



The Book Planter



Ag in the Classroom

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The Thing About Bees: A Love Letter

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*"Sometimes bees can be a bit rude.
They fly in your face and prance on your food."*

And yet...without bees, we might not have strawberries for shortcakes or avocados for tacos!

Shabazz Larkin's *The Thing About Bees* is a Norman Rockwell-inspired Sunday in the park, a love poem from a father to his two sons, and a tribute to the bees that pollinate the foods we love to eat. Children are introduced to different kinds of bees, "how not to get stung," and how the things we fear are often things we don't fully understand.



Did You Know?¹

- The honeybee is the state insect for North Carolina and 15 other states.
- Bees pollinate 95 different crops, helping to create nearly one-third of the world's food supply.
- In North Carolina, bees help to pollinate strawberries, apples, and broccoli to name a few.
- A queen bee can lay over one million eggs in her lifetime.
- Honey is the only food produced by insects that is eaten by humans on a wide scale.

Interest Approach – Engagement

1. Say, "Raise your hand if you are scared of bees." Select a few students to share their story. Prompt them by asking, "What frightens you?" Some may answer that they're scared of bee stings.
2. Tell the students, "Did you know that bees are important to humans? Do you know why?" Allow students time to think and answer.
3. Explain to students that bees pollinate many of the fruits and vegetables we eat.
4. Read *The Thing About Bees: A Love Letter* as a whole class, and allow students time to answer the **Discussion Questions**.

Discussion Questions

1. Who are the main characters? Do we know their names? How do we know they are the main characters?
2. Who is the narrator?
3. How does the narrator compare bees to humans?
4. What would happen if there were no bees?
5. What fruits and vegetables are pollinated by bees? What examples are in the book?

6. Why are bees important to the world?
7. Why do we need pollination?
8. What would we do without bees?
9. What is an example of a “kind” pollinator? What makes them kind?
10. What is an example of a “kinda mean” pollinator? What makes them “kinda mean?”
11. Make a list of the pollinators you have seen in real life.
12. Did this book help you feel less scared of bees? Explain your answer.

Activity 1: Bee Anatomy¹

Materials:

- Preserved or mounted honey bee, 1 per group (if your school does not have a mounted insect collection, preserved honeybees can be found online at school and science specialty stores. You can also ask any local beekeepers to share their collection. If a preserved honey bee cannot be obtained, project the honey bee image from the [Honey Bee PowerPoint](#) in the **Links** section)
 - [Honey Bee PowerPoint](#)
 - [Anatomy of a Worker Bee Worksheet](#)
1. Create groups of 4-5 students. Provide each group with hand lenses and preserved honey bees. Ask the students to examine the bees and, as a group, make a chart listing the details they observed. Provide time for each group to present their observation to the class.
 2. Explain to the students that honey bees have three main body regions—the head, thorax, and abdomen. Use the Honey Bee PowerPoint slides to discuss the main parts of a worker bee.
 3. Ask the students to label the parts of a worker bee on the Anatomy of a Worker Bee activity sheet.

Activity 2: Pollination Simulation¹

Materials:

- Construction paper
- Black chenille stems, 2 per worker bee headband
- 8 containers of 100 mini (5mm) pompoms* (different colors)
- 8 small containers* of water
- 16 medium-sized (1”) pompoms*
- 16 jewel bags (1.5” x 2”) with yarn tied as a necklace*
- 16 drinking straws*
- Construction paper, 25 pieces

*These items are included in the [Pollination Simulation Kit](#), available for purchase on the National Ag in the Classroom store.

1. Discuss the roles of each of type (or caste) of honey bee—queen, drone and worker.
 - a. The **queen** bee is a female that lays eggs. Each colony has only one queen bee. The queen can live up to four years and can lay over one million eggs in her lifetime. She can lay close to one egg per minute and between 1,000-2,000 eggs a day.
 - b. **Worker** bees are female bees who perform many of the jobs for the colony, including feeding the larvae; cleaning the hive; creating wax and using it to make new cells;

grooming and feeding the queen; guarding and protecting the hive; and leaving the hive to collect pollen, nectar, and water. Worker bees live for about six weeks in the summer and longer in the winter months when they are less active.

