



# What Do Bees Need?

TK-1 Lesson

UCCE Master Gardener Program of Riverside County

*Vetted by Riverside County Office of Education-STEM*

# Teachers: Why is This Important?

Industrial agriculture and urbanization have reduced the forage plants that bees need to thrive. Researchers continue to study which **flowering** plants are best for bees, in the hope that farmers and gardeners will heed the call. Studies show that bees that have access to good nutrition are better able to cope with diseases and pesticides.

## Learning Goal

Student gardeners will learn what bees need in order to survive and will demonstrate their understanding by developing and refining a model (drawing) showing what bees need.



# Anchor Phenomena: Bees in our Garden

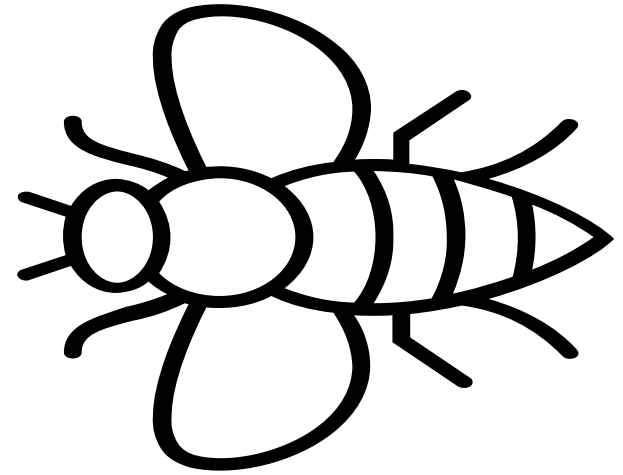


Bees in slow motion - shot on iPhone at 240fps

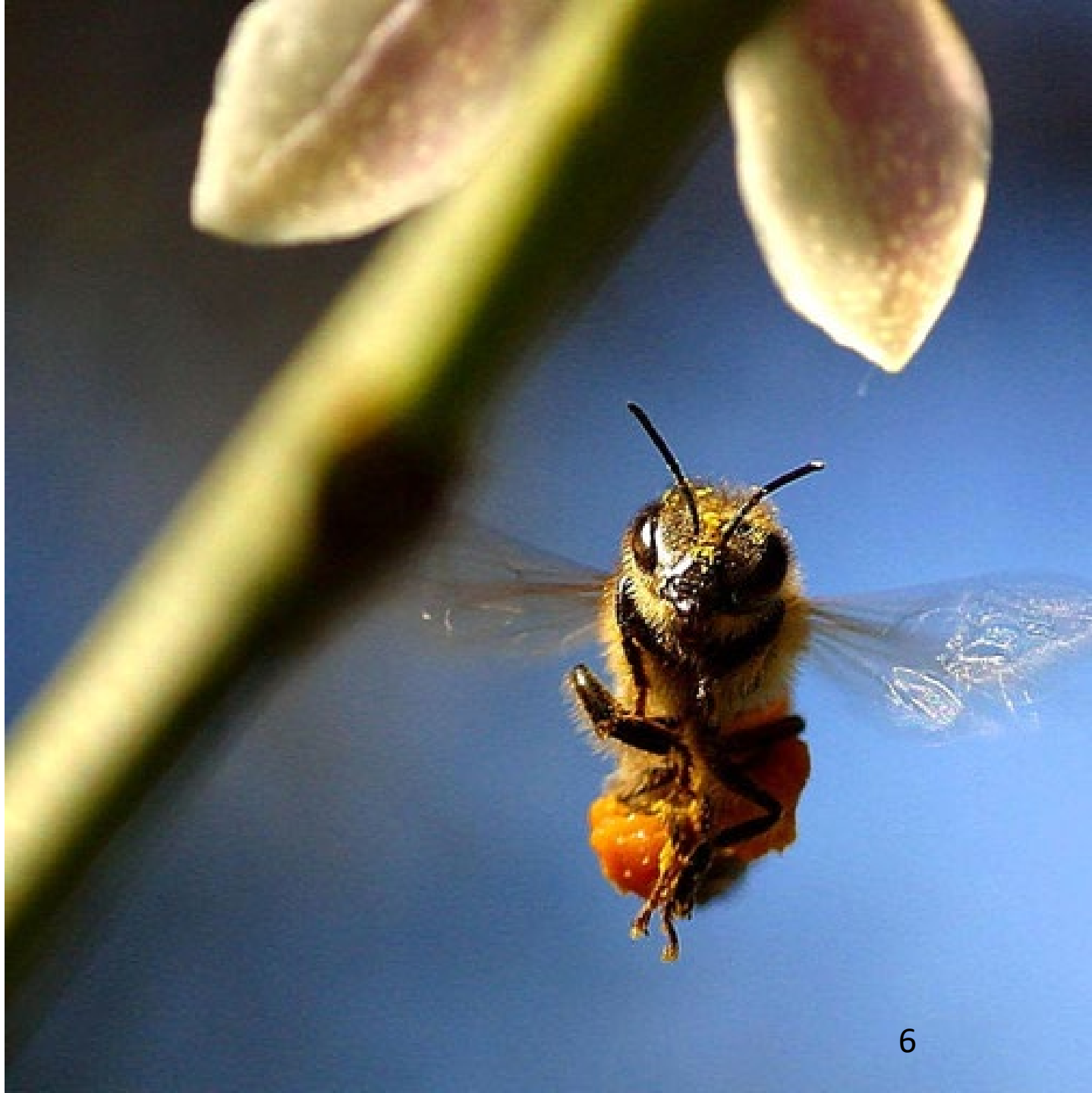
# What Do Bees Need?

