

Bees! Hardworking PD (Pollination Department) Workers!

A Relay Race

Essential Question:

How do honey bees work as pollinators?

At a Glance:

This game demonstrates how a honeybee hive functions

Background Information:

Honeybees live in a highly organized colony. A colony is like one big family and generally contains one breeding female, or “queen”, about a hundred males – “drones”, and a large population of sterile female “worker” bees. The queen bee lays eggs. Drone bees will leave the colony and mate with young queens from other colonies and fertilize her eggs. Worker bees are the ones that you see most often. Their job is to gather nectar and pollen for the hive. They do not mate.

Worker bees gather nectar and pollen from flowers for food. They use the nectar to make honey and pollen provides nutrients to young bees or brood. Honey is used as food for the brood and it is and used as food for the adult bees during the times when there are no flowers.

While the bees are gathering food, they scatter pollen from flower to flower thereby pollinating many flowers. Flowers produce sweet nectar as an incentive for bees to visit and hence, pollinate. When bees leave the hive and find a nice patch of flowers, they need to let the other bees in the hive know. They do this by performing a “waggle” dance that tells the other bees the direction and distance to the flowers.

Getting started:

Assemble all supplies. Choose a playing area either outside or an indoor area such as a gym or hallway.

Place a flower container with tokens half way across the playing area in front of each team. Place a second flower at the far end of the playing area in front of each team. Determine a starting line for the teams and place boxes that represent the beehives at the starting line. *See attached Playing Field Diagram.*

Procedure:

1. Review the following information to the learners: Bees gather nectar and pollen from flowers for their own use as food. They use the nectar to make honey and pollen is used to provide

Location: Outside in a playing field or open, flat area

Objectives: *Learners will*

- 1) name two things that bees get from flowers – nectar and pollen
- 2) describe what bees do with nectar and pollen
- 3) describe how bees communicate with other bees in a hive.

Skills: communicating, role-playing

Supplies:

- pollen tokens: small strips of cardstock or other material that is all one color. There should be no less than 2 pollen tokens per learner.
- nectar tokens: similar to pollen tokens but a different color. There should also be no less than 2 nectar tokens per learner.
- 2 cardboard boxes (or similar container) to represent the beehive. The hive should be empty at the beginning of the game
- two large cans or other containers (with pictures of flowers on them) per team to represent flowers. Each flower should have pollen and nectar tokens in it; there should be no less than one pollen token and one nectar token per each child on a team.
- two bee pictures or puppets (1 per team)

Subject: Science

Time: 25 minutes

important nutrients to young bees or brood. While the bees are gathering food they scatter pollen thereby pollinating many flowers. Flowers produce sweet nectar as an incentive for bees to visit and to therefore pollinate. When bees leave the hive and find a nice patch of flowers - they need to communicate the location of the flowers with the other bees in the hive. They do this by performing a “waggle” dance which tells the other bees the direction and distance to the flowers.

2. In this activity learners will pretend that they are bees and will fly from their hive to flowers in the field where they will collect nectar and pollen, pollinate a flower, fly back to their hive and communicate with other bees by doing a waggle dance.
3. Demonstrate the rules. Break the learners up into two or more even teams (the number of learners in a team will determine the length of the activity). Ask the teams to stand behind a starting line and place the ‘Beehive’ container at the beginning of the line. This is where the bees will deposit all of the nectar and pollen that they collect in the field.

Place a flower container with tokens half way across the playing area in front of each team. Place a second flower at the far end of the playing area in front of each team. See attached Playing Field Diagram.

Explain the rules: The runner holds the bee puppet / picture while running. Each runner in turn must go to the first flower bucket and pick out one pollen token and one nectar token. The runner must then go to the second flower bucket and deposit one pollen token in the bucket. The runner must then pick up one pollen token and one nectar token from that container. The runner now has two nectar tokens and one pollen token. The runner runs back to the hive and places the tokens in the beehive container. Before passing the bee puppet to the next runner in line the current runner must do a waggle dance that includes at least one total rotation of the body. Then the ‘bee’ is passed to the next learner and the previous runner sits at the end of the line.

