



Bees and Ants

So you know that bees make honey, but do you know how they recognize each other? What about ants, do you know where ants live? Or how about why a honeybee sting actually hurts the bee more than it hurts you? We'll discover all this and more as we learn about bees and ants.

Smelling Bee Game

Despite having compound eyes, bees and ants don't use their eyes the same way we do; in fact, some ants are blind! So instead of their sight, bees and ants often will rely on their sense of smell. Special scents called pheromones help them recognize each other and their homes. In this game, you'll be the bee (or ant) and see if you can tell different scents apart.

Materials

- A variety of foods with various types of scents. A few easily recognizable options include: pickles, mustard, peanut butter, coffee beans, mint candy, banana, and vinegar.
- Cotton balls
- Handkerchief or other blindfold
- Film canisters or other small, opaque containers with lids, like empty single-serve yogurt containers.

Variation 1: Put a cotton ball soaked in the food (or a small portion of the food) in each container. Have the blindfolded children smell the container and see if they can guess the scent.

Variation 2: If playing the game with several children, divide each scent-soaked cotton ball into two containers. Pass them out to the children and have them take turns sniffing each others' containers and try to find their "pheromone friend," the person with the matching scent.

Variation 3: Make a smelling scavenger hunt. Hide a honey pot or honey bear and tell the children they must sniff their way back to the beehive. Make a trail of scent-filled containers that leads to the "hive." Devise a "path" they must sniff out to in order to find their way back to the "hive." Give the children directions to the hive using different scents to mark the trail. (Use pictures for younger children.)

Ant Food - Are Ants Picky Eaters?

Find an anthill or a place where you have seen a lot of ants around. (Make sure the place is not in the house!)

Pick out a few foods that have different flavors or tastes and put each one into a paper cup. Here are some ideas: sugar, pancake syrup, half of a strawberry, salt, lunchmeat, something sour (half a lemon or some lemon juice), and something bitter (used coffee grounds).

Set each paper cup on its side near the anthill or ant spot that you found.

Watch the ants for a while to see which cups they go to. It might take them a while to notice the cups! Which cups did the most ants go to? Did they check out what was in each cup? Did you see any ants leave a cup and come back with more ants?

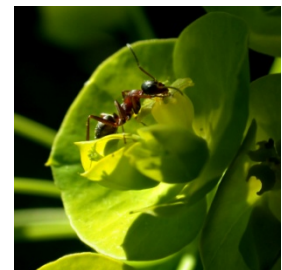


After the experiment:

What kinds of food do you think ants like best? Different types of ants eat different things. Almost all ants like sweet nectar, but some also eat other insects while others eat seeds and fruit from plants.

Teacher Tidbits

Do you know another name for bees and ants? If you said insects, you're correct. There are more different types of insects than any other organism on the planet! Insects are creatures with six segmented legs and three-part bodies. The parts are the head, thorax, and abdomen. Bees and ants both have compound eyes (made up of many tiny eyes) and antennae (or feelers).



Bees and ants also follow the same kind of life cycle, a metamorphosis. First, the queen bee or ant (the mother of all the bees and ants) lays an egg. After a period of time, a larva hatches from the egg. The larva doesn't look like a bee or ant at all, but actually looks like a worm! Although the larva doesn't have legs and is generally immobile, it will move its head toward food. Soon the larva becomes a pupa (pyu-pa). In this stage, the pupa begins to look more like a bee or an ant. Following a molting (or shedding) process, a full-grown bee or ant emerges.

After that initial molting, bees and ants will molt several times throughout their lives. Molting is how insects grow! Since bees and ants have exoskeletons (hard, armor-like covering), they must shed it, or molt, in order to grow.

Another common feature between bees and ants is that they're both very social creatures. Like most social insects, they live with other bees and ants in large group communities. Bees live in beehives with many other bees. Ants live in anthills or colonies. Another name for insect communities is nest.

Teach about the classification of animals.

Scientists use a system called classification to keep track of animals. The system has seven levels. Animals are put into different levels based on their characteristics. Some classification characteristics include: has fur or skin, is warm-blooded or cold-blooded, has a backbone or not, lives in water or on land, and eats plants, animals, or both. (See if your children can come

up with other characteristics that could be used in classification.) Along with butterflies, beetles, lice, and a host of other creepy crawlies, bees and ants are among the *Insecta* class.

Beneath that level of classification is order. Bees and ants both belong to the same order: *hymenoptera*. In addition to having a three-part body like other insects, all *hymenopterans* have two pairs of membrane-like (thin and often see-through) wings. The very last level of the classification system only has animals that all look and act almost identical. This level is called species. For example: Fire ants and carpenter ants are both ants, so they have a lot of characteristics in common. But fire ants and carpenter ants are also different in some ways, such as what they eat and where they live. That's why these two types of ants belong to two different species. Likewise, honeybees and bumblebees also belong to two different species.

In addition to fire ants and carpenter ants, there are approximately 15,000 other species of ants. All of them live in well-organized communal societies, in which all the ants work for the good of the colony, putting its needs ahead of their own. Ants will even fight to the death to protect their colonies!

There are about 1,000 different bee species. Of those, around 300 are considered stingless, as in they don't have a stinger. Among the stinging bee species, some can sting over and over again; for others, their first sting will be their last. For those bees, the stinger, or ovipositor, is barbed at the end, so when the bee flies away after stinging, it gets stuck in your skin, tearing away part of the bee's abdomen. Soon after, the bee dies. And you thought a bee sting was bad for you!

Teach how bees and ants are helpful

Although some people refer to them as pests, bees and ants are two insects that actually help humans in some ways. For example, in their hunt for food, ants clean up the environment by removing dead bugs, leaves, and food items left behind by humans and animals. They also eat harmful insects. The tunnels that ants dig in their nests allow more air to reach the soil, which helps plants grow.

As for bees, they make the honey we eat! First, a honeybee visits a flower, collecting nectar. Then they return to the hive and regurgitate (return undigested food from stomach to mouth) the nectar into the honeycomb. The bees repeat this process several times. Inside the bees' stomachs, the nectar combines with enzymes (something bodies make to help digest food) and produces honey. Bees make and store honey so they'll have food to eat during the winter when there are no flowers, but human beekeepers harvest honey for us to eat, too!

Silly Science

What goes zzub, zzub?
A bee flying backwards!

What did the bee say to the flower?
Hi, honey!

Where do ants like to go on vacation?
Frants!

Who do you call when an ant gets injured?
The ant-bulance!

Fun Facts

Sweet states: Arkansas, Georgia, Kansas, Louisiana, Maine, Mississippi, Missouri, Nebraska, New Jersey, North Carolina, Oklahoma, South Dakota, Tennessee, Utah, Vermont, Wisconsin have all have designated the honey bee as its state insect.

Ants are really strong—most can lift objects 20 times heavier than they are. That would be like you being able to lift a car!

Way Cool Websites

Learn to identify 20 different types of bees and ants with this [insect database](#).

Check out this interactive bee photograph to get an in-depth look at a [honeybee's anatomy](#).

Help Archibald Ant find food to bring back to the colony with this [online game](#).