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**Draw a picture showing what a bee needs.**



# What do bees need?



# Bees need flowers.



# Why do bees need flowers?





**Bees need flowers for their food.**



# Bees eat the flower's nectar.

Nectar is a watery mix of plant sugars that bees need.



# Bees eat the flower's pollen.

Pollen is a very small yellow grain full of protein that bees need.



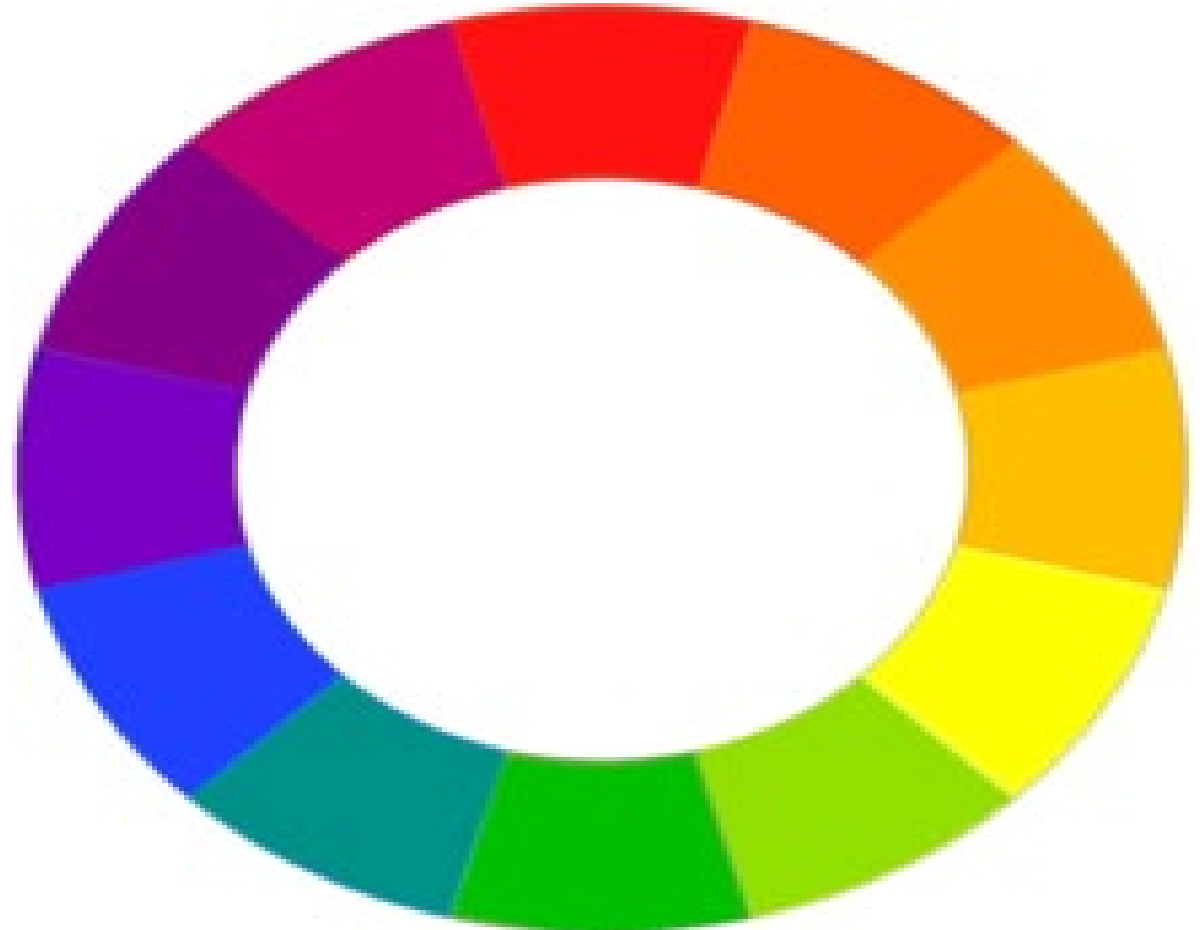
**What flowers do  
bees like?**



# Bees like flowers that are these colors:

Blue  
Purple  
Violet  
Yellow  
White

Bees do not see **Red**



**What else do  
bees need?**



**Bees need water.**



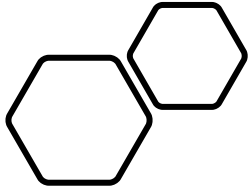
# Not too deep!

- Place rocks or plants in the water.
- Bees will land on these to take a sip.





**Bees need shelter.**



# Different bees need different shelters.

Some bees live in hives.

Some bees live in old trees or  
hollow logs.

Some bees live in the ground.





**Bees need gardens!**

# Does this garden have everything bees need?

Flowers

Water

Places for shelter



# Bees also need to be safe in our gardens.

Never throw rocks or sticks at a hive.

Don't poke sticks or fingers into holes in wood or trees.

Never try to catch a bee.

If a bee flies close to you, just stay still until it passes.



# How can people help bees?

Follow the A, B, C rules for bees in your garden!

- **A**lways plant flowers.
- **B**e sure there is water and shelter for bees.
- **C**areful behavior in the garden will keep bees safe.



Why do bees need flowers?

What color do bees **NOT** see?

What do bees need in the garden?

