

Name \_\_\_\_\_

Date \_\_\_\_\_

# Cycles in Organisms

Key Words		
carbon dioxide	carnivore	compete
consumer	decomposer	ecosystem
environment	food chain	food web
habitat	herbivore	interdependence
life cycle	metamorphosis	minerals
omnivore	organism	photosynthesis
producer	resources	seed
structures		

Every **organism**, or living thing, has basic needs they must meet in order to stay alive and thrive. For example, green plants need **carbon dioxide**, **minerals**, water, and sunlight to stay alive. All plants have **structures** that help them meet their basic needs. Some plants have broad leaves to help catch sunlight. Some grow sharp spines to keep animals from eating them, or deep long roots that help them find water far underground. Brightly colored flowers attract insects that help the plants to reproduce. All plants make their own food, using the sun's energy to make sugars in a process called **photosynthesis**.

Animals are living things with basic needs, too. Insects, fish, and mammals are all animals that need oxygen, food and water. Animals do not produce their own food, so they have many structures and behaviors that help them to find it. Different animals have different ways of meeting their needs. For example, hawks have very good eyesight, sharp beaks, and talons. These things help hawks to find and consume their food. They can see a mouse from high in the sky and dive quickly to the ground to catch it. A sharp beak and sharp talons (claws) help the hawk hold and eat its prey.

One basic need that all organisms share is the need for a **habitat**. A habitat is the place where a living thing is normally found. Animals and plants need their habitats. It is a place where a plant can meet its basic needs. A lion could not survive in Antarctica—it is too cold and the lion's prey do not live there. Different habitats offer

different **resources**. A resource is something that a living thing can use. Almost anything in a habitat can be a resource, but each kind of living thing needs the resources that are right for it.

Living things depend on the other living and non-living things that are found in their habitats. This is called **interdependence**. Animals depend on plants for food, shelter, and other important things. Most plants depend on animals to spread their seeds and pollen. Both plants and animals depend on the water and resources found in a habitat. The group of living and non-living things that depend on each other in a habitat is called an **ecosystem**. Some living things can change their habitats or **environment**. People change their environment by building houses. Some wasps can build nests from mud or chewed-up wood. Many animals dig dens or burrows in the ground.

Many living things serve as food for other living things. This is one of the main ways they depend on each other. Plants use the sun's energy to make their own food. A plant that produces its own food energy is called a **producer**. The sun's energy becomes food energy for other living things when they eat the plants. An animal that eats only plants is called an **herbivore**. Herbivores then become food for other animals, moving the sun's energy further along. An animal that eats other animals—and NOT plants—is called a **carnivore**. An animal that eats both plants and animals is called an **omnivore**. Every herbivore, carnivore, and omnivore is a **consumer**. When the producers and the consumers die, another group of organisms breaks them down, returning the nutrients back to the soil. An organism that does this is called a **decomposer**.

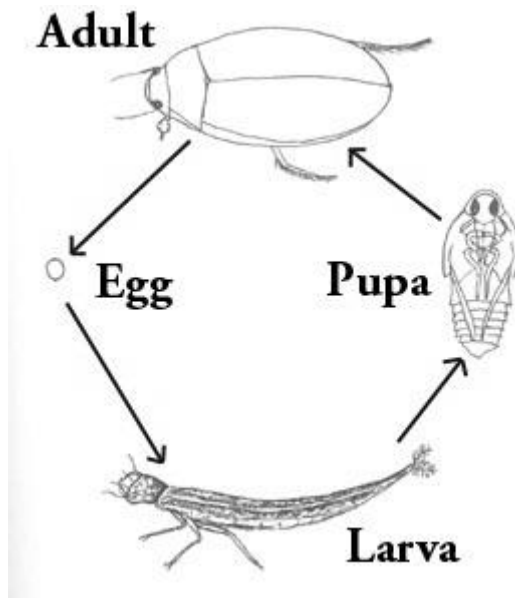
A **food chain** is a system of connections that moves energy through an ecosystem. Each arrow in the food chain points to the organism that is taking in energy. In a habitat, there are usually many living things that want to consume the plants and animals found there. These organisms **compete** for these resources. Living things compete when they each want the same resource. A **food web** is a group of connected food chains—it also shows how some animals compete.

