

INSECT & SPIDER INVESTIGATION



Description:

Students take an urban nature walk in their backyard or schoolyard and search for tiny creatures living in the habitat they walk past every day. Students then make scientific observations and record them on a data sheet.

Objective:

- Participants will recognize that no matter where they live, nature is all around them. They will recognize that there is beauty in their natural urban habitat.
- Participants will make scientific observations of insects and spiders, and record them on data sheets.
- Participants will understand the biodiversity in their urban natural environment.

Standards:

All Grades:

- LA.X.1.5 - Vocabulary: Students will build and use conversational, academic, and content-specific grade-level vocabulary.
- LA.X.2.2 - Writing Modes: Students will write in multiple modes for a variety of purposes and audiences across disciplines.

Kindergarten:

- SC.K.7.2 - Gather, analyze, and communicate evidence of interdependent relationships in ecosystems.
- SC.K.7.2.A - Use observations to describe patterns of what plants and animals (including humans) need to survive.

2nd Grade:

- SC.2.7.2.C - Make observations of plants and animals to compare the diversity of life in different habitats. Assessment does not include specific animal and plant names in specific habitats.

3rd Grade:

- SC.3.7.2 - Gather and analyze data to communicate an understanding of the interdependent relations in ecosystems.
- SC.3.7.2.C - Construct an argument with evidence that in a particular habitat some organisms can survive well, some survive less well, and some cannot survive at all.
- SS.3.3.3.B - Identify ecosystems. For example: forests, deserts, grasslands.

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Standards:

5th Grade:

- SC.5.8.2 - Gather and analyze data to communicate understanding of matter and energy in organisms and ecosystems.
- SC.5.8.2.A - Use models to describe that energy in animals' food (used for body repair, growth, and motion and to maintain body warmth) was once energy from the sun.
- SS 5.3.3.A - Identify examples of ecosystems and analyze issues related to the natural setting in the United States. For example: forests, deserts, grasslands, deforestation, wildfires, urban sprawl, flooding, erosion, strip mining.

Materials:

- Clipboards
- Copies of Insect & Spider Investigation Student Page
- Writing utensils
- Magnifiers

Background Info:

Observations yield what scientists call **data**. Whether the observation is the result of an experiment, temperature readings taken from a rover on Mars, wind speed measurements during a hurricane, or simply noticing that a particular species of spider prefers to live in the light fixture just outside of the main school doors — they're all data. Scientists analyze and interpret data in order to figure out how it informs their hypotheses and theories.

Art and science overlap in many ways - one way is through **scientific drawing**. From medical journals to plant specimen renderings, artists help inform scientific texts. Frequently a drawing is more informative than a photograph. For example, an artist can combine images to make a single drawing that includes a particular species of caterpillar, a perched butterfly, and a butterfly in flight all on one flower. It is unlikely that you would see all of these in a single photograph.

Realistic art requires good observation, just like science. Even if children cannot accurately draw a perfect rendering of a wolf spider, they can observe them and depict those observations: *How many legs does it have? Are the legs segmented or straight? Does it have a pattern on its back?* Drawing encourages students to focus on scientific observation in a format that is familiar and accessible.

On the next page are a few samples of how artistic drawing can inform scientific observation.

Sample (adult) scientific drawings:



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Activity:

1. Inform students that you will be going on an insect and spider investigation. You will be using the knowledge you have gained from the previous activities to inform your current search.
2. Distribute a "*Bug Investigation Student Page*" to each student.
 - Explain that we use the word "bug" as a catch-all for any little creepy crawly critter, but we now know that these critters can be categorized into specific groups: insects, spiders, and others (without getting too deep into scientific classification, roly poly's are crustaceans, centipedes and millipedes are arthropods, etc.) On this "bug" search you will be looking for little critters. Hopefully students will find an insect or a spider, but any little critter will work for the data sheet.
 - Briefly discuss the questions so students are familiar with them before you go outside.
 - Discuss where to look for insects and spiders: *Are there blooming flowers where there might be pollinators? Are there tall grasses that provide shelter and food? Are there corners and crevices where there might be spider webs? Are there rocks to turn over to spot ground dwellers? Is there tree bark where insects might be hiding?*
 - Discuss also the fact that they might not see any actual insects or spiders. If that is the case, what will they observe? Suggest things such as noting webs, holes in trees, and other signs that creatures have been visiting these areas.
3. Provide each student with a clipboard and a magnifier. Each student will also need to take a writing utensil (not provided in the resource kit.) Take the students outside and encourage them to find a "bug" to observe.
 - Suggested extension: If you have the technology, consider asking students to take photographs with their tablets of their creature or signs of creatures.
 - Suggested adaptation: Encourage students to do this activity during their distanced learning time in the area around their home.
4. After completing their drawings, ask students to complete the questions on the back of their *Bug Investigation Student Page*. You can ask students to draw pictures or write their answers in the space provided.
5. Encourage students to share their observations with the class or with a partner so they can learn about the creatures their classmates observed. If you have space, consider posting student data sheets to display their scientific drawings.

Assessment:

- Completed Bug Investigation Sheet