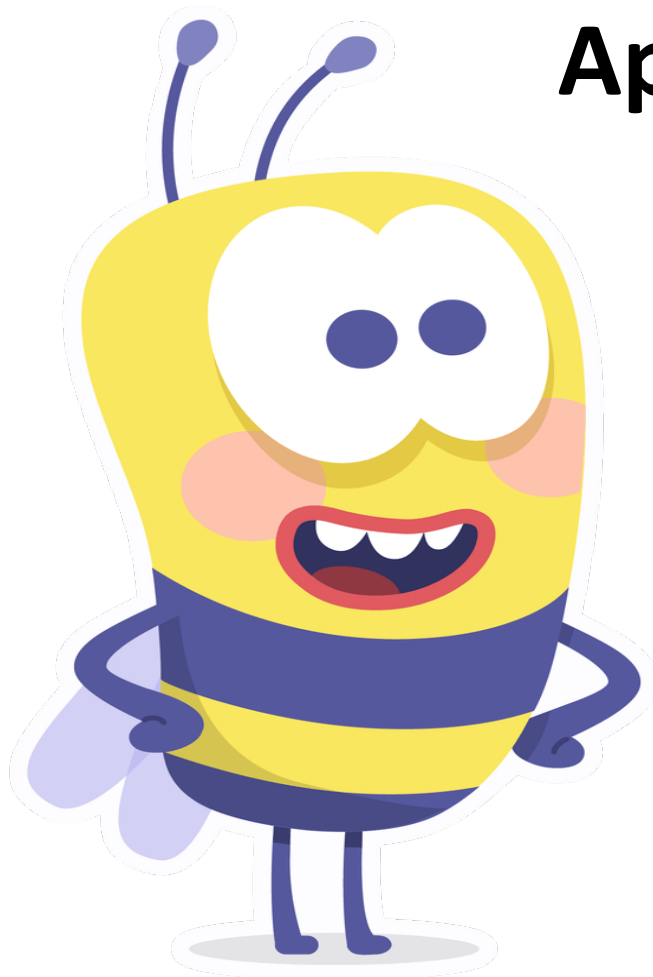
How can you help bees?

## Check for Understanding



# Phenomena in the Garden: Application Activity

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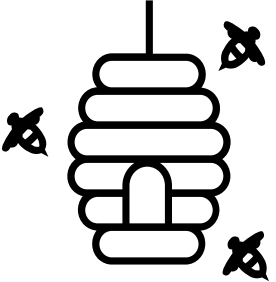
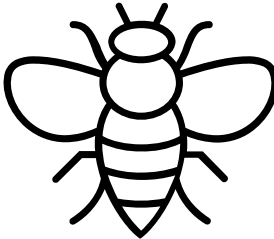
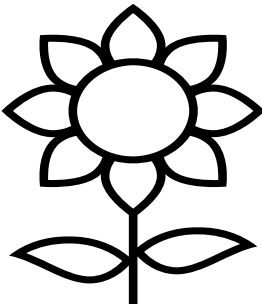
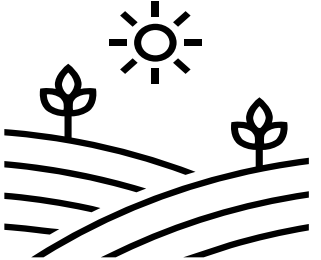
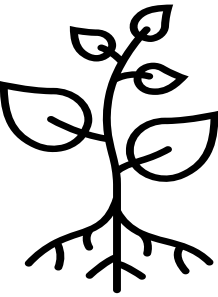



**Does your school or home garden  
have what bees need?**

- Walk quietly and slowly through your garden looking for examples of the pictures on your chart.
- Circle any examples you see in your garden.
- Is there anything missing that bees need?
- Share your results with your teacher.



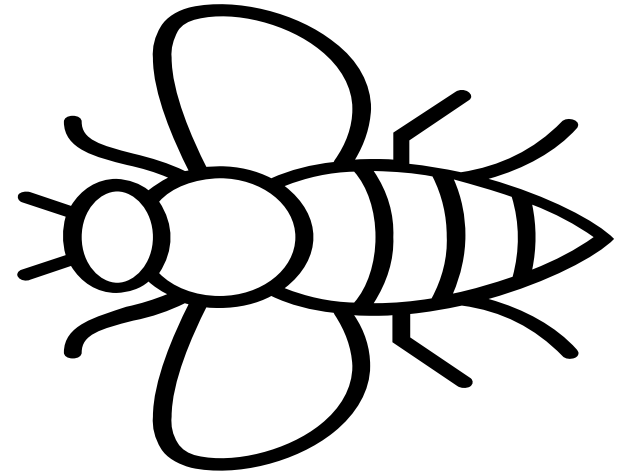
# Circle what you see in your garden

|  |  |   |
|--|--|---|
| <p>Shelter</p>        | <p>Bees</p>     | <p>Blue, Yellow, Purple, or White Flowers</p>  |
| <p>Sunny Garden</p>  | <p>Plants</p>  | <p>Water</p>                                  |

