

## **Bees and Other Hymenopterans**

### **Biological Classification Series**

**Grade Levels:**

Grades 5-10

**Subject Areas:**

Science

Life Sciences

Biology

**Synopsis:**

Introduces the members of the order, Hymenoptera, with their characteristic slim shape and two pairs of jointed, membranous wings. Distinguishes between social insects such as bees, wasps and ants, and solitary Hymenopterans such as carpenter bees or ichneumon flies. Further distinguishes the order by noting that living in colonies as termites do, is not a qualification. Pays close attention to the social divisions within a beehive and the life cycle of the honeybee.

**Learning Objectives:** Students will:

Explain the roles of workers, queens and males in a beehive.

Explain why bees, wasps and ants are Hymenopterans.

Appreciate the extensive variation within this order.

Describe the use and function of the ovipositor.

Understand that termites are not part of this order.

**Vocabulary:**

Hymenopterans, pollen, nectar, working bees, organization, cells, brood, larva, larvae, queen bee, pupa, royal cells, inseminate, nuptial flight, antenna, communicate, community, bumblebees, colonies, pollination, wasps, paper wasps, wasp-waisted, membranous, venomous, carpenter bee, solitary, aggressive, aphid, ichneumon fly, ovipositor, termites

**Pre-Viewing Discussion:**

How many of you are afraid of bees? Why are you so afraid?

Where are you likely to see bees? What environments do they like? Why do they like these environments?

How do bees contribute to the ecology of the environments they inhabit?

How are ants and wasps similar to bees? How are they different?

What is the name of the bee that nests on the ground?

Are termites related to bees and wasps?

**Post-Viewing Discussion:**

How many bees live in the typical hive? What roles do they play within the colony?

What is the purpose of cells in a beehive? How many eggs can a queen bee lay in a day?

How do the hives of bumblebees differ from those of honeybees?

What are the characteristics of all Hymenopterans? How many species of Hymenoptera are there in the world? Are termites Hymenopterans?

**Further Activities:**

Find out which of the five major classification groups bees and other Hymenopterans are in (i.e. Kingdom, Phylum, Class, Order, Family). Chart the relationships of animals in the largest to the smallest taxonomic groups around them. What characteristics make this group similar to and different from the other groups to which they are related? Then, pick one species from the program and determine its genus and species name, writing them in the proper scientific terminology. Find out why the genus and species name is written the way it is.

Investigate how beekeepers are able to harvest the products of honeybees without getting stung. How does knowledge of bee habits help them do their jobs?

Discover how bees communicate with one another. In particular, how do worker bees let the others know where there are good sources of nectar?

Investigate how wasps construct the wasp nest. What patterns do these constructions form? What are the building materials? Where are wasps likely to locate their nests?

Investigate the role of Hymenopterans in decomposition. Do they play a significant role in soil production?

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