

Life Cycles of Insects

Moths, ants, flies, and other insects are **invertebrates**. That means they have no backbones. But insects do have skeletons on the **outside** of their bodies. An insect's tough "skin" is its **outside skeleton**.

Insects reproduce **sexually**. Male and female mate, and the eggs are fertilized internally, or inside the female. In the egg, the embryo lives on the yolk. The eggs are laid near a food supply that is used after the eggs hatch. After hatching, most insects go through a change of body form. This change is called **metamorphosis**. It may be complete or incomplete.

COMPLETE METAMORPHOSIS. There are four stages in the complete metamorphosis of an insect: egg, larva, pupa, and adult. Like all butterflies and moths, the "jumping bean" moth has complete metamorphosis. This moth lays its eggs in the flowers of the Mexican arrow plant. After the flower forms seeds, the eggs hatch

into caterpillars, which are the wormlike **larvas** (LAR-vuhs) of the moth. Other insect larvas also look like worms. Those we call caterpillars are the larvas of butterflies or moths. The larva of a fly is a maggot, and the larva of a beetle is a grub.

Insect larvas eat and grow fast. The "jumping bean" larvas eat the seeds inside the arrow plant's pods. Luckily for the plant, not all of its flowers are visited by the moth. Some of the seeds survive and keep the species from dying out. Larvas of other insects often do great damage to food crops and trees.

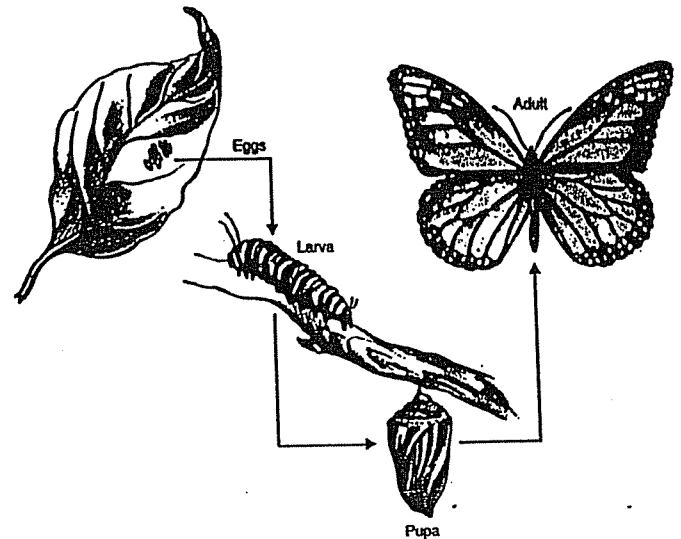
As a larva grows, it sheds its outside skeleton, or **molts**, several times. Each new skin is larger than the one before.

When a larva stops growing, it stops eating. Then it becomes a **pupa** (PYOO-puh) inside a hard "skin," or case. A moth larva (caterpillar) spins itself a silky shell, or **cocoon** (kuh-KOON). Then it becomes a pupa inside the cocoon. We get silk from the cocoons of silkworm moths.

During the pupa stage, the insect seems to be at rest. In fact, many body changes go on in the pupa. Still, the pupa is called the resting stage. In time, the pupa's "skin" breaks open, and out comes the **adult**. It has wings and other body parts completely unlike the larva.

Adult moths or butterflies may eat little or nothing. Many live only long enough to mate and lay eggs. Then the life cycle begins again.

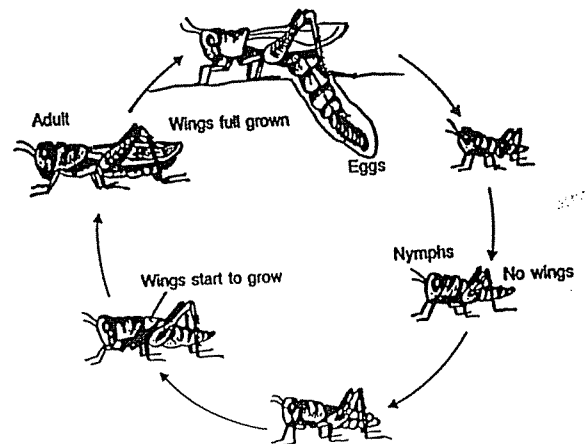
Complete Metamorphosis



INCOMPLETE METAMORPHOSIS. Some insects go through **incomplete metamorphosis**. In their life cycles there are just three stages: egg, nymph, and adult. The egg of a cockroach, a grasshopper, or a dragonfly hatches into a nymph. The nymph looks like a small adult, but without wings.

As the nymph eats and grows, it molts several times. With each molt, the wings grow larger. After the last molt, the wings are full grown and the animal can produce eggs or sperm. When the adults mate, the life cycle begins again.

Incomplete Metamorphosis



I. Fill in each blank with the word that fits best. Choose from the words below.

metamorphosis adult pupa invertebrates larva nymph
molts embryo egg

Insects are _____ because they have no backbones. The wormlike stage of a moth is the _____. A just-hatched grasshopper that looks like a little adult is a _____. During growth, a young insect sheds its skin, or _____. A change of body form is called _____. The "resting" stage of a moth is the _____. The stage of an insect that lays eggs is the _____.

