

# 4

## Animals : Common Insects

We'll cover the following key points:

- Body Parts of Insects
- Life Cycle of a Butterfly
- Social Insects
- Useful Insects
- Harmful Insects
- Ways to Keep Insects Away
- Remedies for Insect Bites



Hi, I'm EeeBee

Do you Remember:

Fundamental concept in previous class.

In class 2<sup>nd</sup> we learnt

- Insects

Still curious?  
Talk to me by  
scanning  
the QR code.



### Learning Outcomes

**By the end of this chapter, students will be able to:**

- Understand the characteristics and body parts of common insects and their role in the animal kingdom.
- Learn about the life cycle of a butterfly, including the stages of metamorphosis.
- Explore the concept of social insects like ants and bees and their collective behavior.
- Identify examples of useful insects, such as honeybees and silkworms, and their contributions to humans.
- Recognize harmful insects, their impact on health, and ways to prevent their spread.

### Guidelines for Teachers

The teacher can start the chapter by introducing the fascinating world of insects, highlighting their diversity and their importance in nature. Discussions can focus on identifying insect body parts and understanding the unique life cycle of a butterfly through its metamorphosis stages. The teacher can also elaborate on social insects and their roles in ecosystems. Highlight the distinction between useful and harmful insects, emphasizing their impact on humans and the environment. Finally, teach students practical ways to avoid harmful insects and provide simple remedies for insect bites.



Which one is not the insect?



### Fun Fact

Butterflies are amazing insects with colorful wings that help them blend in or scare away enemies. They start life as tiny eggs, turn into caterpillars, and then transform into butterflies inside a cocoon. Butterflies drink nectar from flowers using their long, straw-like tongue. Some butterflies can even taste with their feet!

There are more types of insects than any other type of animal on the planet. The main categories of insects are butterflies, moths, beetles, centipedes, flies, grasshoppers, and social insects. Insects tend to be small, but can vary in size from nearly invisible to over 7 inches long.

### What makes an insect ?

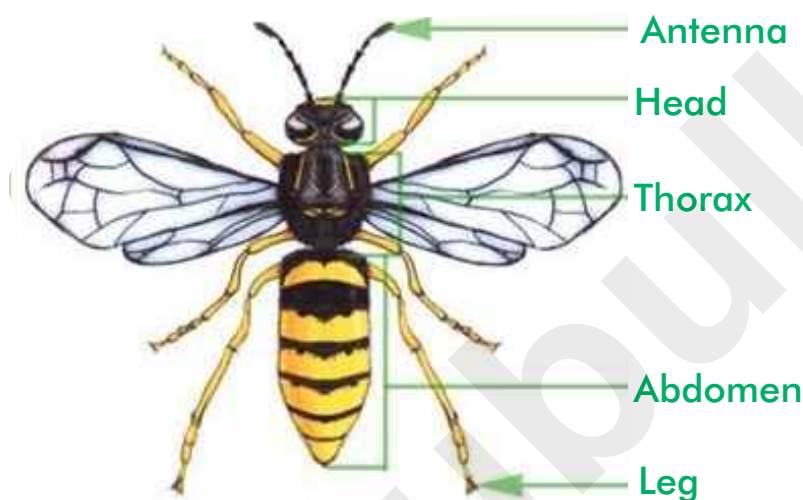
- a Insects all have a hard external covering made of something called **chitin**.
- a Their bodies are made up of three sections called the head, the thorax, and abdomen.
- a All insects have a pair of antennae on their head.
- a They all have six legs connected to the thorax.
- a Some insects have wings connected to the thorax and can fly.

As insects grow, they get a new hard outer covering by getting rid of the old covering and growing a new one. This process is called **moulting**.

Insects and other arthropods have an **exoskeleton**; their skeleton is on the outside of their body. It acts as armour and protects the insect. This is why beetles are so hard and why insects crunch when you step on them.

## Body Parts of an Insect

All insects have three main body parts: **a head, thorax and abdomen**.



**Head:** An insect has a small head that holds the insect's brain, eyes, and mouth. Insects also have special feelers called antennae that stick out of the top of their heads. They use their antennae to smell and feel because they do not have noses and hands like we do.

