



THE BEES KNEES AND MORE!

Grade Level

3-6

Length of Lesson

45 minutes

Objective

By the end of this lesson, students will know the different parts that make up a honeybee.

Materials Needed

- Copies of the labeled bee diagram
- Copies of anatomy flashcards*
- Copies of the student worksheet

StandardsCommon Core

CCSS.ELA-Literacy.RI.3-8.4; SL.3.6

NGSS

2-LS2-2; 4-LS1-2; MS-LS1-4

Lesson Summary

This lesson is designed to help students learn the different parts of a honeybee. Students can use the hexagon-shaped flashcards to deepen their understanding and learn more about the functionality of each part!

*If you want the flashcards printed so that the information is on the back side of the matching anatomical part, make sure your settings are changed to print double-sided, flipping on the long edge.

Suggested Sequence of Events:

1. Set Up: Print enough flashcards to have a few classroom sets. Print and cut the flashcards out and laminate to last longer!
2. Read through the IAITC Pollinator Ag Mag to learn more about pollination and other pollinators! Interactive online versions can be found on our website.
3. Complete the activity following the procedures:
 - Read "[Honeybee: The Busy Life of Apis Mellifera](#)" by Candace Fleming to snag student interest and introduce students to honeybee life.
 - Give each student a labeled honeybee diagram. As a class, read through the names of each of the parts. Talk about their location, structure, function, and uses.
 - Have students use the flashcards to deepen their understanding about the function and use of each part. Students can work individually or with a partner.
 - When students are ready, test their knowledge! Give each student a copy of the blank honeybee diagram and have them use the word bank to fill in the blank lines.
 - Give students crayons or colored pencils to color their honeybee when they finish!
4. Whole class discussion and reflection of activity. Ideas for discussion starters: How are the parts of a honeybee important for their survival? Why is important/helpful that honeybees have hair; what does this help with?

TEACHER RESOURCES

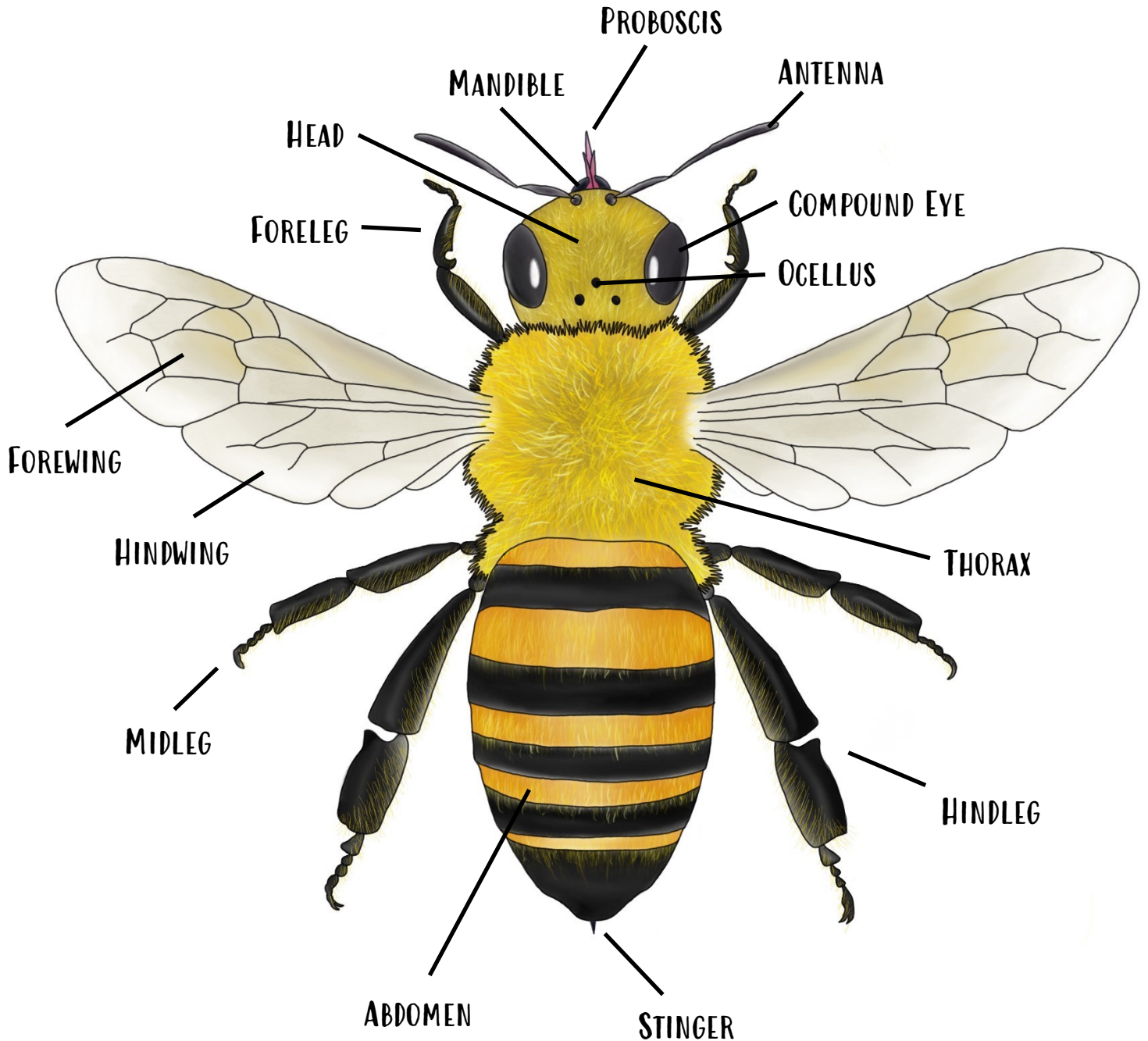
Extension Ideas:

