TEACHER KEY · LESSON WORKSHEET · GRADE 5 · 5-PS3-1 · 5-LS1-1 · 5-LS2-1

Ecosystems & Food Webs

Fill in each part when its number appears on the slide.

PART 1 · TARGET

I can model how energy and matter move through an ecosystem and predict what happens when part of it changes.

PART 2 · WARM-UP

1. Name two things a plant needs to make its own food.
   Key: Any two: sunlight, water, air (carbon dioxide).
2. Write a food chain with three living things from an Indiana forest.
   Key: Example: acorn -> squirrel -> hawk.
3. What do you think happens to a leaf after it falls to the ground?
   Key: It rots: decomposers like fungi, bacteria, and worms break it down into soil nutrients.

PART 3 · PREDICTION

In a forest, a hawk eats a snake that ate a mouse that ate seeds. Where did the hawk's energy START?

Circle one: [ ] The mouse [ ] The seeds [ ] The Sun

PART 4 · VOCABULARY

Word	Meaning
Producer	An organism that makes its own food from sunlight (plants, algae).
Consumer	An organism that eats other organisms (herbivore, carnivore, omnivore).
Decomposer	An organism that breaks down dead matter and returns nutrients to soil (fungi, bacteria, worms).
Food web	Many connected food chains in one ecosystem.

PART 5 · ENERGY STARTS WITH THE SUN

PRODUCERS make their own food from SUNLIGHT. This process is called PHOTOSYNTHESIS.

Check: Which is a producer?

Circle one: (A) Oak tree (B) Deer (C) Mushroom (D) Hawk

Key: (A) Oak tree. Trees make their own food from sunlight.

PART 6 · ARROWS SHOW ENERGY FLOW

Arrows point in the direction ENERGY flows: from the eaten to the EATER.

Check: Which food chain is drawn correctly?

Circle one: (A) Bass -> mayfly -> algae (B) Mayfly -> algae -> bass (C) Algae <- mayfly <- bass (D) Algae -> mayfly -> bass

Key: (D) Algae -> mayfly -> bass. Energy flows from algae to mayfly to bass.

PART 7 · CONSUMERS AND DECOMPOSERS

HERBIVORES eat only plants. DECOMPOSERS return nutrients to the SOIL.

Check: What would happen without decomposers?

Circle one: (A) Nothing would change (B) Dead matter would pile up and soil would lose nutrients (C) Plants would grow faster (D) There would be more sunlight

Key: (B) Dead matter would pile up and soil would lose nutrients. Decomposers recycle matter.

PART 8 · FOOD WEBS CONNECT

In a food web, a change in one POPULATION affects the others connected to it.

Check: Snakes eat mice. If snakes disappear, what happens to mice first?

Circle one: (A) Mice increase (B) Mice decrease (C) Mice stay the same (D) Mice become producers

Key: (A) Mice increase. With fewer predators, the prey population grows.

PART 9 · WORKED EXAMPLE

1. Food chain: acorn -> squirrel -> red-tailed hawk.
2. Question: A disease wipes out the squirrels. What happens?
3. Step 1: Hawks lose a food source, so the hawk population may shrink.
4. Step 2: Fewer squirrels eat acorns, so more acorns survive.
5. Step 3: More acorns means more oak seedlings grow. One change ripples through the web.

PART 10 · WE DO

Food chain: grass -> grasshopper -> frog -> snake. A drought kills much of the grass. Predict what happens to the snakes.

Answer: Snakes decrease

PART 11 · YOU DO

In a forest, owls eat mice and mice eat seeds. A disease kills most owls. What happens to the seeds first?

Circle one: (A) More seeds, because mice disappear (B) No change (C) Seeds turn into decomposers (D) Fewer seeds, because more mice eat them

Key: (D) Fewer seeds, because more mice eat them. Fewer owls -> more mice -> more seeds eaten.

PART 12 · WORK TIME: HOOSIER HABITAT HIKE

Write each code piece as you earn it: Stop 1: D Stop 2: U Stop 3: N Stop 4: E Stop 5: S

Final code: DUNES

PART 13 · WRAP-UP

Was your prediction in Part 3 right? One thing I learned today:

Key: It rots: decomposers like fungi, bacteria, and worms break it down into soil nutrients.