

INV. 1 ACTIVITY: INSECT STRUCTURE AND FUNCTION (PAGE 1 OF 2)

Review

In class, you may have done some work with mealworms—perhaps set up an experiment to explore the environmental factor of temperature and how it affects the pace of the mealworm’s life cycle. You may have also explored isopods and their preferred environmental conditions of various moisture levels. Perhaps you even went to the schoolyard to collect, observe, and sort small animals.

Action

Today you will watch the video called *Bugs*. It is a *Reading Rainbow* video. Watch all the chapters first (21 minutes). Be sure to increase the image to full screen so you can see the details of the insects. Record in your notebook some key points you learned about insects.

After watching the video, you have a choice of two options. You can always do both options.

Option 1

Focus question: What are the characteristics of some insects?

Go back through the video and select your favorite insect. Pause the video when you can get a good view of that insect. Record as many notes as you can that you learned about this insect in your notebook and do a scientific drawing of it. Label as many parts as you can and think about these structures and what their functions are. Do this for a second insect.

Look at the questions below and answer as many of them as you can for each insect you selected. Record your responses in your notebook. Also respond to the focus question.

- Where does this insect live? What does this tell you about what it eats? What are its environmental preferences?
- What structures do you see on this insect? What do you think those structures do? How do they function to help the insect survive?
- What do you think this insect needs to survive?
- What questions do you have about this insect?
- Why did you select this insect?

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Option 2

Focus Question: What are the characteristics of the living things near your home?

Record the focus question in your notebook and revisit after the outdoor exploration.

Make sure you have guardian's permission. Go outside to an outdoor space, yard, or nearby park. You don't need a special outdoor space to find insects. Once outdoors, you will look in leaf litter, under rocks, under things that have been lying around for a long time (sometimes a garbage can, a hose or flower pot) or under logs to see what insects and small organisms you can find.

Bring a clean plastic container with a lid and a plastic spoon (metal is better, but make sure you have permission to use it). Remember the safety rule that you learned in the video: **If you don't know what it is, don't pick it up.**

Search for insects and other small organisms for 15 minutes. See if you can find ants, isopods, worms, or other harmless organisms to collect and observe.

When you are ready to collect, use the spoon to transfer an organism to your container. If you found the insect on a leaf or on wood, put some of the leaf or wood in the container with it. Keep the container closed and out of the sun as it will heat up rapidly. Collect one or two organisms for temporary observation.

In your notebook, draw both of the organisms and write down your observations. Some things you might want to record:

- Where does this insect live? What does this tell you about what it eats? What are its environmental preferences?
- What structures do you see on this insect? What do you think those structures do? How do they function to help the insect survive?
- What do you think this insect needs to survive?
- What questions do you have about this insect?
- Why did you select this insect?
- Did you observe these two organisms interacting?

When you're done with your notebook entry, return the organisms where you found them. You may want to keep this container for further exploration.

INV. 1 ACTIVITY: YOUR ENVIRONMENT (PAGE 1 OF 2)

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Review

In class you may have been studying about environmental factors and environmental preferences of various animals—mealworms and isopods. Do you remember what you learned from these explorations? You may even have gone outside to see what organisms live in your schoolyard. If so, we are going to take these types of activities one step further. No worries, if you did not do them yet.

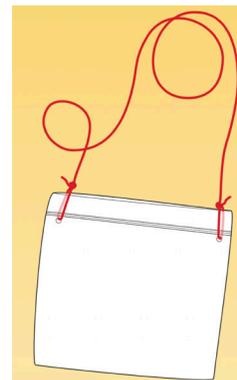
Long-term project:

To start, read the article “Amazon Rain Forest Journal” in *FOSS Science Resources: Environments* book or in the eBook on FOSSweb. After you read it, respond to these questions in your science notebook.

- 1) Whose perspective is the article written from?
- 2) Who helps Lee learn about the organisms in the rain forest?
- 3) What does Lee’s mom do on these trips to the rain forest?
- 4) Describe the relationship between the ants and the acacia tree (page 23).

Now it is your turn to investigate and learn about your own environment, the way Lee did. Over the next several weeks you are going to learn as much as you can about your neighborhood. You can do this by doing research on the internet and by making outdoor observations using the tools listed below. Try to go outside regularly over the next few weeks.

Once you have permission from an adult (perhaps they would like to join) you can head outside with your notebook. Just like Lee did, make notes about the weather and interesting things you see. You may want to make a simple satchel before heading out, with a zip bag and a piece of string. Use this for hands-free exploration to hold your notebook, perhaps a spoon, hand lens if you have one, and pencil.



Focus Question: What are the living and nonliving things that make up and affect your neighborhood environment?

- How many different plants live in your neighborhood (take one leaf sample from each). What do you see on the branches of bushes and trees? Which plants are found most often in your area?
- Do you see insects or other small animals?
- What animals do you see in the trees? In the sky?
- Any evidence of animals—scat (poop), tracks, changes to leaves, sounds, etc?
- What are the nonliving things that are part of the environment?

Try to record your observations and make drawings in your notebook. Like Lee, the more you go outside, the more you will notice and see interesting things.

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Your task:

Create a journal type entry with at least 5 observations on 5 different days, like Lee did, and share some of your observations about what you learned about where you live. Some things you should include:

- 1) Typical weather patterns during this time of year.
- 2) What animals live there (try to identify some of them—not all). Can you tell what their environmental preferences are?
- 3) Plants that live there. You don't have to identify all of them, but try to identify some of the most important ones
- 4) What seasonal changes are you seeing?
- 5) What questions do you have about your neighborhood environment?

Phone Apps/Websites

- **Merlin** is a simple bird ID tool created by the Cornell Lab of Ornithology for use on mobile devices. You can also use the Cornell Lab of Ornithology website to get help on bird identification
- **iNaturalist** allows you to put in your location and see what other people are seeing in that area.
- **Leafsnap** will help you identify the type of plant you're looking at. The free mobile app or website will help you identify tree species from photographs of their leaves and contains beautiful high-resolution images of leaves, flowers, fruits, petioles, seeds and bark.
- **Project Noah** is a global citizen science platform that will help you identify wildlife.

Plants to avoid:



Poison Oak



Poison Ivy



Poison Sumac