- After reading “Honeybee: The Secret Life of *Apis Malifera*” by Candace Flemming, have students look at the pictures and analyze the images.
- Have multiple books around for students to read and learn more about honeybees and other types of bees! Here are some of our favorites:
 - [Give Bees a Chance](#) by Bethany Barton
 - [The Bee Book](#) by Charlotte Milner
 - [The Honey Makers](#) by Gail Gibbons
 - [Flight of the Honey Bee](#) by Raymond Huber
 - [Bee Dance](#) by Rick Chrustowski
 - [Please Please the Bees](#) by Gerald Kelley
- Use the IAITC Pollinator Ag Mag and complete the Pollinator Ag-Venture worksheet to strengthen non-fiction literacy skills.
- Watch the IAITC “Bee School” videos to learn more about bee keeping. These can be accessed on the Illinois Agriculture in the Classroom YouTube Channel.
- Learn about how honey is made in the hive and then harvested. Bring in different types of honey for students to taste test.
- Compare the anatomy of a honeybee to other types of bees and insects. What are the similarities and differences?
- Have students research other pollinators (in your state, in the U.S. and/or around the world) and share their information with the class.
- Learn about native wildflowers that are beneficial to pollinators.
- Learn about the structure of flowers and the process of pollination.
- Go to agintheclassroom.org to contact your County Literacy Coordinator for free classroom sets of our Ag Mags!