- c. **Drones** are male bees responsible only for mating with the queen. They do not work. There are about 100 drones in each colony. They live for about eight weeks in the summer, and are then expelled from the colony and die in the fall.
2. Simulate the role worker bees play in pollination by conducting a pollination simulation. Choose 8 students to represent flowers, 16 students to represent worker bees, and 1 student to represent the queen bee. The number of flowers and worker bees may vary according to class size. Extra students can represent the worker bees and drones that remain in the hive.
3. Have the students create construction paper headbands to differentiate flowers, worker bees, and the queen bee. Draw and cut out flowers to glue onto the flower headbands. Create antennae using chenille stems to staple onto the worker bee headbands. Cut out a crown-shaped headband for the queen bee.
4. Choose a large area, preferably outdoors, to serve as the “garden” and a smaller area to the side of the garden to serve as the “beehive.”
5. Each flower will hold one container of mini pompoms (a different color for each flower) to represent pollen and one container of water to represent nectar. The flowers will choose a location inside the garden in which to stand.
6. Each worker bee will carry one medium-sized pompom to represent the bee’s hairy body, one jewel bag tied with yarn and worn as a necklace to represent the honey sac, and one straw to represent the proboscis.
7. The worker bees will begin at the beehive with the queen, drones, and other workers whose duties require them to work inside the hive. When the queen bee gives the command, the worker bees will leave the hive in search of nectar from flowers.
8. When a worker finds a flower, they will land their medium-sized pompom into the container of mini pompoms. The worker will then simulate gathering nectar with their proboscis by filling a straw with water using their finger to create a vacuum. The water will be deposited into the jewel bag. When the worker removes the medium-sized pompom from the container, the tiny pompoms will stick to the larger pompom much the same way pollen sticks to the hairs of a bee when it visits a flower.
9. After collecting nectar and pollen from the flower, the worker will find a new flower to visit. Here, the worker will brush off some of the pollen collected from the previous flower into the new flower’s container. They will then collect more nectar and pollen before visiting another flower.
10. Once the worker bee has filled their honey sac with nectar, they will return to the hive.
11. Lead a discussion about what the students observed during the simulation. Did the flowers end with the same color of pollen they started with?
12. For the purpose of this simulation, the worker bee must collect nectar and pollen from each flower before visiting a flower for a second time, and only two bees may visit the same flower at once.
13. Trade roles and repeat the simulation as many times as desired.

Activity 3: A Day in the Life of a Honey Bee³

1. Lead a discussion about the importance of honey bees and how they affect the environment. Integrate the following points into the discussion:

- a. As bees travel to find nectar, they brush up on the flower's pollen.
 - b. Pollen is powder-like and sticks to the bees' hairy bodies.
 - c. When the bees fly to the next flower, some of the pollen is brushed off onto the flower.
 - d. The flower uses the pollen to make seeds which can grow new plants that give us fruits, nuts, and vegetables. We depend on pollination for the fruits and vegetables we eat.
2. If time allows, students may use technology to research honey bees further.
3. Ask the students to think about what they have learned about honey bees and what a honey bee's day might be like.
4. Have the students write and/or draw about where they would fly and what they would do if they were honey bees. Allow time for the students to share their work.

Links

- **Honey Bee PowerPoint (Activity 1)**
https://cdn.agclassroom.org/media/uploads/2015/01/20/Honey_Bee.pptx
- **Anatomy of a Worker Bee Worksheet (Activity 1)**
<https://cdn.agclassroom.org/media/uploads/2015/01/20/AnatomyofaWorkerBee.pdf>

Sources

1. <https://www.agclassroom.org/matrix/lesson/84/>
2. <https://www.nczoo.org/wildlife/animals/honey-bee>
3. <https://agclassroom.org/matrix/lesson/686/>

