

Honey Bees Learning Materials

Overview

UF researchers are studying the genetics of bees and a strange disorder known as Colony Collapse Disorder which is contributing to the disappearance of bee populations throughout the United States.

Materials

1. Video: African Bees (2.5 minutes)
2. Video: Bee Love (3.5 minutes)
3. Video: I Heart Honey Bees (4 minutes)
4. Video: Where are the bees? (2.5 minutes)
5. News story: Dance of Death - The mating rituals of bees



Interest approach

Concept map

Have students create a concept map around the word bees.

To create a concept map:

1. Place main idea at top or in center of page
2. Write information known about the topic from general to specific
3. Use linking words to connect ideas
4. Modify your map as you learn

When students have completed their maps, have students create a classroom concept map on the overhead or board. Remind students to modify their concept maps as they watch the videos, read the news story, and complete the lesson.

Discussion Questions

Video: African Bees

1. Why are scientists studying African bees?
2. How are African bees affecting the European bees common in the United States?

Video: Bee Love

1. What are the different roles of male and female bees in the colony?

Video: I Heart Honey Bees

1. How do honey bees benefit mankind?

Video: Where are the bees?

1. What is Colony Collapse Disorder?

News story: Dance of Death

1. How do male Drones and female Queens mate?

Quiz Questions

Video: African Bees

1. What happens when you cross a European bee with an African bee?

Answer: The genes for the African bee are dominant, so the bee that is created has the traits of an African bee (more aggressive, resistant to pests and disease).

2. What are some positive characteristics of African bees?

Answer: African bees are resistant to pests and disease.

3. Where do the honey bees that are common in the United States come from?

Answer: The honey bees common in the United States come from Europe.

Video: Bee Love

1. T/F: The male honey bee is known as the Worker and he has a stinger.

Answer: False. The female honey bee is known as the Worker and has a stinger.

2. T/F: Drones and the Queen honey bees mate in the air.

Answer: True

3. T/F: The act of mating kills the male drone.

Answer: True.

Video: I Heart Honey Bees

1. Where does the wax come from that the honey bees use to create their honey combs?

Answer: The wax comes from a man-made wax foundation and the underside of the bees abdomen.

2. What are the four things that bees collect when they leave the hive?

Answer: Bees collect water, tree resin, nectar and pollen.

3. What benefit do people gain from bees?

Answer: When bees collect pollen from flowers they pollinate flowers and in the process pollinate the flowering plants that become the fruits and vegetables we eat.

Video: Where are the bees?

1. What are some common honey bee pathogens or something that causes diseases in the honey bees?

Answer: Some common honey bee pathogens include fungi, parasitic mites and viruses.

2. What percentage of the honey bee colony has been lost due to Colony Collapse Disorder?

Answer: Bee keepers have found that anywhere between 50% - 90% of their bees disappear from the colonies.

News Story: Dance of Death

1. What percentage of bee colonies are drones or male honey bees during the peak reproduction season?

Answer: The colony is approximately 10% male bees.

2. How long do drones live?

Answer: Drones live for only three to four weeks.

Activities

Comparing European and African Honey Bees

Supplies: African Bees Video, The Genetics of Bees News Story, paper, writing utensil

Directions: Have students watch the African Bees Video and read The Genetics of Bees News Story. Have

them each design a compare and contrast diagram of their choice for the two varieties of bees. When they have completed the diagram have them choose one characteristic and write a paragraph explaining why genetic research is important for that characteristic and the practical applications of the characteristic. Have students share their responses for why genetic research is important for the particular characteristics.

Florida's Comprehensive Achievement Test (FCAT) Writing Prompts

Video: African Bees

Writing to Explain

- How are African bees affecting the European bees here in the United States?

Video: Bee Love

Writing to Explain

- What are the differences between the roles of drones and workers in a honey bee colony?

Video: I Heart Honey Bees

Writing to Persuade

- Write an essay that persuades your audience that bees are an insect that should be protected.

Video: Where are the bees?

Writing to Explain

- How does the Colony Collapse Disorder affect honey bees in the colonies?

News Story: Dance of Death

Writing to Explain

- What is the role of a drone in a colony?

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The Scientific Thinking and Educational Partnership (STEP) program at the University of Florida tries to make cutting-edge genetics research conducted at the University accessible to middle school and high school students through educational materials. The goal of the STEP program is to interest students in science to create a more scientifically-literate public and encourage students to enter into scientific careers. For more information on the STEP program visit <http://step.ufl.edu>. To review additional educational materials on genetics produced by the STEP production team visit <http://ufgenetics.com>