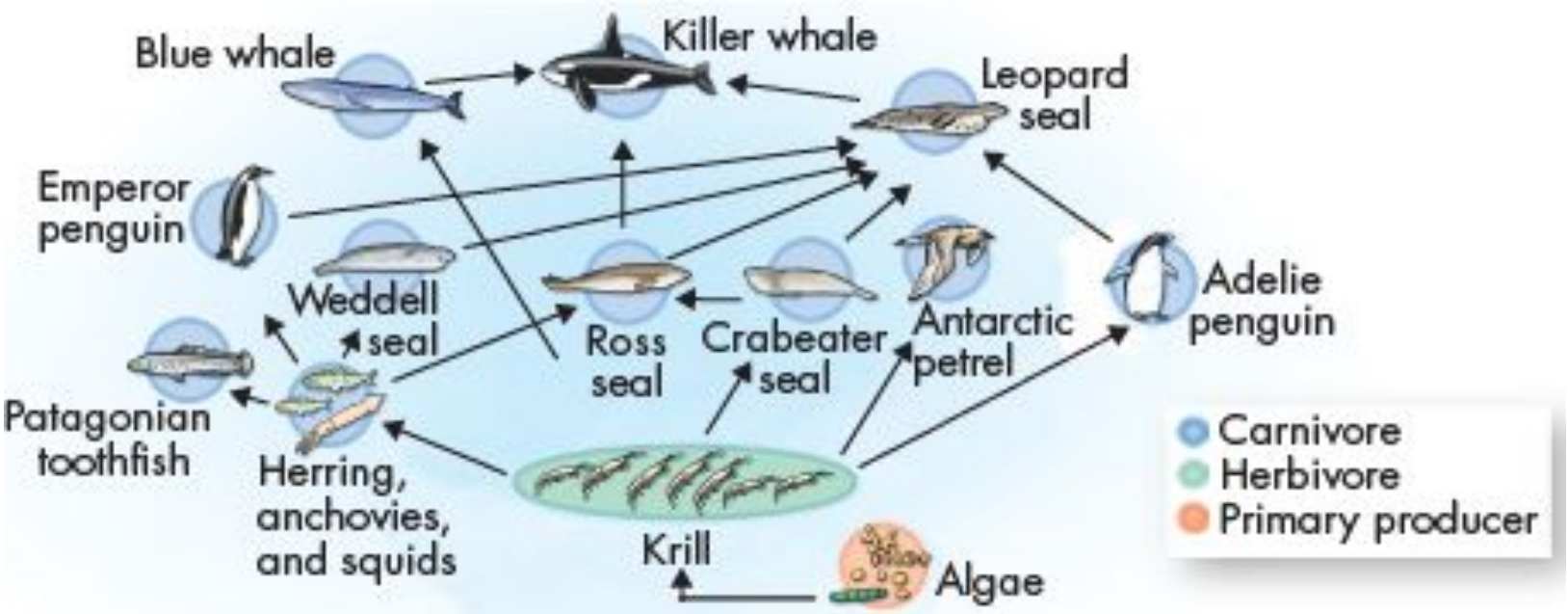
Food Webs and Disturbance

- **How might an increase in the herring population affect the emperor penguin population?**



