Food webs and decomposers: two investigations

Names: Class: Date:

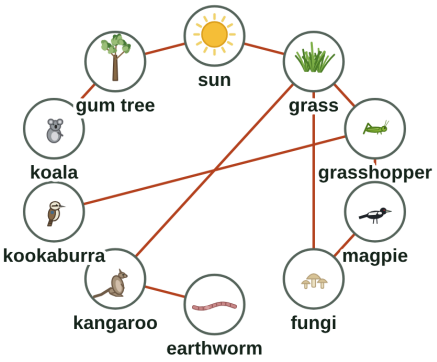
Work with your class for the string food web, and with a partner for the leaf test. In each one, follow the change from one living thing to the next.

PART 1 A string food web

You need: A ball of string or wool, the ten role cards below (cut them out), and a clear space where the class can stand in a circle.

> **Safety.** Clear a space and stand in a circle. Hold the string in your hand only, never round a finger, wrist or neck. Pull gently, and let go when your teacher says.

1. Each person takes a role card and stands in the circle. Several people can share one card, as long as there is one sun.
2. The sun holds the end of the string and passes the ball to a producer. Each person holds on to the string and passes the ball to a living thing that eats them.
3. When a living thing dies, it can pass the ball to a decomposer. The decomposers pass it back to a plant, because they put nutrients back into the soil. Keep going until everyone holds the string.
4. Your teacher says that all the grass has gone. The grass gives a gentle tug on the strings it passed to others. Anyone who feels that tug sits down, then gently tugs the strings they passed on. Keep going until nobody else sits down.



Role cards: cut along the dashed lines.

Sun I give light to the plants.	**Grass** I make my own food, using light from the sun.	**Gum tree** I make my own food, using light from the sun.	**Grasshopper** I eat grass and other plants.	**Kangaroo** I eat grass.
Koala I eat gum leaves.	**Magpie** I eat grasshoppers, beetles and small lizards.	**Kookaburra** I eat insects, worms and crustaceans.	**Fungi** I break down dead plants and animals.	**Earthworm** I feed on dead plants and animals.

Who felt the tug? Write them in order, starting with the grass.

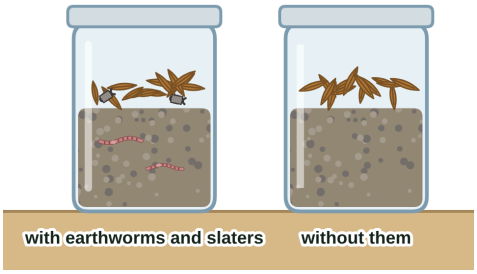
1	2	3	4	5	6
Grass					

1. Which pattern did the tug make: a domino pattern or a cycle? How do you know?

2. Did anyone feel the tug who doesn't eat grass? Which path did it come along?

PART 2 Do earthworms and slaters help dead leaves break down?

You need: Two clear jars or plastic tubs the same size, damp garden soil, 40 dead leaves of the same kind, 2 or 3 earthworms and 2 or 3 slaters from the garden, two pieces of cloth with rubber bands, a spray bottle of water and gloves.



> **Safety.** Use garden soil, not potting mix, and keep it damp so it doesn't make dust. Cover any cuts or sores, and wear gloves when you handle the soil. Wash your hands afterwards. An adult lifts any log, rock or pot when you collect slaters, because redback spiders can hide there. Handle the earthworms and slaters gently with damp gloves, and put them back where you found them when the test is over.

1. Check the soil and take out any earthworms or slaters. Put the same amount of damp soil in each jar, and lay 20 dead leaves on top of each.
2. Put the earthworms and slaters in one jar. Leave the other jar without them.
3. Cover each jar with cloth and a rubber band. Keep both jars in the same cool, shady place, and spray the soil with water when it starts to dry out.
4. Once a week for 4 weeks, count the whole leaves left in each jar, and look for chewed edges, holes and droppings.

Week	Whole leaves left: with earthworms and slaters	Whole leaves left: without them
0		
1		
2		
3		
4		

1. Which jar had fewer whole leaves left, or more chewed ones, after 4 weeks? Why do you think that happened?

2. Was it a fair test? What did you keep the same, and what did you change?

3. Where do you think the leaves went? Use the word decomposer or nutrients.

Answers (turn the page round). Part 1: the tug passed from the grass to the animals that eat grass, then on to the animals that eat them, one step at a time: a domino pattern. Yes, the magpies and kookaburras don't eat grass, but the tug reached them through the grasshoppers. It may also have reached others, through the decomposers and back to a plant. **Part 2:** the jar with earthworms and slaters may have fewer whole leaves left, or more chewed ones, because they feed on dead leaves. Leaves break down slowly, so look closely. A fair test changes one thing (the earthworms and slaters) and keeps the rest the same: the jars, the soil, the leaves and the place. Decomposers break the leaves down. Nutrients from the leaves go into the soil, and some of each leaf goes into the air as carbon dioxide.