

CURIOSITY AT HOME

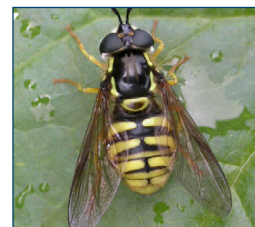
WHAT'S THAT BUZZ?



Insect pollinators like bees and wasps are vital to maintaining healthy populations of plants—including plants that humans like for food and decoration. Learning to identify bumblebees, honeybees, and other pollinators from a safe distance can give you a chance to observe firsthand how they help our neighborhood plant communities. In the spring and summer, pollinating insects can be found nearly everywhere, from alpine meadows to city centers. How many can you find in your neighborhood?

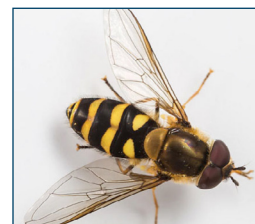
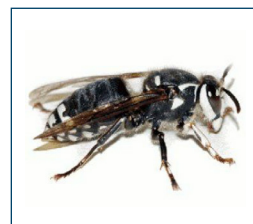
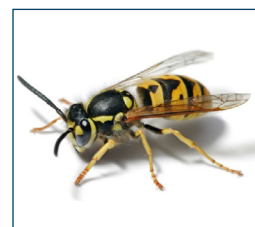
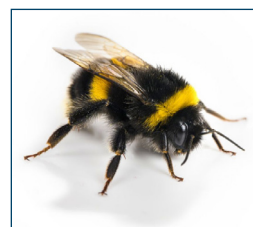
MATERIALS

- Science notebook or paper
- Something to write with



PROCEDURE

- What do you notice about the insects in each picture to the right? How are the insects different or the same from the others? Good characteristics to observe might include:
 - Size and shape (is the insect big and round, or long and skinny?)
 - Colors and patterns
 - Texture (fuzzy, shiny, etc)
 - Unusual or unique features
- Sort the insects into two or more groups using any of the characteristics above, or others characteristics that you observed. What features did you use to sort them?
- Biologists can sort species of animals into groups based on either their relatives or their common traits. Sometimes it's helpful to know what an animal is related to, and other times it's helpful to know more about its traits and behavior. Today, we will be sorting insects into one of three groups that scientists use to describe the traits of insects. Each of these insects is either a bee, a wasp, or a fly. Can you sort them into one of these three groups?



BEE

Example species:

Western honey bee

Eyes: At side of face, oval.

Body: Hair for carrying pollen

Legs: Parts for carrying pollen

Antennae: Long

FLY

Example species:

Western honey bee

Eyes: Touch, cover most of head.

Body: Less hairy, often rounder

Legs: Skinny

Antennae: Very short and stubby

WASP

Example species:

European paper wasp

Eyes: At sides of face, oval

Body: Has a tiny waist

Legs: Skinny

Antennae: Long



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EXPLORE MORE

- On a warm, sunny day, bring an adult with you and find a place with some flowers that you can spend a few minutes observing. It could be a flowering bush or tree, some clover on the side of the road, or a flower bed in a local park.
- Look and listen for insects that might be visiting those flowers.
- Make observations in your science notebook:
 - In addition to the physical traits we learned about, what can you observe about the insect's behavior? What is it doing? How is it moving? Is it fast or slow? How do you think you can tell if an insect is pollinating a flower?
 - Did you see any flying insects that might fit into one of the three species we learned about? What other flying insects did you see? In the spring and summer, butterflies, ladybugs, lacewings, and beetles might also be found near flowers. What's similar or different about all these insects?

WHAT'S HAPPENING?

Bees, wasps and some flies may all look similar at first glance, but each actually plays a very different role in the environment. While all of these flying insects are pollinators, wasps are also predators of garden pests. All of them can sting, but most will only sting when provoked—and if they are busy visiting flowers, bees will likely ignore you completely.

