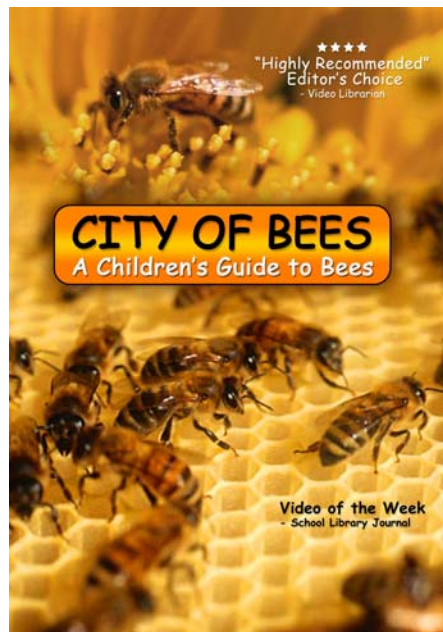




City of Bees

Lesson Plan/Guidebook



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CITY OF BEES

LESSON PLAN/GUIDEBOOK

LESSON ONE:

Discussion Questions for “City of Bees”

Materials needed: DVD

Time to complete: 15 minutes

After viewing the film “City of Bees”, ask your students the following questions:

1. What are the various kinds of bees found in a beehive and what job/role does each bee have? Answers include Queen Bee, Worker, Soldier, and Gatherer. Ask students about the bees’ different jobs and how they relate to jobs or chores that they or their parents/guardians do around the house?
2. What is propolis? What purpose/function does it play in the hive? Answers can range from it is used to clean out cells in the hive and to prevent bacteria from growing in the hive. Ask why it’s important to keep a house or space clean like the bees do in their hives.
3. How do bees make honey? What kinds of flowers/plants are gathered by bees to make it?
4. How do bees make cells in the hive? Discuss the construction bees and how they make wax from their glands. Have students relate how construction bees work in groups to complete their job to their own experiences of working in a group to complete a task.
5. How do bees talk to other bees? Discuss the scene where the bees “dance” to tell other bees about new flowers or water sources. What are ways that kids can tell someone where something is without talking?
6. How do bees pollinate flowers? What is the purpose of pollination for both bees and the flowers? Why is it important for us that bees pollinate flowers?

LESSON TWO

ACTIVITY - "I want to fly like a bee"

Time to complete: 20-30 minutes.

Materials needed: DVD, stopwatch, pencil, paper

Have students watch the section of the film where the kids try to fly as fast as a bee and then time themselves with a stopwatch. (This scene is found in Chapter 2 of the DVD).

Activity:

Have students go outside and pair up in groups of three. One student will be the "bee", one will have the stopwatch, while the other student will have the pencil and paper.

Have the "bee" run for a distance of 100 feet or 30 meters. As soon as the "bee" starts running, have the student with the stopwatch time the "bee's" run.

When they are finished, the other student should write down the "bee's" time.

When the "bee's" time is recorded, then have students multiply that number by 5, since bees can fly five times as fast as a human can run.

Have students alternate roles until each has a turn as the "bee", timekeeper and note-taker.

Questions for students:

1. How do bees navigate and find direction when they fly? Students should respond by saying that bees use the sun as a compass to guide them. Ask students what in their surroundings they would use to find their way home if they became lost?
2. Ask students if they were able to make note of objects, buildings, etc. while they were the "bee". Did their speed affect their ability to remember things? Could they tell other students where something was like bees do when they dance for the hive?

Name _____

Date _____

City of Bees Word Find

Find each of the following words.

HONEY
NECTAR
HIVE

LARVAE
BEEKEEPER
FLOWER

QUEEN
DRONE
WAX

SMOKE
PROPOLIS
POLLEN

E A O O N E N P O O E A H N N H P A I E A P
A H O E E P O O L O W F I E R P E I E N V A
N M A H C K E N N M A F N L K Q L P O O P O
P E E E T L A R V A E O L O L L R N R R O O
R A E B A E E E O L A E N E O O E X H D R L
Q U V D R E R E R E L E A W P E A P R O E E
E E I V E E L Q P L F P I O A W E P L C K N
O O H O H O N E Y T V H L S R N A S K P E A
E E L S W E R R V N U I E E N R O O E V I V
R O K H M E V E E R S E E O H R R O N I E O
P E P L R O V O O W R R K O E O N V O I K I
E L T P E H K H E F L O W E R X Q E N O E O
Q A H O O Y E E N A H E P T C R R P E I O P
O P N E E C N L E P N K T E O E O O N U H R
R E P E E K E E B E W A N E L L O P E R Q Q
E I L C W X V N O E F P E W N E F E O E E O

Answer Key

HONEY
BEEKEEPER
WAX

NECTAR
FLOWER
SMOKE

HIVE
QUEEN
PROPOLIS

LARVAE
DRONE
POLLEN

N E
 E N
 C P O
 T L A R V A E R R
 E A O X D
 V R P A
 I O W
 H H O N E Y L
 S I
 M S
 O N
 K F L O W E R E
 E E U
 R E P E E K E E B N E L L O P Q

Vocabulary

Honey

Honey is the complex substance made when the nectar and sweet deposits from plants and trees are gathered, modified and stored in the honeycomb by honey bees.

Beeswax

Worker bees of a certain age will secrete beeswax from a series of glands on their abdomen. They use the wax to form the walls and caps of the comb. When honey is harvested, the wax can be gathered to be used in various wax products like candles and seals.

Pollen

Bees collect pollen in the pollen basket and carry it back to the hive. In the hive, pollen is used as a protein source necessary during brood-rearing. In certain environments, excess pollen can be collected from the hive. It is often eaten as a health supplement.

Propolis

Propolis (or bee glue) is created from resins, balsams and tree saps. Honeybees use propolis to seal cracks in the hive. Propolis is also sold for its reported health benefits.

Resources:

Websites:

University of Arizona Africanized Honey Bee Project
Offers lesson plans and information on bees for grades K-12
<http://ag.arizona.edu/pubs/insects/ahb/ahbhome.html>

Smithsonian Institute
Partners in Pollination
Offers information and lessons on pollination and bees. Appropriate for older students grades 3 and above.
http://www.smithsonianeducation.org/educators/lesson_plans/partners_in_pollination/

BOOKS AND TEACHING GUIDES:

Brackenbury, John. *Insects and Flowers: A Biological Partnership*. Dorset, England: Blandford Press, 1995.

Cole, Joanna. *The Magic School Bus Plants Seeds: A Book About How Living Things Grow*. New York: Scholastic, 1995.

Johnson, Sylvia A. *Roses Red, Violets Blue: Why Flowers Have Colors*. Minneapolis, Minn.: Lerner Publications, 1992.

Proctor, Michael, Peter Yeo, and Andrew Lack. *The Natural History of Pollination*. Portland, Ore.: Amadeus Press, 1996.