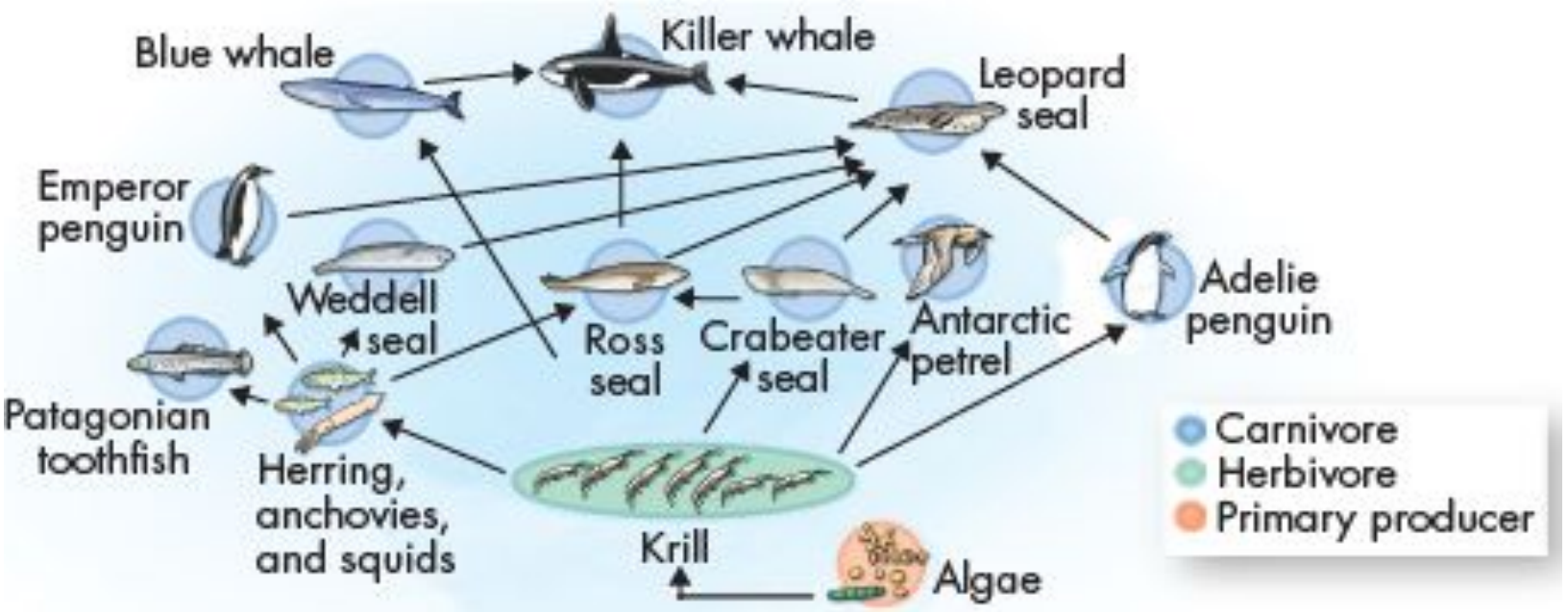
Food Webs and Disturbance

- **Suppose the killer whale population is significantly reduced by disease. How might this affect the leopard seal population?**



Food Webs and Disturbance

- **What do ecologists mean when they say that killer whales indirectly depend on krill for survival?**



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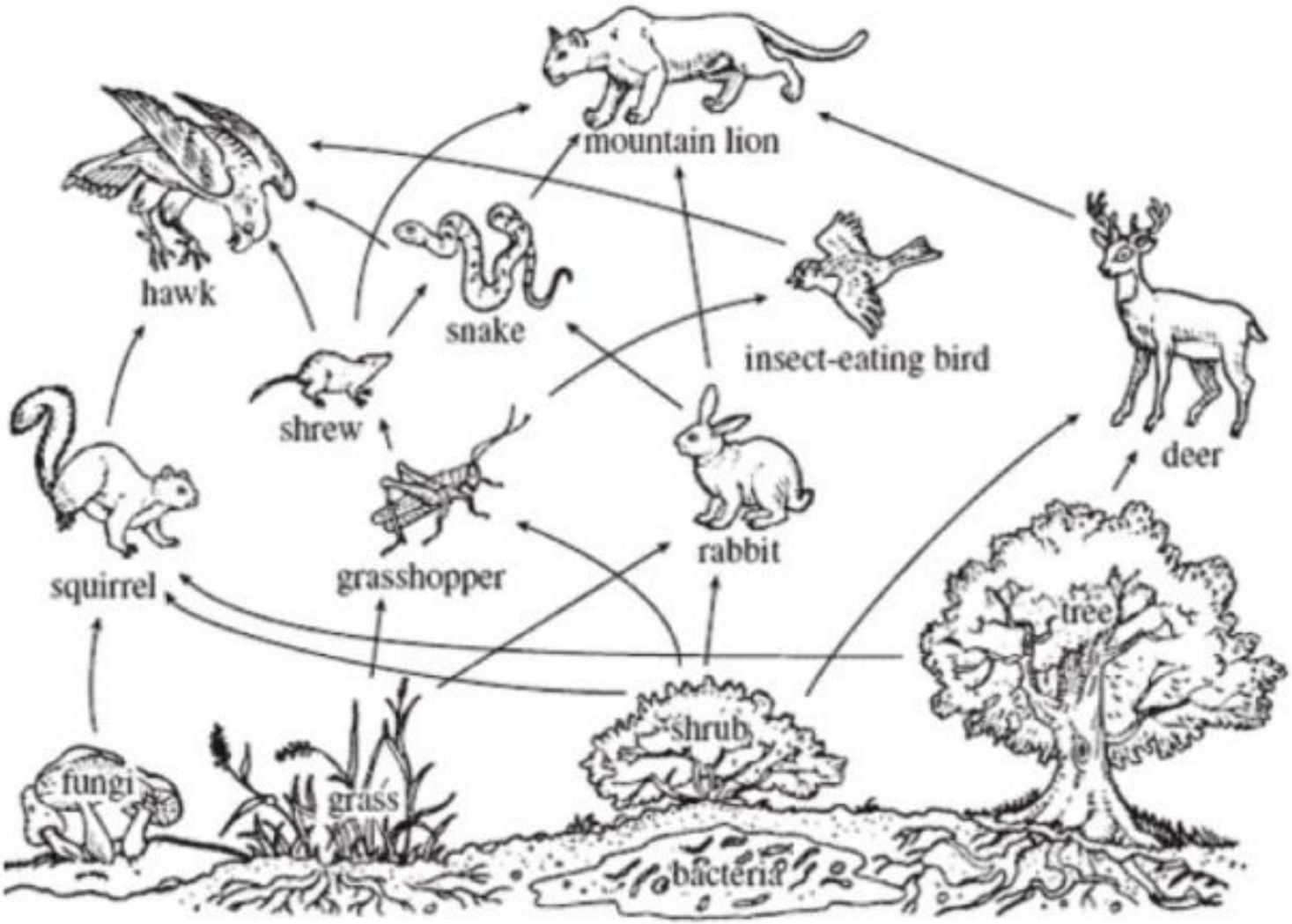
mountain lion
hawk
snake
insect-eating bird
deer
shrew
rabbit
squirrel
grasshopper
tree
shrub
fungi
grass
bacteria