# What Do Bees Need?

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**Draw a picture showing what a bee needs.**



# *Extend Your Thinking*

**How does a bee get what it needs?**



# The parts of a bee's body helps a bee get what it needs!

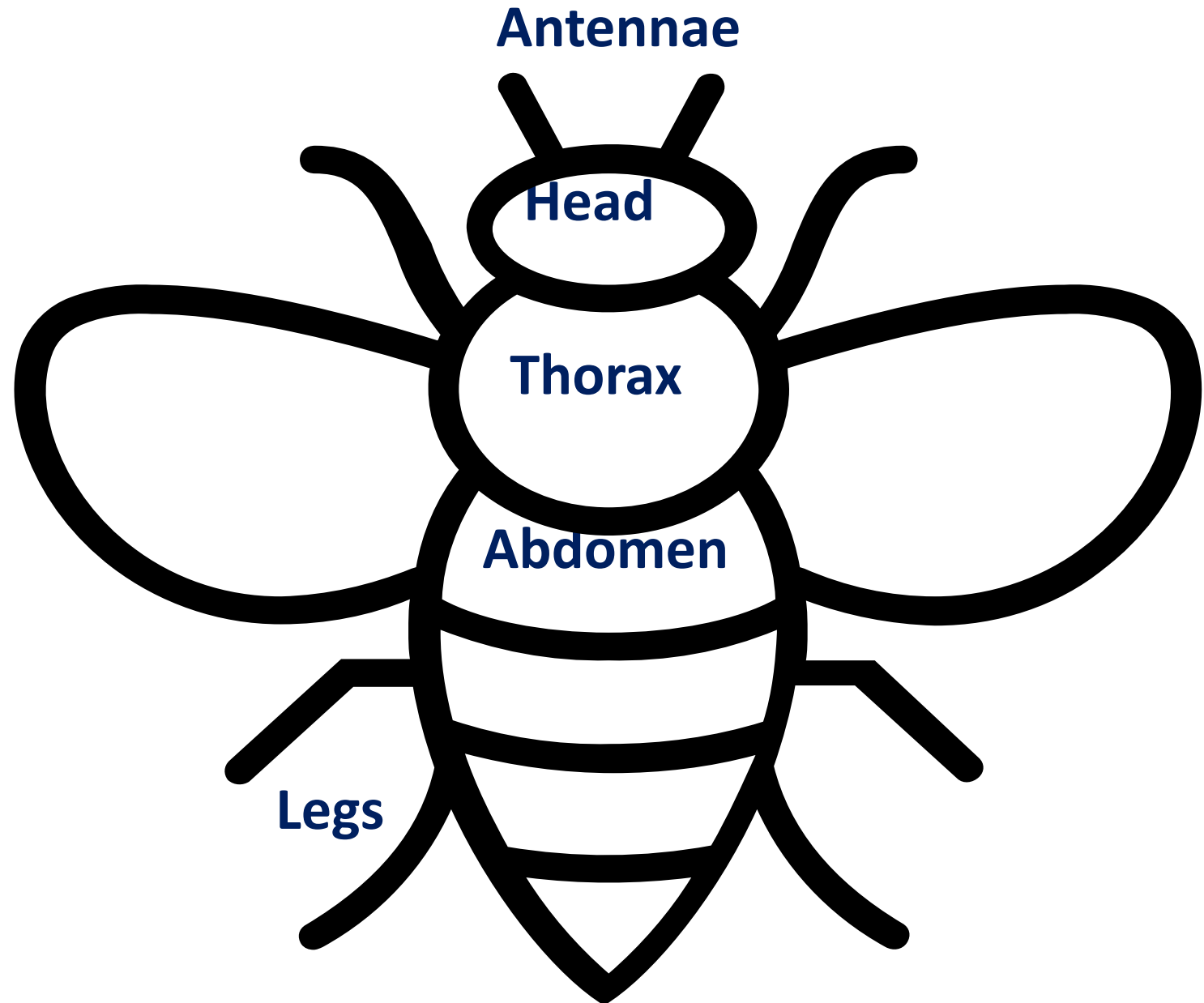


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# Bees are insects.