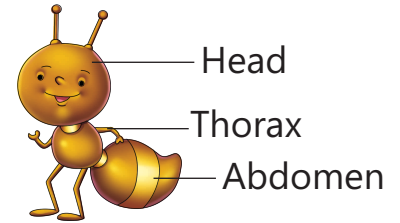
Insects have two compound eyes with many different lenses. Compound eyes cannot see very much detail or things that are far away. They can see extremely quick movements and things that are close to them, though.

Have you ever tried to swat a fly? What happened when you got close to it? It probably flew away the second you got close enough to swat it. That is because a fly's compound eyes bulge out of its head so it can see motion all around its body and see when you are coming closer to it.

**Thorax:** Right below the insect's head is a middle section called the thorax. It is divided into three segments. They have six legs that come out of their thorax. Insect legs have special joints (sort of like your knees) and the tips of their feet usually contain sticky pads, hooks or suckers which allow them to cling to various types of surfaces or to hold on to their prey. Many kinds of insects have one or two pairs of wings attached to their thorax.

**Abdomen:** The part below an insect's thorax is called the abdomen. It is the largest part of the insect's body and contains its digestive system, excretory system and reproductive organs. Most insects reproduce by laying eggs. It may contain sting organs (if present).

Insects breathe through special openings called spiracles present on both sides of the body on thorax and abdomen. Their number varies from species to species.

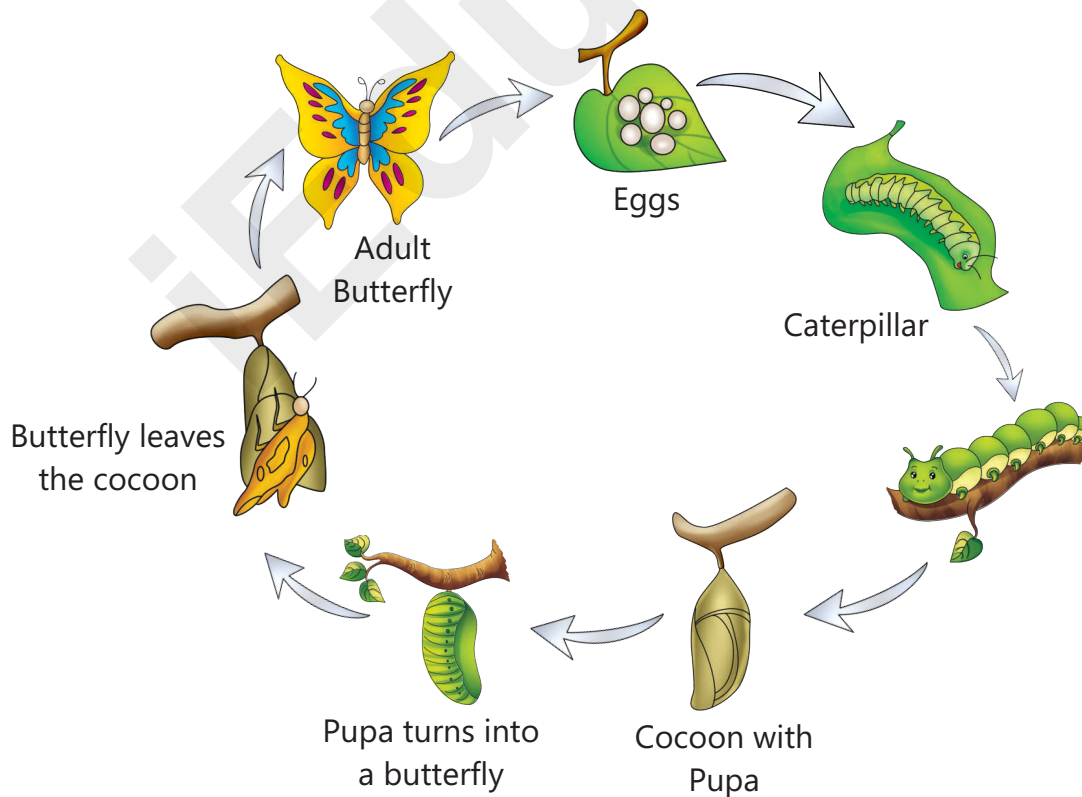


### Did you know ?

In a typical 1 square mile of forest or jungle, there are more insects than there are people on the entire planet.

