

Forest cards | set 1

Grade 5 | Science | Cut on the borders | One deck per pair

A simplified woodland-edge model. Use only the feeding links described on these cards. Organisms have other relationships outside this model.

Grass

Uses light, air and water to make food. Rabbits and deer eat its leaves; mice can eat its seeds.

Oak tree

Uses light, air and water to make food. Deer browse its leaves and twigs. Mice eat its acorns.

Deer

Eats grass and oak leaves or twigs. Its waste and remains return matter to the environment.

Rabbit

Eats grass. Foxes and hawks can eat rabbits.

Mouse

Eats grass seeds and oak acorns. Snakes, owls, hawks and foxes can eat mice.

Leaf beetle

This plant-eating beetle eats oak leaves. This card is not a description of every beetle species.

Forest cards | set 2

Grade 5 | Science | Keep with set 1

First arrange the cards. Draw arrows from the food to the organism receiving it. An animal may have more than one food source.

Snake

This snake eats mice. Hawks can eat it.

Hawk

This hawk eats mice, rabbits and snakes.

Fox

This fox eats rabbits, mice and earthworms.

Owl

This owl eats mice.

Wood-decay fungus

The mushroom is part of a fungus. This fungus breaks down dead wood and absorbs matter from it.

Earthworm

Swallows dead plant material with soil. Helps break litter into smaller pieces. It is an animal, not a fungus.

Add the environment

Grade 5 | Science | Cut out these labels

After your first model, add these labels and draw connections. Keep the sunlight arrow different from the arrows carrying matter.

Air

Plants take in carbon dioxide from the air. Living things also return gases to the air.

Water and soil minerals

Plant roots take up water and minerals. Plants do not get all their food by taking it from soil.

Dead material and waste

Leaves, dead organisms and animal waste contain matter. Some matter passes to decomposers.

Sunlight

An energy input. It is not matter and is not food that an animal can eat.

Decomposer bacteria

These microbes break down dead organisms and waste. They return materials to soil, water and air.

Key for your revised model

Solid arrow: matter moves this way. Label the process, such as eating or decomposition. Dashed arrow: sunlight supplies energy. A feeding arrow also represents energy transfer, but energy does not cycle back like matter.

Add the bacteria to your model. Use pencil; color is not needed.

Build, explain, revise

Name: _____ Date: _____

1. Build a web with at least six organism cards. Include two plants, two animals and the fungus. Include a feeding pathway with three levels. Record it below, with arrows and a key.



2. Add air, water/soil and dead material. Trace matter from the environment through a plant, an animal and decomposition, back to the environment. Label at least four transfers.

3. Explain one arrow using a card as evidence. What would your model fail to show if you removed the fungus and the environment?

Reef cards | transfer

Grade 5 | Science | One deck per pair

A small reef model, not a complete ocean food web. Use feeding arrows only for feeding. Show competition for space with a labeled line without an arrow.

Algae on reef surfaces

Use light to make food. Grazing parrotfish and sea urchins eat these algae.

Grazing parrotfish

In this model, these fish scrape algae from reef surfaces. This can open space for coral growth.

Sea urchin

This urchin grazes on algae. It provides another grazing pathway in this model.

Coral polyps

Tiny animals. They capture small drifting animals for food. Many reef corals also receive food from algae living inside them.

Zooplankton

Small drifting animals. The coral polyps in this model capture them.

Decomposer microbes

Bacteria break down dead material and waste, returning materials to the surrounding water.

A change on the reef

Name: _____

1. Use the reef cards to draw at least two feeding links and one route from dead material through microbes to the water. Add sunlight as a separate energy input.



2. Grazing parrotfish disappear. Predict a possible change in algae and a possible consequence for corals. Explain both steps using the cards.

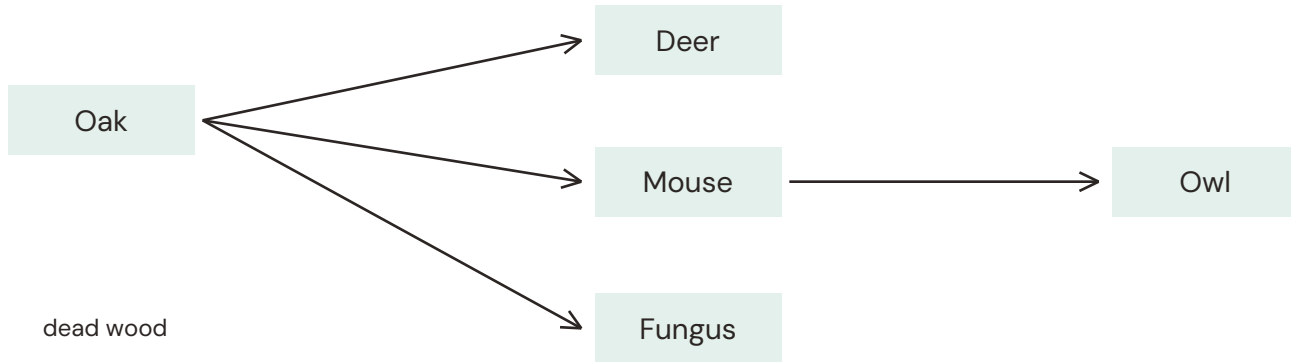
3. Which remaining organism could make your prediction less certain? Explain. Do not claim that every reef will change in exactly the same way.

4. Why would an arrow from algae to coral labeled "coral eats surface algae" be misleading in this model?

Exit ticket | forest model

Name: _____ | Work independently

In this small model, feeding arrows point from food to eater. Oak leaves feed deer; oak acorns feed mice; mice feed owls. Wood-decay fungus breaks down dead oak wood.



1. Oak trees die from disease. Name two living consumers that immediately lose a listed food source. Explain using the arrows.

2. Add air, water/soil and dead material to the model. Draw and label a route showing matter moving through living things and back to the environment. Explain the role of the fungus.

3. Does sunlight supply matter or energy? Explain why the two should not be drawn as the same kind of cycle.

Look closely: woodland

Grade 5 | Science | Optional projection plate



Image description: an oak tree, grass, a rabbit, a deer, a mouse near acorns, and mushrooms beside a fallen log.

Notice. Wonder. Check.

Name two living things and one nonliving part of this scene. Which relationships might connect them?

Use the organism cards to check your ideas. What important parts of the ecosystem are too small or hidden to appear here?

This illustration helps us ask questions. It is not a photograph or a complete food web. Do not infer a feeding link from two things being close together.

Look closely: reef

Grade 5 | Science | Optional projection plate



Image description: a parrotfish near patches of algae, a sea urchin attached to rock, and coral colonies on a shallow reef.

Observe before predicting

Locate the fish, the urchin, the coral and the algae. Which details can you see? Which feeding relationships require evidence from the cards?

What could change if grazing parrotfish disappeared? Use the cards to check your prediction and consider another possible outcome.

This scene is an illustrative model. Tiny organisms, nutrients and many reef species are not pictured. The drawing does not show a measured change over time.