II. If the statement is true, write T. If it is false, write F. Then correct the underlined word.

A. _____ An insect's egg is fertilized internally.

B. _____ A grasshopper goes through complete metamorphosis.

C. _____ The stages of a butterfly's life cycle are egg, larva, pupa, and adult.

D. _____ The pupa stage of a moth is covered by a silk case called a nymph.

E. _____ The stages of a cockroach's life cycle are egg, larva, adult.

A. Hidden in the puzzle below are the names of seven stages in the life cycles of different animals. Use the clues to help you find the names. Circle each name in the puzzle. Then write each name on the line next to its clue.

A L A R V A D F
F G J O Q D M N
E S U Z X U A Y
T A D P O L E M
U V I E F T T P
S B R E L Y D H
K N B G W C P C
E Z W G P U P A

Clues:

1. What a frog's egg hatches into. _____

2. Two-month-old human embryo. _____

3. May contain much yolk. _____

4. Wingless grasshopper or roach. _____

5. Produces eggs or sperms. _____

6. A maggot or a grub. _____

7. May have a cocoon. _____

Name _____ Date _____

Insects

Fill in the blanks with the correct words.

1. All insects have _____ major body parts:
_____, _____, and _____.

2. All insects have _____ legs. Spiders have
_____ legs.

3. True or False: Spiders are insects. _____

4. Label the four growth stages in complete metamorphosis:



5. If you saw a cocoon hanging from a twig, you would know that:

a. The insect inside had once been a(n) _____.

b. When the insect emerges from the cocoon, it will be a(n)

_____.

6. All insects develop from _____ laid by an adult.

7. How does the appearance of the Walking Stick help it to survive?

8. Spiders like to eat pests such as mosquitos and houseflies. If you saw a spider at home, should you try to kill it? Why or why not? _____

Insects : Growth and Development

- More than 80 % of all animals that have been discovered and named by scientists are insects.

- Insects come in a variety of sizes and shapes; but they have some common characteristics:

1. They all have three main body parts :

- Head**
- Thorax**
- Abdomen**

2. They all have three pairs of jointed legs (six).

3. They all have two antennae

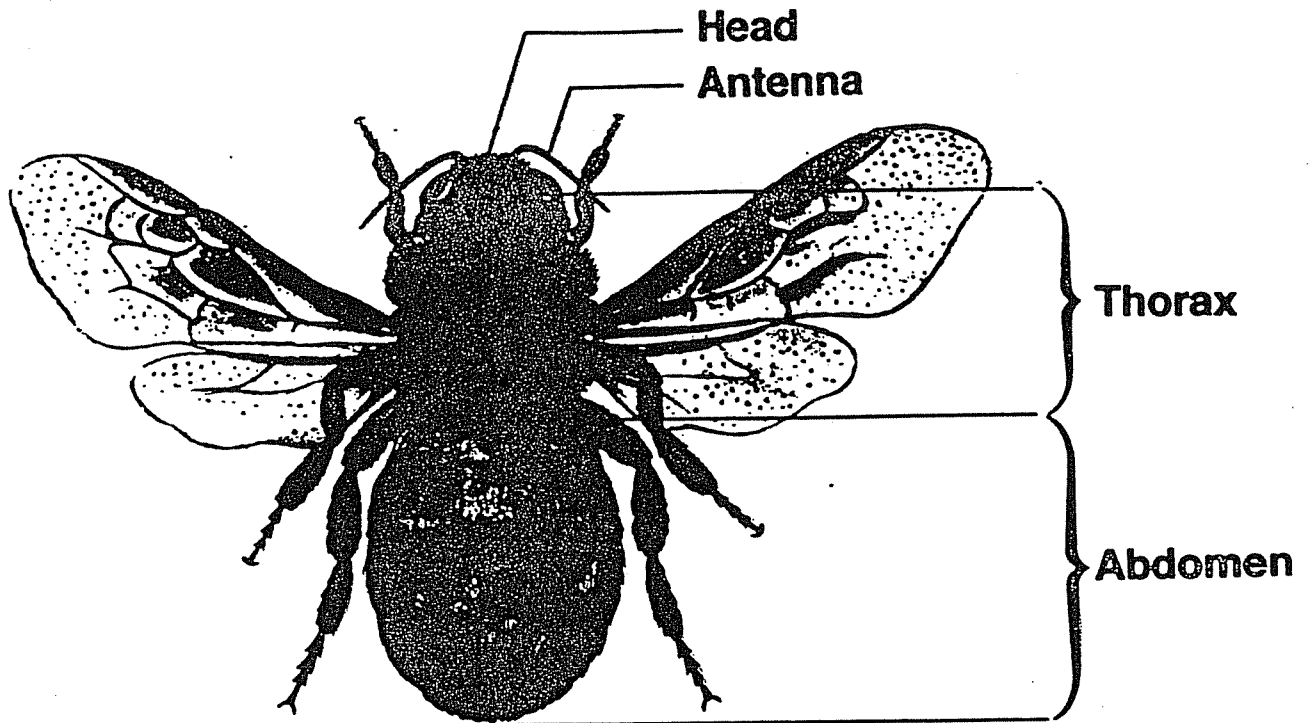
- Insects can grow and develop in three distinct ways.

a) Simple growth and development. ex. silverfish.

b) Incomplete metamorphosis. ex. dragonfly.

c) Complete metamorphosis. ex. butterfly.

The Insect Body



- **Three major body divisions:
Head, Thorax, Abdomen**
- **Six Legs** • **Two Antennae**