## Life Cycle of an Insect

The series of changes through which a living thing passes during its lifetime is called its life cycle. The life cycle of an insect begins with an egg which then hatches into larva. Gradually, it develops into an adult. Some insects have four stages in their life cycle while some have only three.



## Let's learn about the life cycle of a butterfly:

Life cycle of a butterfly consists of four main stages. This means a butterfly goes through four stages of growth from egg to adulthood. This type of a process is known as **Metamorphosis**.

- ✦ A butterfly starts its life as an egg, laid by a female adult butterfly after mating. Butterfly eggs vary in size and shape, but most are surrounded by a protective hard shell.
- ✦ A caterpillar develops within the egg and then eats its way out of the shell. This stage of the butterfly's life cycle is also called larva.
- ✦ A caterpillar spends all its time eating. As it grows, the caterpillar becomes too large for its skin and moults (sheds its skin) to make new skin. Depending upon the type of butterfly, caterpillars moult four or five times.
- ✦ When the caterpillar reaches its final size it stops feeding. The caterpillar wriggles and twists to gradually remove its old skin, revealing a new protective skin called cocoon. Inside the cocoon, the caterpillar changes into a wormlike creature called pupa.
- ✦ When it reaches adulthood, the pupa changes into a butterfly and leaves the cocoon. It pumps blood into its wrinkled wings and expands them to their full size before flying away.



### Did you know ?

The average life span of a house fly is about 14 days.

## Social Insects

Some insects live together in groups and colonies. The purpose of living together in colonies is to get protection from enemies and share food, work and shelter. Such insects are called social insects. Insects such as bees, wasps and termites live in well organised colonies. Ants and bees are the most common social insects.

Ants live in ant nests which they usually make under the ground. An ant nest may have hundreds or thousands of ants; they lay eggs and raise their young ones in the nest. When an ant finds food, it leaves a trail of scent so that other ants in the colony can find their way to food.





Honey bees live in hives. The number of bees in a colony depends upon seasonal changes while their survival is based on good food supply. They make honey from the nectar they collect from flowers and store in their hives. They also lay eggs and look after their young ones in the hives.



Maintenance and growing of honey bee colonies in man-made hives is called beekeeping or apiculture.

## Useful Insects

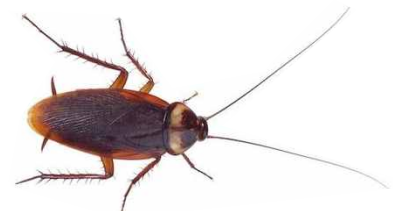
Insects help us in many ways. Some useful insects are as follows:

- ✦ We get honey and beeswax from beehives. Beeswax is used to make candles, soaps, skin products, crayons etc.
- ✦ We get silk from silkworms.
- ✦ Some insects such as bees, butterflies and moths help flowers to change into fruits.
- ✦ Dragonflies help in keeping the number of mosquitoes under control.
- ✦ Ladybeetles are released in the garden and landscape to keep plants pest free.



## Harmful Insects

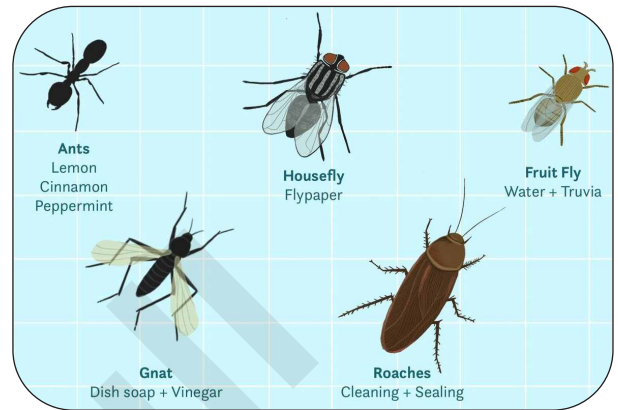
- ✦ Mosquitoes are known as one of the most dangerous flying insect and responsible for prominent diseases of malaria, dengue and chikungunya.
- ✦ Caterpillar are larvae of many moth species and responsible for damage to fruits and other agricultural products.
- ✦ Termites eat wood and damage the furniture. They dig tunnels in the walls and cause great damage to buildings.
- ✦ Lice and fleas are parasites and live on the host body and derive nutrition from them thus causing harm.
- ✦ Cockroaches carry germs with them and can cause diseases such as dysentery and allergies.