Like all [insects](#) bees have:

- Three body parts
  - Head
  - Thorax
  - Abdomen
- Six legs
- Two antennae



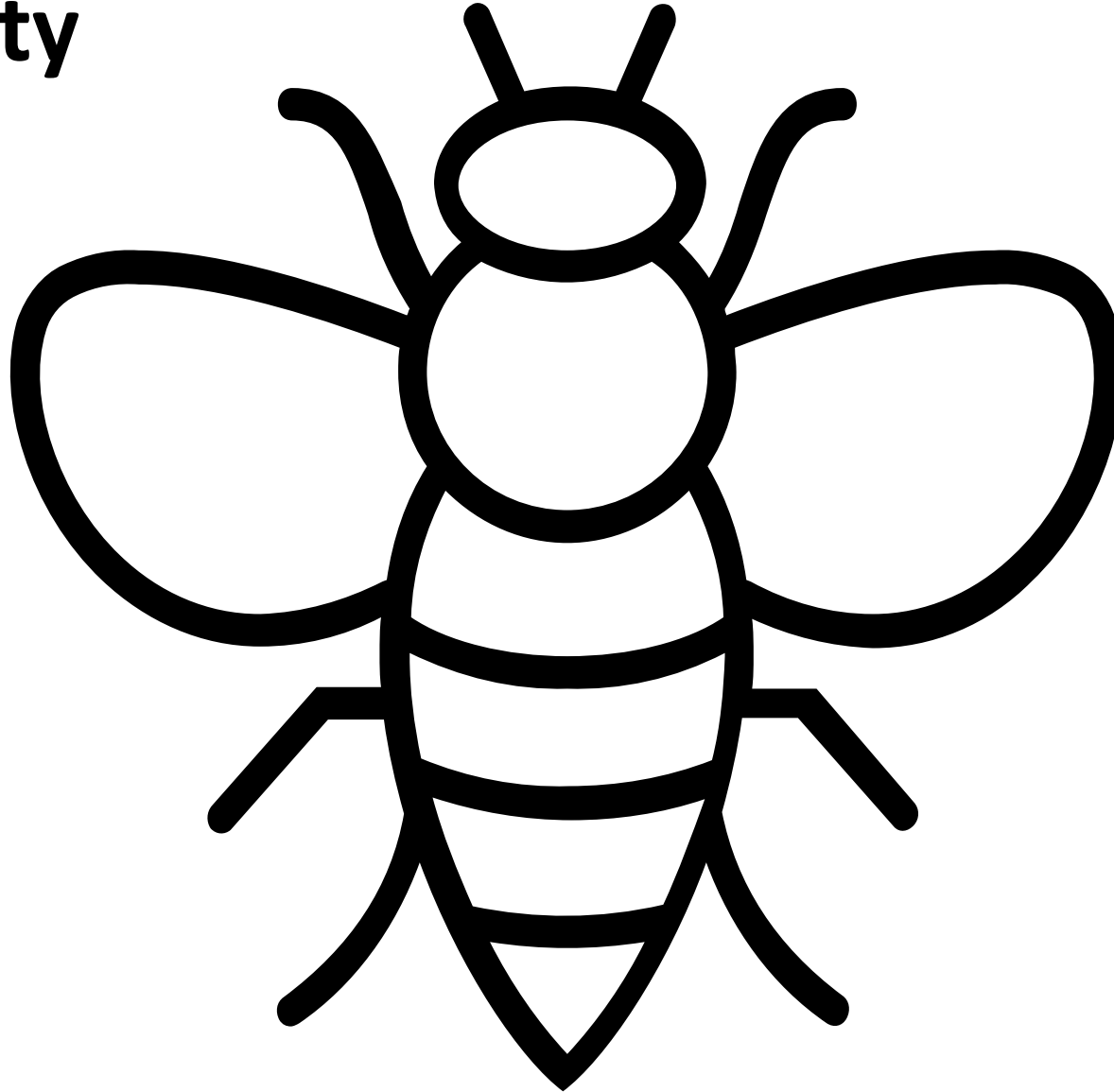
## Video: Parts of a Bee



Parts of a Bee

# Application Activity

1. Draw a line from each word to the body part of the bee