Science

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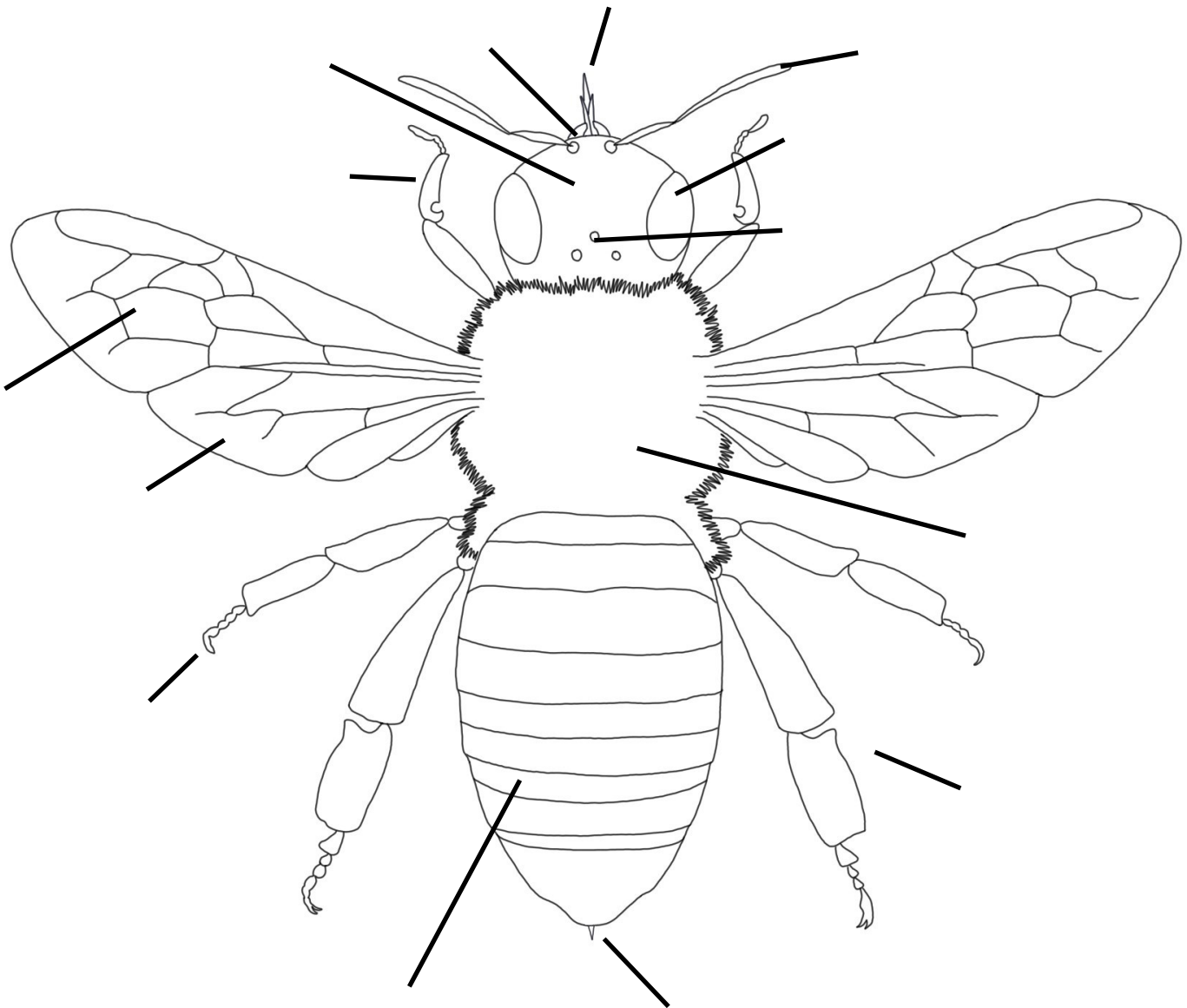




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STUDENT WORKSHEET



WORD BANK

Ocellus

Thorax

Foreleg

Mandible

Forewing

Hindwing

Abdomen

Head

Midleg

Hindleg

Proboscis

Stinger

Antenna

Compound Eye



ANATOMY FLASHCARDS: A

HEAD

- Front segment of the bee
- Contains important sensory parts for sight, smell, taste, and touch

ANTENNAE

- Found on the forehead
- Used for detecting scent since bees don't have noses!
- Also used for feeling around in the dark hive

MANDIBLES

- The powerful jaws of the bee
- Used for:
 - Moving, cutting, and shaping the wax to build the honeycomb
 - Grooming
 - Fighting off predators
 - Holding on to surfaces