A **cycle** is a series of actions or events that repeat themselves. Food webs are not the only cycles and systems found in the living world. Individual plants and animals

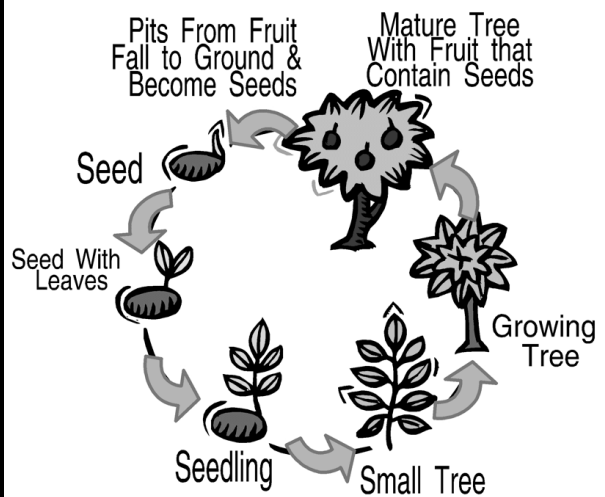
are living systems, too. Animals and plants go through different stages during their lives. Some animals are born, they grow, they develop into adults, and they reproduce. The stages of growth and development that plants and animals go through is called a **life cycle**.

**Metamorphosis** is a process of change that happens as insects and some other animals grow. During metamorphosis, an insect goes through four stages: egg, larva (caterpillar), pupa (chrysalis), and adult. Frogs also undergo a type of metamorphosis. A female frog lays eggs out of which hatch tadpoles with gills. The tadpole grows hind legs and starts to develop lungs inside its body. Next, the tadpole grows front legs and its gills are replaced with lungs. The young frog loses its tail and lives on land. The adult frog lays hundreds of eggs and the cycle begins again!

The life cycle of a plant is similar to that of animals, but it is also very different. Plants do not start off looking like an adult plant, nor do they lay eggs. Most plants begin life as a **seed**, which contains a tiny, undeveloped plant and the nutrients the baby plant needs to begin growing. Seeds that are planted in the right environment will send out roots. The roots take in water and nutrients from the soil. Next, a stem and tiny leaves will form. As the plant grows, more leaves and stems will be added. Once it has grown enough, it will make more seeds and the plant's life cycle will start again.



**Metamorphosis of a Beetle**



**Life Cycle of an Apple Tree**

1. In what way are plant and animal life cycles MOST alike?

- A Development occurs in stages.
- B Each cycle begins with an outer shell.
- C Each grows toward the sunlight.
- D Oxygen is required at each stage.

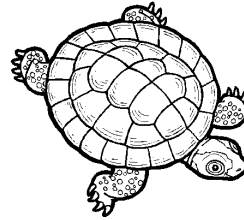
2. Carnivores in the tundra would most likely compete for—

- A meat
- B oxygen
- C space
- D plants

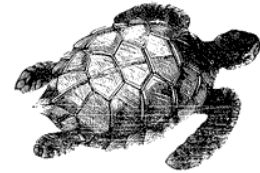
3. In nature, a natural balance occurs between the number of consumers and producers in a habitat. If the number of producers in an area decreased, what might happen to the number of consumers in that area? The number of consumers—

- A might increase
- B may decrease
- C might stay the same
- D may not decrease

Compare the two turtles pictured below.