- ✦ Houseflies too carry germs with them and transfer them to the food.
- ✦ Wasps and bees can give us painful stings.

### Ways to Keep Insects Away

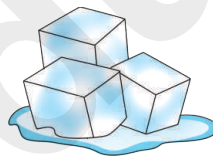
- ✦ Doors and windows need to be fixed with nets which will prevent insects from getting inside the house.
- ✦ Keep food items covered.
- ✦ Keep your surrounding area clean and waste disposal to be done in a proper way.
- ✦ There should not be standing water in your surrounding as mosquitoes breed in stagnant water.
- ✦ Avoid playing in dark and bushy areas to prevent insect bites.
- ✦ Use chemicals called pesticides and insecticides to kill pests and insects.



### Remedies for Insect Bite

#### 10 Home-remedies to treat insect-bites

1. Ice-pack
2. Back of Banana Peel
3. Rub cut onion or onion juice
4. Apply cider vinegar
5. Cool used tea bag
6. Turmeric
7. Aloe vera gel
8. Crushed tulsi leaves
9. Peppermint toothpaste
10. Anti-histamine lotion



#### Did you know ?

Ants can carry up to 50 times their own weight. That means if you were an ant and you weighed 100 pounds, you would be able to carry a good size car around on your back!





## In a Nutshell

- ✦ An insect has six legs. An adult insect's body is divided into three parts-head, thorax and abdomen.
- ✦ Insect can see with their compound eyes.
- ✦ Insects breathe through special openings called spiracles present on both sides of the body on thorax and abdomen.
- ✦ There are four stages in the life-cycle of a butterfly- egg, caterpillar, pupa and adult butterfly.