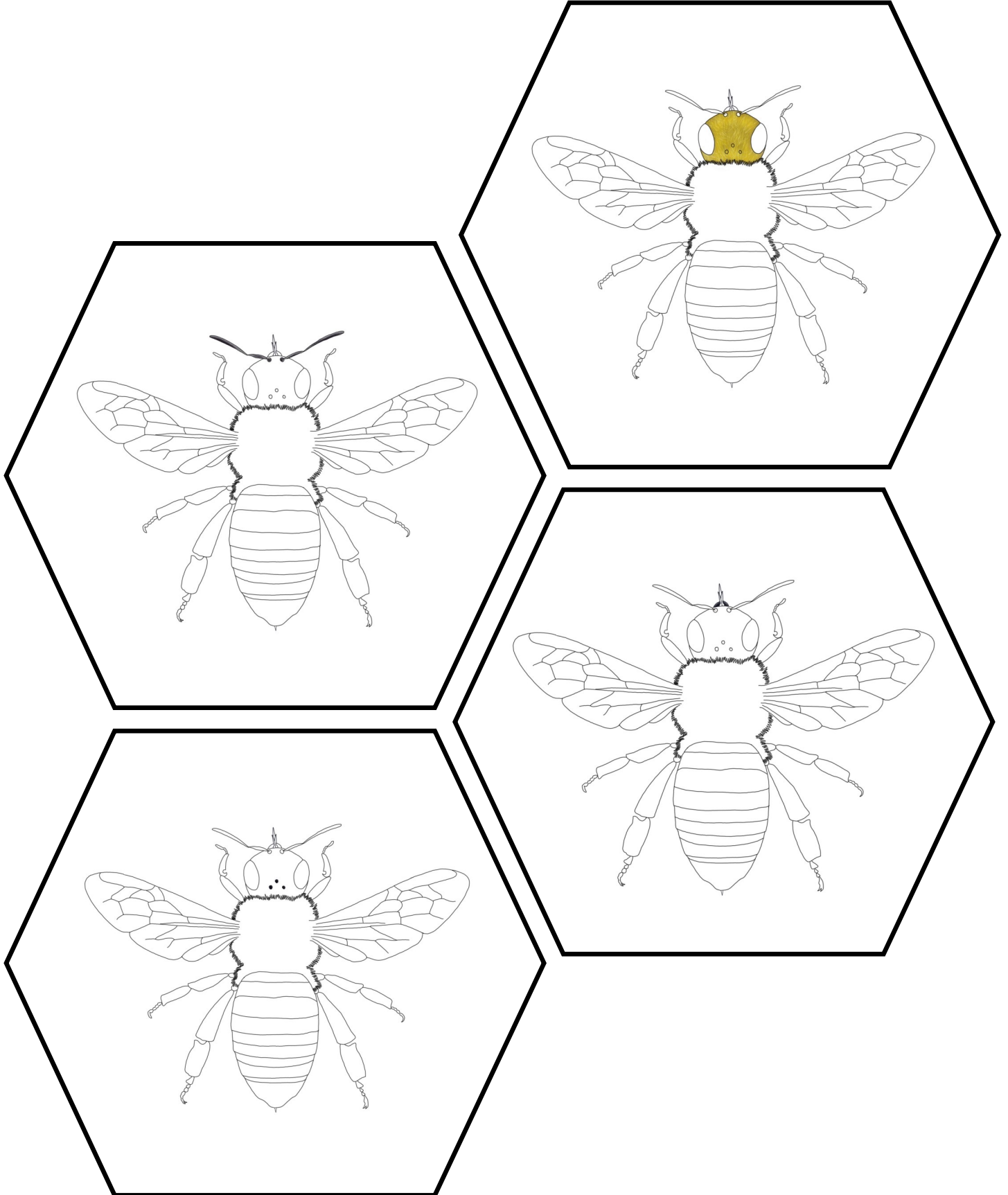
OCELLI

- 3 dots on the top of the head, found in a triangle pattern
- Used for detecting brightness and intensity of light



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ANATOMY FLASHCARDS: A





ANATOMY FLASHCARDS: B

COMPOUND EYES

- Two large eyes that take up most of the head
- Have over 3,000 lenses that allow the bee to see ultraviolet light — this helps them see which flowers are full of nectar!

THORAX

- Torso of the bee, the segment of the body between the head and abdomen
- All wings and legs attached to the thorax
- Black in color and is covered in hair which helps collect pollen

PROBOSCIS

- Long, straw-like tongue
- Used for:
 - Sucking up nectar from flowers
 - Transferring and forming beeswax in the hive to build the honeycomb
 - Transferring nectar from bee to bee, a part of the process in making honey!

