



Bee Dance

Modeling Activity

All animals communicate. Birds communicate with chirps, guard dogs bark warnings, gorillas beat their chests, and humans communicate with words. Some animals communicate with chemical signals, like when a dog marks its territory or ants leave a trail of chemicals called pheromones for other ants to follow. But how do bees communicate? They communicate with chemical signals and with a dance! Through their dance they can tell other bees how far away a food source is and the direction to go to find the source of food. Let's try dancing like a bee and see if you can communicate to your fellow bees where the food source is located.

What you need:

- Two artificial flowers (or other lightweight plastic object)
- Chalk
- Pipe cleaner for antennae (optional)
- Vanilla extract, almond extract, perfume, or other scent

DANCE



Set up:

1. Spray or sprinkle a scent on two artificial flowers.
2. Plant these scented flowers in your yard in the same location.
3. Bees (children) can make two antennae from pipe-cleaners to wear on their head, while the adult prepares the 'field'.

Optional: Make it more challenging for older children by using a different scent on two additional flowers and place in a different location.

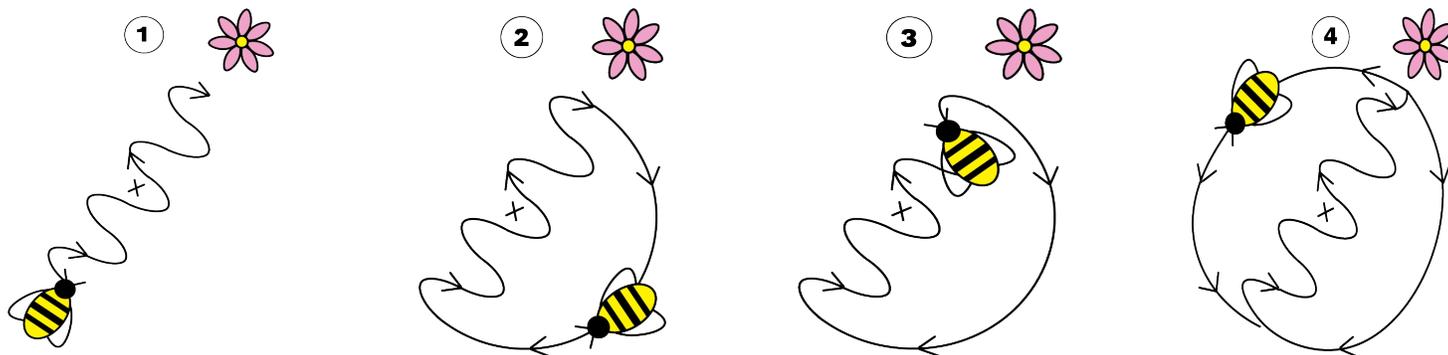
Practice the Bee Dance:

1. Use chalk to draw a giant 5 to 6-foot diameter circle on the ground. Mark a starting point on the outside edge of the circle. Put an X in the center of the circle.
2. Have a 'bee' walk down the center of the circle (going across the X) to the other edge of the circle, then turn to the right and walk along the chalked circle to the starting point.
3. The bee should then go down the center of the circle again and this time, turn to the left and walk along the chalked circle back to the starting point.
4. The most important part of the dance is when the bee walks down the center of the circle. The bee will waggle its body and make a buzzing sound with its wings during this part of the dance. Then the bee goes around the circle to the right without wagging until reaching the starting point. She repeats the waggle and then goes around to the left, back to the starting point. The direction the bee faces when she does her waggle will let the other bees know what direction to find the food source. The length of the waggle and buzzing gives the sense of distance. For bees 1 second of waggle and buzzing represents about 1000 feet. For our game, the bee will waggle for 10 seconds if the 'food' is a long way away, or for 3 seconds if it is near the hive.
5. Have the bees practice the waggle part of the dance by buzzing and wiggling their body and their arms.



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Game Begins:

1. All bees should have their antennae on their heads. The antennae are used to smell the scent of the nectar or pollen the scout brings back to the hive.
2. Send out one forager scout to look for food - nectar and pollen (artificial flowers).
3. Once scout has found the food, the scout should return to the hive (chalk circle) with one of the artificial flowers.
4. Now the scout has to communicate to her sister bees three things:
 - a. What flower to look for.
 - b. The direction to fly to find the flower/food source.
 - c. How far away the flower/food source is.
5. When the scout bee returns to the hive, she holds the artificial flower and the other bees use their antennae to smell the flower. The scout now does the dance facing in the direction that the nectar/pollen-rich flower was found. If the flower is a long way from the hive, the wagging and the buzzing should go for ten seconds. If it is close, it should be shorter, about 3 seconds.
6. The bees that remained at the hive can now try to find the food source based on the scent, the direction of the waggle, and how long the dance lasted.
7. Once the bees have found the flower, they bring it back to the hive.

Nectar and pollen are both important in the lives of honeybees. Worker bees collect pollen and nectar from flowers, which is shared with other workers in the hive. The pollen provides proteins to the bees and the nectar provides sugars. Not only does it provide food for the workers, but it helps them produce wax to build their nest. Nurse bees feed nectar to the young larvae. As the larvae get bigger a mixture of nectar and pollen, called beebread, is fed to them. The nectar is stored in hexagonal cells and eventually becomes honey. The bees cap the honey and use it for their winter food source.

Check out this waggle dance from the Smithsonian Channel. The University of Nebraska State Museum is a proud Smithsonian Affiliate.
www.youtube.com/watch?v=LU_KD1enR3Q