## Key Words

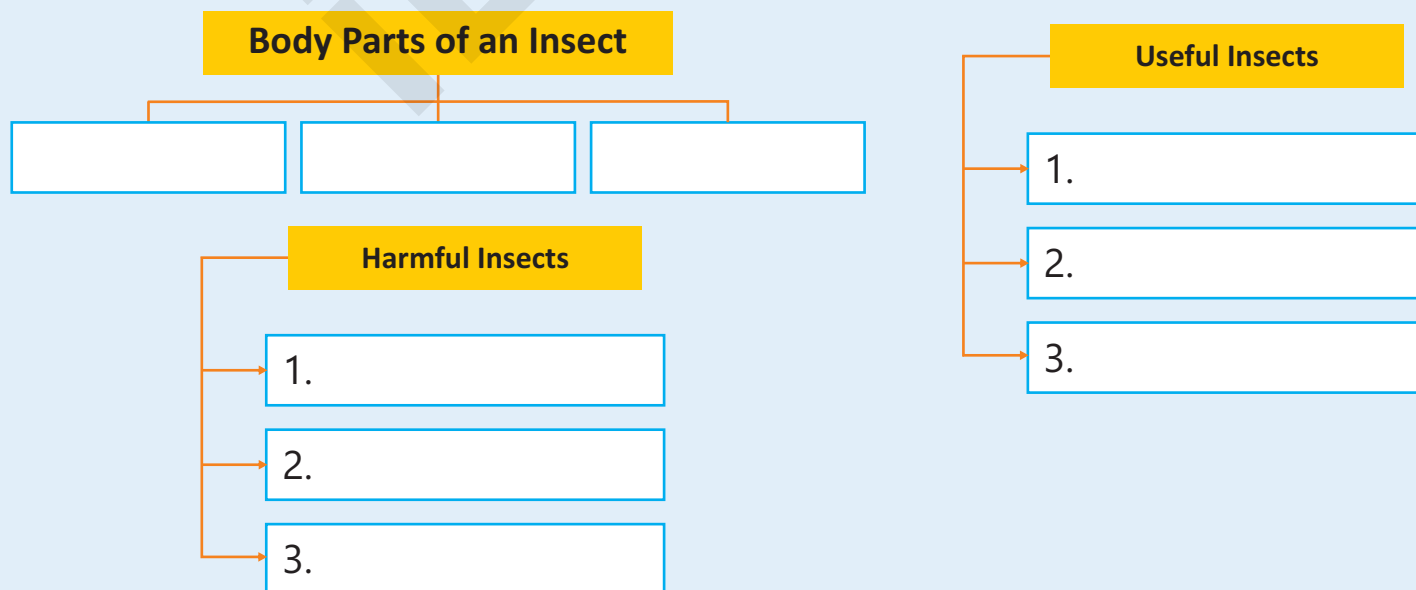
## Improving Vocabulary

- Chitin : A hard substance in the outer shell of insects .
- Moulting : Shedding of old skin and getting a new one .
- Exoskeleton : A very hard covering of an insect's body.
- Spiracles : Opening at the side of the insect's body through which it breaths.
- Trail : A mark or a series of signs or objects left behind by the passage of someone or something.
- Life cycle : The series of developmental stages from egg to an adult.
- Social insects : Insects that live in groups and colonies.

## Time to Recall

## Remembering and Analysing

Recall and complete the concept map given below:







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Take a Test



# EXERCISE

That turn curiosity into confidence—let's begin!



## A. Objective Type Questions:

- The three insect body parts include the:  
(A) Head, Neck, Abdomen. (B) Head, Abdomen, Tail.  
(C) Head, Thorax, Abdomen. (D) Head, Body, Tail.
- Which of the following is NOT an insect?  
(A) Grasshopper (B) Butterfly  
(C) Beetle (D) Centipede
- Which of these helps an insect to detect odours, tastes, vibrations and sounds?  
(A) Wings (B) Compound eyes  
(C) Antennae (D) Legs
- Which of these is not a social insect?  
(A) Ant (B) Honeybee  
(C) Cockroach (D) Wasp

## B. Choose the best word from the box to complete each sentence:

invertebrate	head	thorax	abdomen	egg
six	wings	exoskeleton	three	

- An insect has \_\_\_\_\_ main body sections.
- The front part of an insect's body is called the \_\_\_\_\_.
- The back part of an insect's body is called the \_\_\_\_\_.
- Insects have \_\_\_\_\_ jointed legs.
- An insect's legs are attached to its \_\_\_\_\_.
- Insects do not have a backbone. They are \_\_\_\_\_.
- An insect's body has a hard outer covering called an \_\_\_\_\_.
- The first stage of an insect's life cycle is an \_\_\_\_\_.
- Some insects have \_\_\_\_\_ attached to their thorax so they can fly.

### C. Very Short Answer Questions:

**Name the following:**

1. Right below the insect's head is a middle section called : \_\_\_\_\_
2. The part below an insect's thorax. \_\_\_\_\_
3. The series of changes through which a living thing passes during its lifetime. \_\_\_\_\_
4. The caterpillar changes into. \_\_\_\_\_

### D. Short Answer Questions:

1. What is moulting?
2. What do you understand by life cycle?
3. What is metamorphosis?
4. Mention the different stages in the life cycle of a butterfly.
5. What are social insects?

### E. Answer the Following Questions:

1. What are the different characteristics of an insect?
2. How are the compound eyes of an insect different from our eyes?
3. Describe the larval and the pupa stages of a butterfly.
4. Write the ways in which insects are helpful to us.



## Time to Apply

Applying and Creating

You can sit in a group of six students to discuss and find out the following information about the diseases like malaria and dengue:

1. The cause and how they spread.
2. Their symptoms.
3. Their cure.
4. Their ways to prevent these diseases.



## Time to Discuss

Pondering and Communicating

1. Why are spiders not considered as insects?
2. Why do you think we must be careful of cockroaches and flies?
3. There should not be any stagnant water near your house. Why?
4. Why should we not throw stones on the beehive?



## Time to Observe

Observing, Critical Thinking, Analysing

Observe the pictures and name the following insects:



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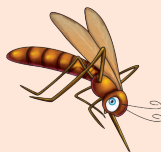
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## Time to Create

Creating and Collaborating

1. Design your own pattern of butterfly and colour it.
2. Collect the pictures of different insects. Paste and label them in your scrapbook.