Honeybees and **bumblebees** are always fuzzy. Honeybees are smaller and usually striped amber and brown. Bumblebees tend to be large and round, with black and yellow, orange, or white stripes. **Wasps** are much more boldly colored and are hairless and shiny. Most wasps have a very narrow “wasp waist” between their body segments.

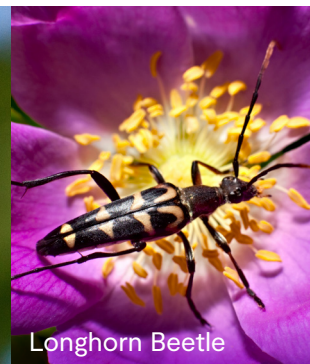
The black-and-yellow patterning on bees and wasps warns predators that the bee or wasp can be dangerous prey. Some kinds of pollinating flies—called **flower flies** or **hover flies**—have evolved to have very similar patterns to trick predators into leaving them alone, even though the fly is harmless. This kind of adaptation is called **mimicry**. Flower flies can be very hard to distinguish from bees or wasps—even for humans!

Safety Tips For Observing Insects

- Always have a grown-up with you
- Honeybees and bumblebees are not dangerous while visiting flowers, but it is still smart to keep at least two feet away from them to avoid disturbing their important pollination activities.
- Stay aware of your surroundings. Keep off of private property, be mindful around cars, and try not to block sidewalks or other walkways.



Ladybug



Longhorn Beetle

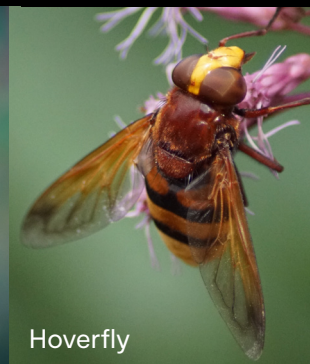


Bee

Wasp



Bumblebee



Hoverfly



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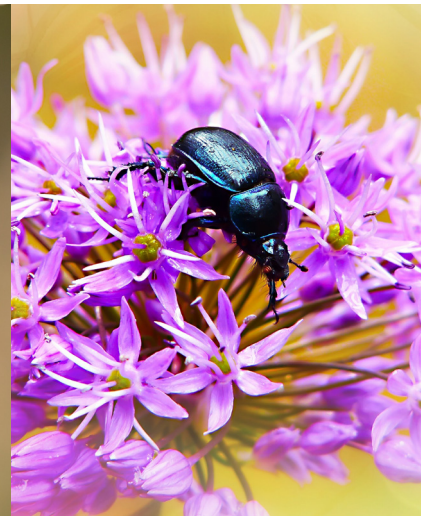
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K-2 GRADE EXPLORATION

- Are any of the insects you see covered in yellow dust? That yellow dust is pollen! Pollinators carry it from flower to flower to help the plants reproduce.
- Make observations at different places in your neighborhood. What kinds of locations do you see the most insect activity? Why do you think that is?
- Pick an individual flying insect and watch it for five minutes, taking notes in your science notebook. How many different flowers did it visit in that time? Do this with one or two more insects. Try to find different kinds of insects to observe.
 - Did the insects you observed visit flowers at the same speed, or was one slower or faster than the others? How fast is a bumblebee compared to a butterfly?
 - Did the insects you observed visit the same kinds of flowers, or do certain kinds of insects seem to prefer certain flowers over others?



