Lesson Prep

✓ Make copies of the datasheet, 1 per student.
✓ Have at least one field guide or identifying key available per group.
✓ Identify where students will be observing fallen logs and what boundaries you will set.

Vocabulary
Decomposers, fungi, bacteria

Procedure

Mini-Lesson

• Clearly explain what decomposition is - the breakdown of organic matter into smaller pieces and simpler parts. Both a physical and chemical changes take place during decomposition. You can use the slides from the Flow of Energy PowerPoint for this.
• Ask students to name different decomposers. Explain they will be learning about these decomposers or FBI (fungi, bacteria, invertebrates) today.
• Show students one of the keys or field guides they will be using. Explain how the animals that are decomposers are invertebrates and what invertebrate means (no backbone). Ask why bacteria are not on the keys. (too small) Discuss the variety of fungi that they might see.
• Ask students “What would happen if there were no decomposers in the forest?”. Prompt students as needed to get them to think about fallen trees and leaves over hundreds of years as well as the remains of dead animals.
• If you look around a forest, there are signs and evidence of decomposition everywhere.
• We are going to go outside to observe fallen logs as an ecosystem and as a place we can observe decomposition in action.

Guided Practice

• Before going outside, remind students of the rules for learning outside and create groups of about four students per group.
• Once outside model what you expect the students to do as they observe fallen logs as an ecosystem.
• Show them how to roll a log towards them so that animals underneath can escape safely. Ask students why this is important. This is also to keep them safe so that if there is animal that could be
dangerous to them, such as a copperhead, that animal has the choice to leave and feels less threatened.

- Model how to gently pick up and examine animals such as ants, millipedes, or beetles found on the logs.
- Model how they can pull off and break off parts of the log to look for more evidence. Remind them to be gentle as their log is an ecosystem and home to the organisms they find.
- Students record their observations on a datasheet. Students may want to use clipboards, binders, or something else to create a writing surface while outdoors.
- If available, students could use iPads to photograph the organisms and the evidence of decomposition that they see.
- When a group finds something they want to share with others, choose one student from the group to carefully take the organism to the other groups or have them continue working while you take the organism around.
- Allow for a few minutes for each group to share something from the activity. You may choose to do this back in the classroom.
- Clean up – Have students gently return all living things back to their log ecosystem. Remind them to leave all nature in nature. Have one student per group confirm that all materials have been collected to take back inside.

**Opportunities for Extended Learning**

1. Create a worm column or bin.
2. Observe decomposition in the compost pile in the garden. Students could make observations of the compost pile various times throughout the unit, noting signs of decomposition. Students could make temperature recordings of the compost pile. Students could add clippings (leaves) or vegetables (lettuce, kale, spinach) from the garden to observe the rate of decomposition.
3. **Nature Journal** prompt: Describe and draw one item in the compost pile. What evidence of decomposition do you observe? 📑
4. Crash Course Kids video “**The Dirt on Decomposers**” (3:18)
5. Students could compare their data. What factors may have been causes for differences? Are all the logs from the same type of tree?
6. Students could do a separate leaf litter exploration and compare what they find in the leaf litter to what is found on the fallen log. [Leaf Litter exploration lesson](#).
7. **Time lapse video of decomposition in a compost pile**. (Shows a minute and a half overview and then parts of it slower with more detail.) [Time lapse of a pear decaying](#) (1:27)

**Behavior Management Tips**

- Make sure you give students clear boundaries where they can go, allowing room for some exploration.
- Circulate between groups asking questions as well as using the opportunity to remind students to stay on task.
# Fallen Logs and FBI

**Name:** ______________________

**Date:** _____________   **Time:** ___________________     **Place:** ______________________

**Temperature:** ____________  **Weather Conditions:** ____________________________________________

*Record your observations of the fallen log.*

<table>
<thead>
<tr>
<th>Evidence of how the tree died?</th>
<th>On the log</th>
<th>Under the bark</th>
<th>In the log</th>
<th>Under the log</th>
<th>Near the log</th>
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</thead>
<tbody>
<tr>
<td>Evidence of when the tree died?</td>
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<tr>
<td>Describe and sketch any plants.</td>
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<tr>
<td>Describe and sketch any fungi.</td>
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<td>Evidence of animal activity?</td>
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<td>Draw a sketch of an animal.</td>
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<td>What color is the animal?</td>
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<td>How many legs does the animal have?</td>
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<td>How might the animal move?</td>
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<td>What kind of animal is it?</td>
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<tr>
<td>What else do you observe?</td>
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</table>