K-5 Subject Areas

Reading, Writing, Speaking and Listening, Science, and Social Studies

NC Standard Course of Study

Reading

- **RL.K.1** With prompting and support, ask and answer questions about key details in a text.
- **RL.K.3** With prompting and support, identify characters, settings, and major events in a story.
- **RL.K.9** With prompting and support, compare and contrast the adventures and experiences of characters in familiar stories.
- **RL.1.1** Ask and answer questions about key details in a text.
- **RL.1.2** Retell stories, including key details, and demonstrate understanding of their central message or lesson.
- **RL.1.3** Describe characters, settings, and major events in a story, using key details.
- **RL.1.9** Compare and contrast the adventures and experiences of characters in stories.
- **RL.3.1** Ask and answer questions to demonstrate understanding of a text, referring explicitly to the text as the basis for the answers.
- **RL.3.3** Describe characters in a story and explain how their actions contribute to the sequence of events.
- **RL.4.3** Describe in depth a character, setting, or event in a story or drama, drawing on specific details in the text.
- **RI.K.1** With prompting and support, ask and answer questions about key details in a text.
- **RI.K.2** With prompting and support, identify the main topic and retell key details of a text.
- **RI.K.3** With prompting and support, describe the connection between two individuals, events, ideas, or pieces of information in a text.
- **RI.1.1** Ask and answer questions about key details in a text.
- **RI.1.2** Identify the main topic and retell key details of a text.
- **RI.3.1** Ask and answer questions to demonstrate understanding of a text, referring explicitly to the text as the basis for the answers.
- **RI.3.2** Determine the main idea of a text; recount the key details and explain how they support the main idea.
- **RI.4.1** Refer to details and examples in a text when explaining what the text says explicitly and when drawing inferences from the text.
- **RI.4.2** Determine the main idea of a text and explain how it is supported by key details; summarize the text.
- **RI.4.5** Describe the overall structure of events, ideas, concepts, or information in a text or part of a text.
- **RI.4.7** Interpret information presented visually, orally, or quantitatively and explain how the information contributes to an understanding of the text in which it appears.
- **RI.5.2** Determine two or more main ideas of a text and explain how they are supported by key details; summarize the text.
- **RI.5.7** Draw on information from multiple print or digital sources, demonstrating the ability to locate an answer to a question or to solve a problem efficiently.
- **RI.5.9** Integrate information from several texts on the same topic in order to write or speak about the subject knowledgeably

Writing

- **W.K.5** Participate in shared investigation of grade appropriate topics and writing projects.
- **W.K.6** With guidance and support from adults, recall information from experiences or gather information from provided sources to answer a question.

- **W.1.5** Participate in shared research and writing projects.
- **W.1.6** With guidance and support from adults, recall information from experiences or gather information from provided sources to answer a question.
- **W.2.5** Participate in shared research and writing projects.
- **W.2.6** Recall information from experiences or gather information from provided sources to answer a question.
- **W.3.2** Write informative /explanatory texts to examine a topic and convey ideas and information clearly.
- **W.3.5** Conduct short research projects that build knowledge about a topic.
- **W.3.6** Recall information from experiences or gather information from print and digital sources; take brief notes on sources and sort evidence into provided categories.
- **W.4.2** Write informative /explanatory texts to examine a topic and convey ideas and information clearly.
- **W.4.5** Conduct short research projects that build knowledge through investigation of different aspects of a topic.
- **W.5.2** Write informative /explanatory texts to examine a topic and convey ideas and information clearly.
- **W.5.5** Conduct short research projects that use several sources to build knowledge through investigation of different aspects of a topic.

Speaking and Listening

- **SL.K.1** Participate in collaborative conversations with diverse partners about kindergarten topics and texts with peers and adults in small and larger groups.
- **SL.K.2** Confirm understanding of a text read aloud or information presented orally or through other media by asking and answering questions about key details and requesting clarification if something is not understood.
- **SL.K.3** Ask and answer questions in order to seek help, get information, or clarify something that is not understood.
- **SL.K.4** Speak audibly and express thoughts, feelings, and ideas clearly.
- **SL.K.5** Add drawings or other visual displays to descriptions as desired to provide additional detail.
- **SL.1.1** Participate in collaborative conversations with diverse partners about grade 1 topics and texts with peers and adults in small and larger groups.
- **SL.1.2** Ask and answer questions about key details in a text read aloud or information presented orally or through other media.
- **SL.1.3** Ask and answer questions about what a speaker says in order to gather additional information or clarify something that is not understood.
- **SL.1.4** Produce complete sentences to describe people, places, things, and events with relevant details, expressing ideas and feelings clearly.
- **SL.1.5** Add drawings or other visual displays to descriptions when appropriate to clarify ideas, thoughts, and feelings.
- **SL.2.1** Participate in collaborative conversations with diverse partners about grade 2 topics and texts with peers and adults in small and larger groups.
- **SL.2.2** Recount or describe key ideas or details from a text read aloud or information presented orally or through other media.
- **SL.2.3** Ask and answer questions about what a speaker says in order to clarify comprehension, gather additional information, or deepen understanding of a topic or issue.
- **SL.2.4** Tell a story or recount an experience with appropriate facts and relevant, descriptive details, speaking audibly in coherent and complete sentences.
- **SL.3.1** Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 3 topics and texts, building on others' ideas and expressing their own clearly.
- **SL.3.2** Determine the main ideas and supporting details of a text read aloud or information presented in diverse media and formats, including visually, quantitatively, and orally.
- **SL.3.3** Ask and answer questions about information from a speaker, offering appropriate elaboration and detail.
- **SL.3.4** Report on a topic or text, tell a story, or recount an experience with appropriate facts and relevant, descriptive details, speaking clearly in complete sentences at an understandable pace
- **SL.4.1** Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 4 topics and texts, building on others' ideas and expressing their own clearly.
- **SL.4.2** Paraphrase portions of a text read aloud or information presented in diverse media and formats, including visually, quantitatively, and orally.
- **SL.4.3** Identify the reasons and evidence a speaker provides to support particular points.
- **SL.4.4** Report on a topic or text, tell a story, or recount an experience in an organized manner, using appropriate facts and relevant, descriptive details to support main ideas or themes; adjust speech as appropriate to formal and informal discourse.
- **SL.5.1** Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 5 topics and texts, building on others' ideas and expressing their own clearly.
- **SL.5.2** Summarize a written text read aloud or information presented in diverse media and formats, including visually, quantitatively, and orally.
- **SL.5.3** Summarize the points a speaker makes and explain how each claim is supported by reasons and evidence.
- **SL.5.4** Report on a topic or text or present an opinion, sequencing ideas logically and using appropriate facts and relevant, descriptive details to support main ideas or themes; adapt speech to a variety of contexts and tasks.