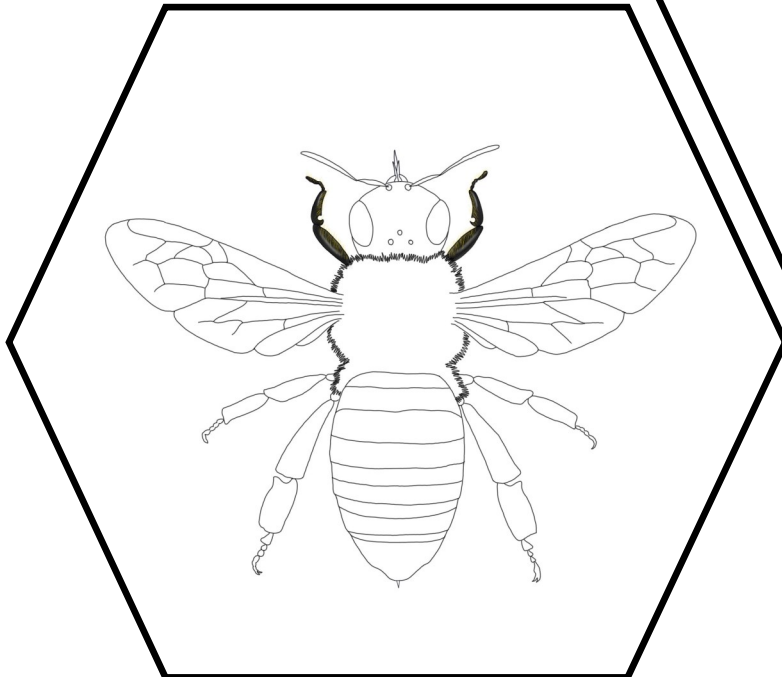
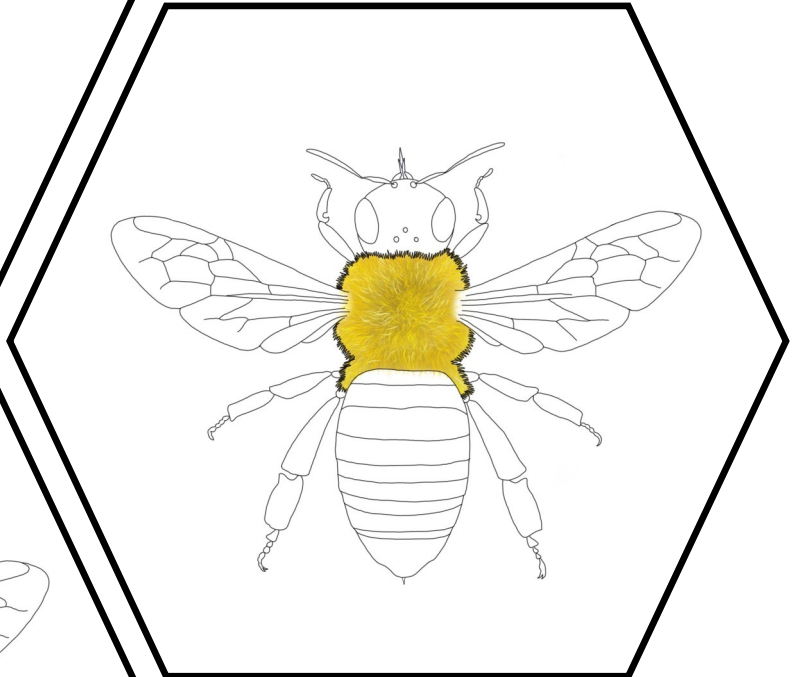
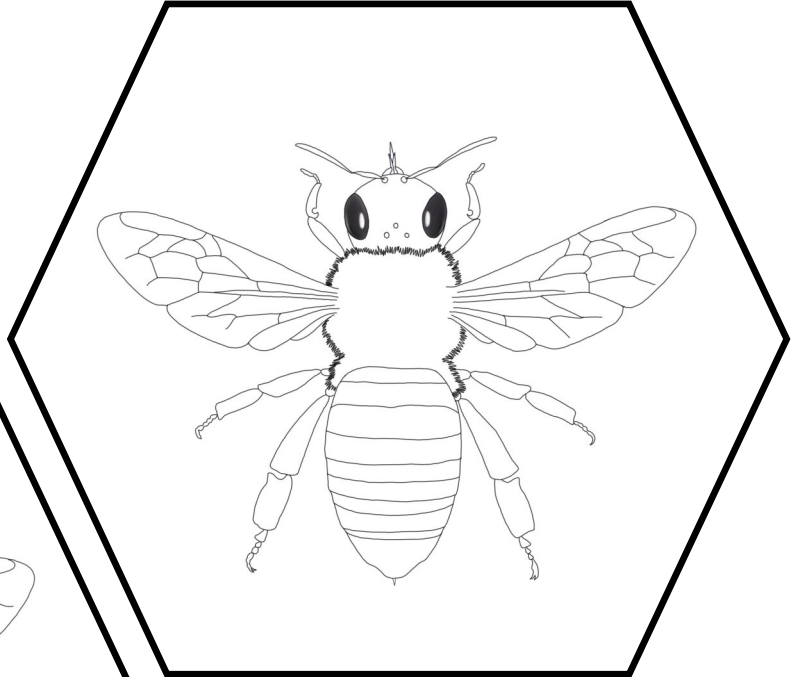
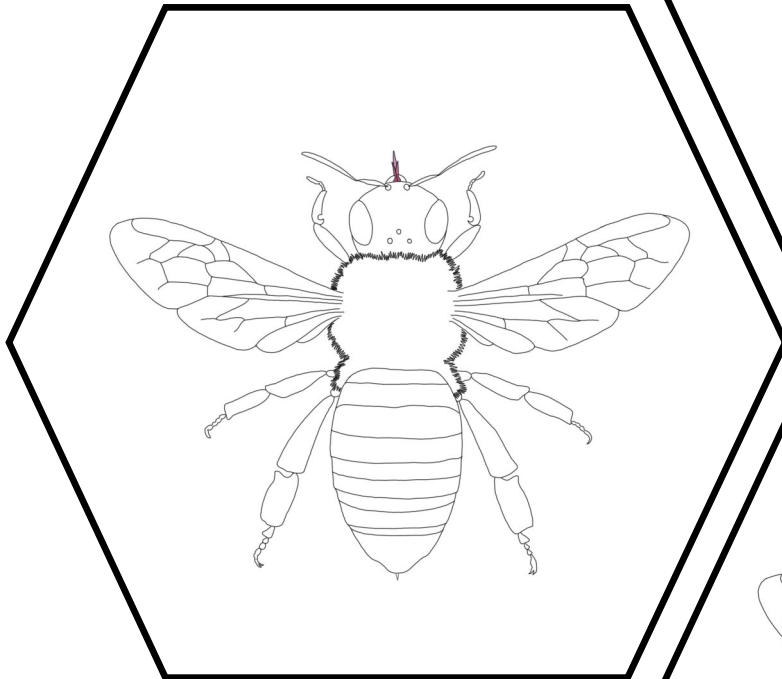
FORELEGS

- Attached to the thorax near the head
- Used for:
 - Dusting off their head and antennae from dust and pollen
 - Moving around flower parts to get to the nectar
 - Brushing pollen caught in the hair of the mid legs into “pollen baskets” found on the hind legs



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ANATOMY FLASHCARDS: B





ANATOMY FLASHCARDS: C

WINGS

- 2 pairs attached to the thorax
- Forewings are larger and closer to the head, hindwings smaller and behind the forewings
- Beat 230-250 times per second!
- Can fly between 12-20 mph (miles per hour)

MID LEGS

- Attached to the middle of the thorax
- Covered in little hairs that collect pollen
- Used for walking

HIND LEGS

- Attached to the back of the thorax, near the abdomen
- Used for movement and walking
- Contain “pollen baskets”, special hairs on the outside of the leg that are used to store pollen

ABDOMEN

- Largest segment of the body, found at the back of the bee
- Hides the stinger — only female bees can sting. Stinging leads to death so a honeybee will only sting if she or her hive are threatened.



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ANATOMY FLASHCARDS: C