**Turtle A**



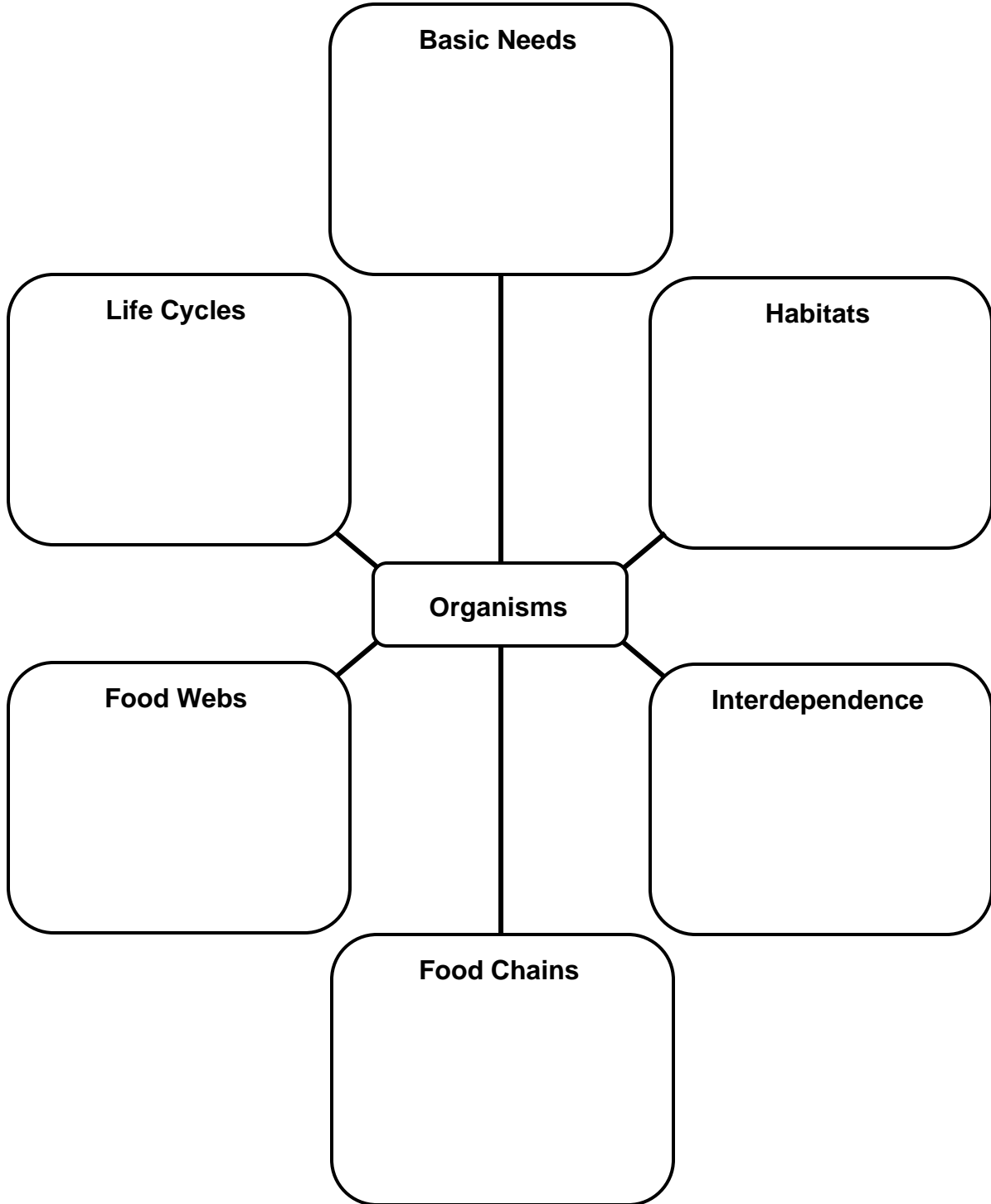
**Turtle B**

4. Based on your observations, how would you describe the habitats of the turtles?

- A Turtle A lives in the ocean and Turtle B lives on land.
- B Turtle A and Turtle B live in the ocean.
- C Turtle A lives on land and Turtle B live in the ocean.
- D Turtle A and B both live on land.

# GET ORGANIZED!

Directions: Think about what you learned about organisms from the article you read. Complete the web below with details from the article.



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