

2. How can we tell if something is “living”? *List of characteristics is provided; may*

- i. Split the birds who successfully obtained resources so that half of them remain birds and half return to the resource side for the next round.!

- c. Don't let students change sides right away if they think their guess or insect or not was incorrect.!
2. Ask students to describe an insect, and present the slide of a fly to compare to.!
 - a. Tell students that if they have at least 2 of the characteristics presented, they likely have an insect card! *3 body segments, 6 legs, antennae, 1 or 2 pairs of wings.*!
 - b. Let students regroup at this point after learning what it actually means to be an insect. Offer supportive guidance so students don't feel foolish or ousted in front of their peers.!
 - c. Have students hand in their cards before sitting back down.!

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Parts of an Insect

1. Introduce the 3 different parts of an insect: **head, thorax, abdomen**. Compare to a human body if you feel comfortable.!
2. Outline the more specific parts of the insects with the whole class as you point.!

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How are Birds and Insects Interconnected?

1. *Birds feed on insects!*
2. What do we call it when living things feed off of one another? *Part of a food chain!*

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What is an Ecosystem?

1. What are the different levels in an ecosystem?!
 - a. For younger classes, introduce these levels as **plants, herbivores, and carnivores.**!
 - b. For strong classes, introduce the food chain levels as **producers, primary/secondary/tertiary/quaternary consumers.** !
 - c. Ask students if the water and land-based food chains are independent? Can they think of a living thing that could exist in both chains? *A bear, a frog, etc.*!
2. Why is it important to have birds and insects in the ecosystem? *If they weren't present, other living things would flourish or die, creating an imbalance.* Ask what would happen if the mouse was removed from the food chain. *An overabundance of grasshoppers and a pressured situation for the snakes.*!

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Ecosystem Tumble

1. Divide the students into groups of plants, herbivores, and carnivores. Have there be more plants than either other group.!

2. Hand out the cardstock with 4 lines on it, and have students draw or write the name of a plant/animal that the student chooses, as long as it falls within their assigned category.!
3. Circulate and help students fold along the four lines and tape the cardstock into a rectangular prism. !
4. Explain to students that you will be playing a game similar to Jenga, and have the plants come up to the front to form the base of the tower. Put the blocks in groups of three, forming a criss-cross pattern as it rises, just like in Jenga. Call up the herbivores, then the carnivores, to finish the tower so it is similar to an ecosystem food chain.!
5. One by one, have students come up and try to pull out a living thing from the tower. They will then place that block on top and continue to make it grow. Discuss what happens as more living things are pulled out of the ecosystem. *It becomes unsteady.!*
6. If the tower falls, rebuild it again and assure students that it will fall several times. If pressed for time, take half the blocks and build two towers so students will get to play sooner. After everyone has had a turn, give the students their blocks back. (You may want to wait until the end of the presentation, and be sure to ask the teacher if they mind).!
7. How do you compare this activity to what happens in different, actual ecosystems? *Living things don't usually go extinct right away; there is a process and different classifications as they become increasingly endangered. If an animal really was removed from an ecosystem, the other members will flourish or have to adapt to the difference.!*

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Source:

“Gel Electrophoresis and Forensic Science: Biotechnology Science Fair Project”:
<<https://www.youtube.com/watch?v=QWkfXjGohVk>>