An additional rule that can be used if the kids in line are getting restless is the presence of a Queen Bee that all the other bees have to listen too. The Instructor plays this role, and they can call out any rule at any time that the bees have to follow, for example “Queen Bee says everyone must hop on one leg”

4. Start the relay race. Encourage all the kids to participate in the race even if one of the teams has finished. When all teams have finished the race, look in the beehives and the flower containers and analyze the contents.



Discussion/Assessment

What do bees pick up when they are visiting flowers?

What do they do with the nectar?

What do they do with the pollen?

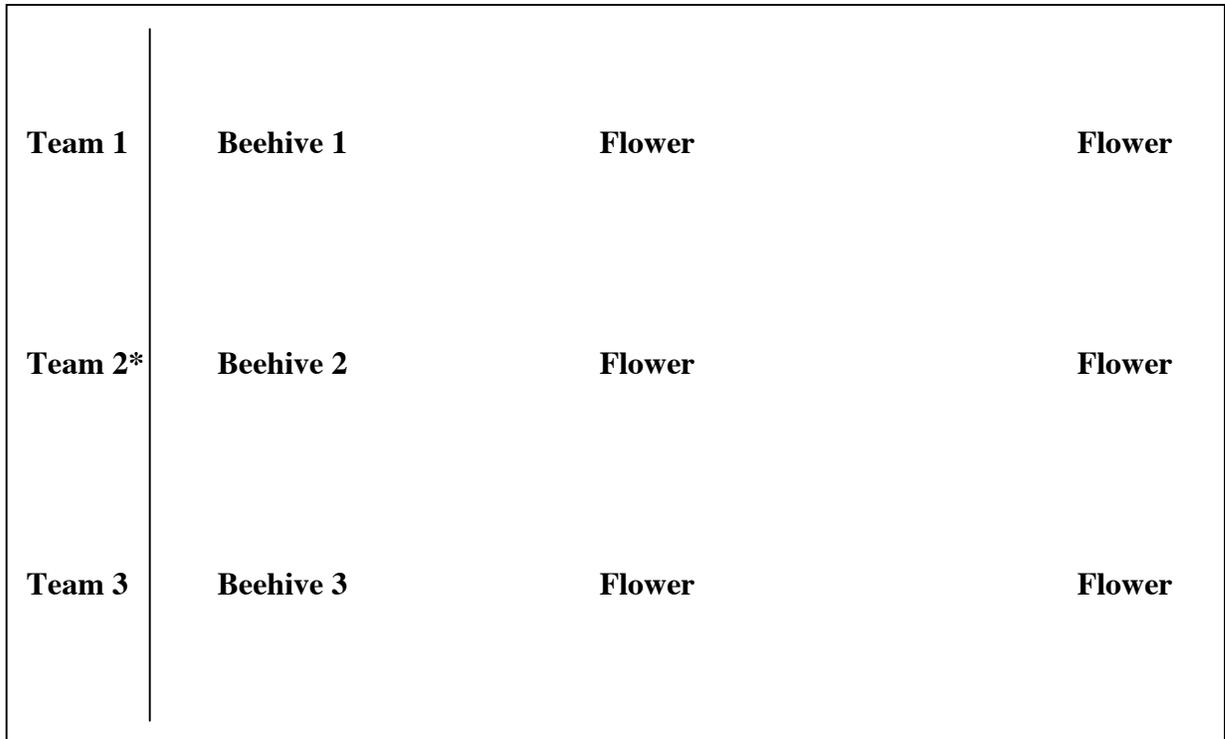
How do the bees help the flowers?

How do the flowers help the bees?

How do bees tell other bees where the flowers are?

Bees, Hardworking PD (Pollination Department) Workers! A Relay Race

Playing Field Diagram



***Note:** The game can be played with two or more teams of bees (hives).

Nectar

Pollen

Bee image to cut out & attach to stick for Relay Race



Bee hive image to print and attach to box for Pollinator Relay Race