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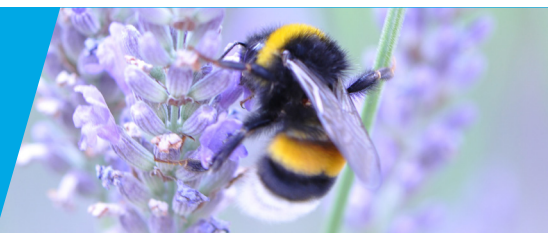
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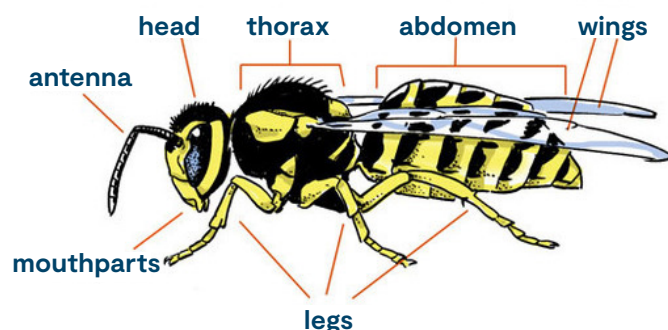


3–5 GRADE EXPLORATION

- Before you observe insects outside, copy the following table into your science notebook or a piece of paper. Note the date, time of day, weather, and approximate location that you're observing.

	What does it look like?	What is it doing?	What kind of insect do you think it is?
1			
2			
3			
4			

- Observe and record as many insects as you like, then count them up. How many of each kind did you see? Which kind of insect appears to be the most common in the spot you chose?
- Before high resolution cameras, biologists identified plants and animals by drawing and labeling them. Even now, drawing helps us notice details that we might otherwise miss. Try drawing the insects you find! Label your drawings with its different parts using the guide below. Try including different identifying features such as colors, patterns, and size comparisons. What, if anything, did you discover by drawing that you might have otherwise missed?



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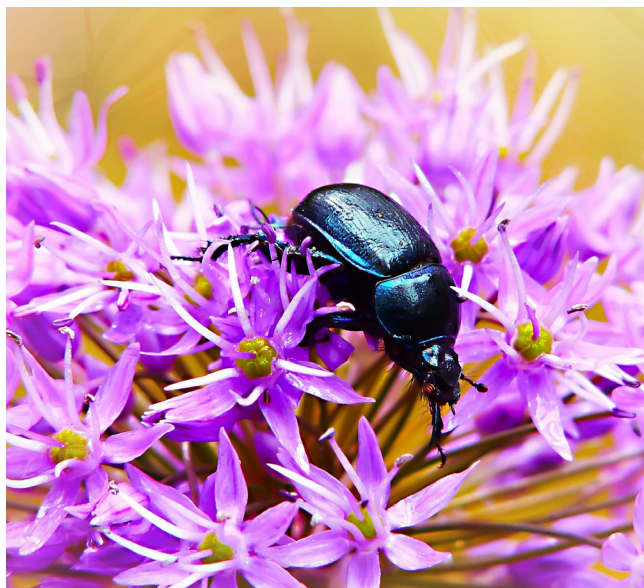


6–8 GRADE EXPLORATION

- Before you observe insects outside, copy the following table into your science notebook or a piece of paper. Note the date, time of day, weather, and approximate location that you're observing.

	Shape, Size and General notes	Colors and Pattern	Behavior (What is it doing?)	Do you think it is a Pollinator?	What kind of insect do you think it is?
1					
2					
3					
4					

- Observe and record as many insects as you like, then count them up. How many of each kind did you see? Which kind of insect appears to be the most common in the spot you chose?
 - Repeat your observations at the same location over several days. Does the community of pollinators change? What kinds of insects do you see in the morning versus the afternoon? On rainy days?
 - Try comparing different locations and different kinds of plants. Do you see any patterns in the kinds of flowers different insects seem to prefer?
- If you can, try carefully taking pictures of the insects you find and uploading them to naturalist websites such as [iNaturalist](https://www.inaturalist.org/) or [Bumble Bee Watch](https://www.bumblebeewatch.org/). Not only can these communities help you identify them, but pollinator conservation efforts often use these citizen observations to help keep track of their populations.



¹ <https://www.inaturalist.org/>

² <https://www.bumblebeewatch.org/>



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