2. Color your bee.



**Antennae**

**Head**

**Thorax**

**Abdomen**

**Legs**

**Wings**



# Science Vocabulary

Insect

Nectar

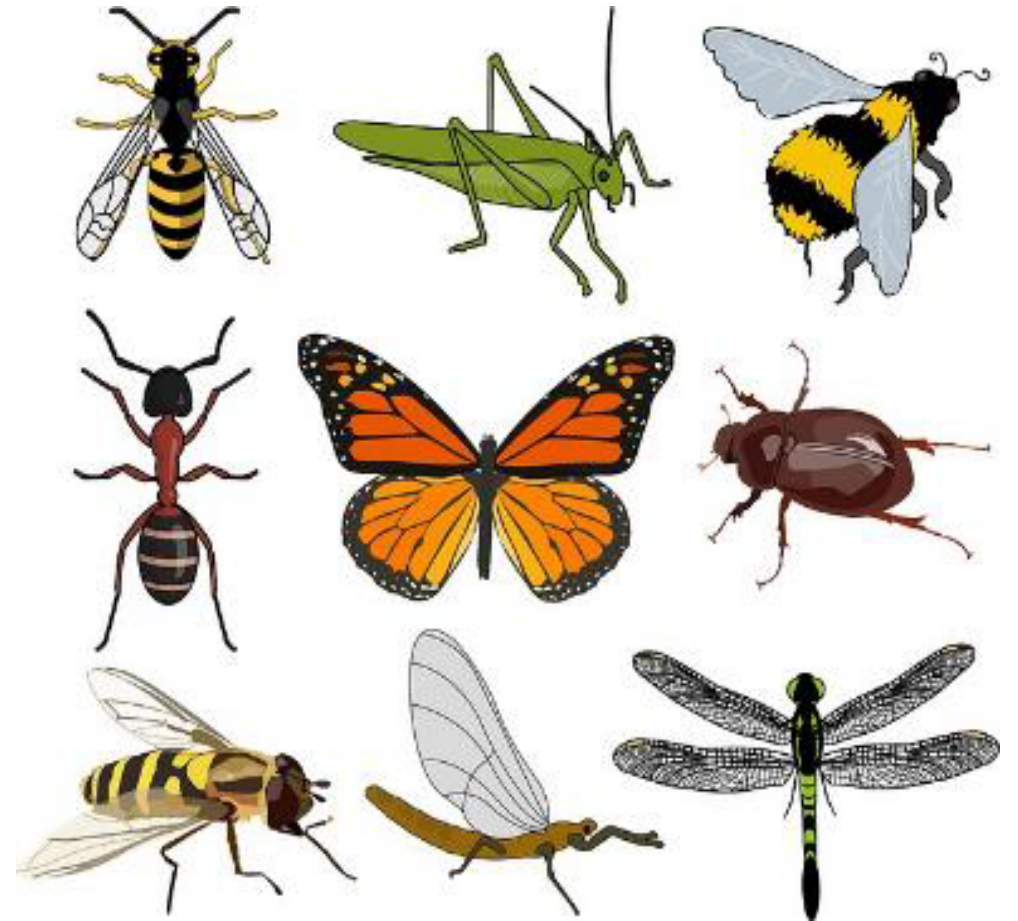
Pollen

Shelter



# Insect

A small animal with 3 body parts, 6 legs and 2 antennae.