Science

- **K.L.1.2** Compare characteristics of living and nonliving things in terms of their structure and growth.
- **1.L.1.1** Recognize that plants and animals need air, water, light (plants only), space, food and shelter and that these may be found in their environment.

- **1.L.1.2** Give examples of how the needs of different plants and animals can be met by their environments in North Carolina or different places throughout the world.
- **1.L.1.3** Summarize ways that humans protect their environment and/or improve conditions for the growth of the plants and animals that live there (e.g., reuse or recycle products to avoid littering).
- **4.L.1.2** Explain how animals meet their needs by using behaviors in response to information received from the environment.
- **4.L.1.3** Explain how humans can adapt their behavior to live in changing habitats (e.g., recycling wastes, establishing rain gardens, planting trees and shrubs to prevent flooding and erosion).

Social Studies

- **1.G.2.1** Explain ways people change the environment (planting trees, recycling, cutting down trees, building homes, building streets, etc.).
- **1.G.2.2** Explain how people use natural resources in the community.
- **EX.2.C&G.2** Understand expectations of participating in a group.
- **4.E.1.3** Explain ways in which factors of production are influenced by the availability of resources in North Carolina.

Anatomy of a Worker Bee



Directions: Match the description with the correct part of the bee by writing the corresponding letter on the appropriate line below. Label the number of each bee body part in its correct location on the bee diagram above.

- | | |
|-------------------|-------|
| 1. head | _____ |
| 2. compound eye | _____ |
| 3. simple eyes | _____ |
| 4. antennae | _____ |
| 5. proboscis | _____ |
| 6. mandibles | _____ |
| 7. thorax | _____ |
| 8. wings | _____ |
| 9. legs | _____ |
| 10. pollen basket | _____ |
| 11. abdomen | _____ |
| 12. stinger | _____ |
| 13. honey sac | _____ |
| 14. wax glands | _____ |

- | | |
|----|--|
| a. | a stomach-like organ used to store nectar |
| b. | the middle region of the bee that contains the flight muscles, 4 wings, and 6 legs |
| c. | the front region of the bee that contains 2 compound eyes, 3 simple eyes, 2 antennae, mandibles, and the proboscis |
| d. | a collection of hairs where pollen is stored for transport |
| e. | movable feelers that detect smells and movement |
| f. | the rear region of the bee that contains organs for digestion, reproduction, and respiration as well as the stinger and wax glands |
| g. | glands that form and excrete wax |
| h. | used for walking, dusting antennae, brushing pollen off body hairs, and storing pollen |
| i. | beat 250 times per second allowing the bee to fly |
| j. | made up of tiny lenses that allow the bee to see ultraviolet light and visible light with the exception of red |
| k. | jaw-like structures used to knead wax and to chew honey and pollen |
| l. | have a thick lens that can sense changes in brightness |
| m. | a straw-like tongue used to suck nectar or honey |
| n. | barbed and has an attached venom pouch; used for defense |