# Nectar

A sugary fluid produced by plants that attracts bees.



# Pollen

A fine, powdery yellow grain from a flower.  
Food for a bee.



# Shelter

A place that provides cover and protection.  
A home is a shelter.



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# California Preschool Learning Foundations

## California Next Generation Science Standards

### Preschool Life Science Strand

- At 48 months: 2.2 Recognize that animals and plants require care and begin to associate feeding and watering with the growth of humans, animals, and plants.
- At around 60 months: 2.2 Develop a greater understanding of the basic needs of humans, animals, and plants (e.g., food, water, sunshine, shelter).

### Kindergarten Life Sciences

- LS1.C: All animals need food in order to live and grow. They obtain their food from plants or from other animals. (K-LS1-1)

# California Preschool Learning Foundations

## California Next Generation Science Standards

### **Preschool Life Science Strand**

- At around 48 months: 1.3 Identify the habitats of people and familiar animals and plants in the environment and begin to realize that living things have habitats in different environments.
- At around 60 months: 1.3 Recognize that living things have habitats in different environments suited to their unique needs.

### **Kindergarten Earth and Human Activity**

ESS3.A: Natural Resources: Living things need water, air, and resources from the land, and they live in places that have the things they need. Humans use natural resources for everything they do. (K-ESS3-1)

# California Next Generation Science Standards

## First Grade

- **LS1.A: Structure and Function** ▪ All organisms have external parts. Different animals use their body parts in different ways to see, hear, grasp objects, protect themselves, move from place to place, and seek, find, and take in food, water and air. Plants also have different parts (roots, stems, leaves, flowers, fruits) that help them survive and grow. (1-LS1-1)
- **LS1.D: Information Processing** ▪ Animals have body parts that capture and convey different kinds of information needed for growth and survival. Animals respond to these inputs with behaviors that help them survive. (1-LS1-1)

# California Next Generation Science Standards

## Science and Engineering Practices:

- Use a model to represent relationships in the natural world. (K-ESS3-1)
- Obtaining, evaluating, and communicating information in K– 2 builds on prior experiences and uses observations and texts to communicate new information. ▪  
Read grade-appropriate texts and use media to obtain scientific information to determine patterns in the natural world. (1-LS1-2)

## Cross-Cutting Concepts:

- Systems and System Models ▪ Systems in the natural and designed world have parts that work together. (K-ESS3-1)
- Structure and Function ▪ The shape and stability of structures of natural and designed objects are related to their function(s). (1-LS1-1)
- Patterns in the natural world can be observed, used to describe phenomena, and used as evidence. (1-LS3-1)



# Resources

- [Ask a Biologist](#)
- [Bee Culture](#): How Bees See and Why It Matters
- [Buzz About Bees](#)
- [Kids Out and About](#)
- [UC Marin Master Gardeners](#): Why Bees Matter and How You Can Help
- [USDA](#): How Farmers Can Help Pollinators
- Images: Creative Commons; Stock Images
- Video: Wild Harvest Honey

# Master Gardeners

The University of California Cooperative Extension (UCCE) Master Gardener Program (MGP) is an educational program designed to teach and effectively extend information to address home gardening and non-commercial horticulture needs in California.

UCCE is the outreach arm of UC's division of Agriculture and Natural Resources (ANR). Master Gardener volunteers (MG volunteers) promote the application of basic environmentally appropriate horticultural practices through UCCE-organized educational programs that transfer research-based knowledge and information.



University of California

Agriculture and Natural Resources

UCCE Master Gardener Program

# Gardening Questions?

## Email the UCCE Master Gardeners of Riverside County

- Email Helpline: [anrmgriverside@ucanr.edu](mailto:anrmgriverside@ucanr.edu)
- School Gardens: [mgschoolgardens@gmail.com](mailto:mgschoolgardens@gmail.com)

## Website Resources

- [Riverside Master Gardeners Website](#)



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