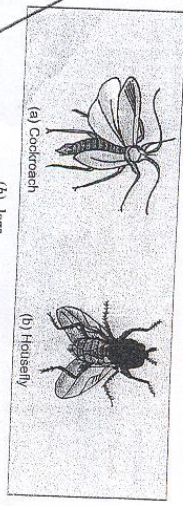
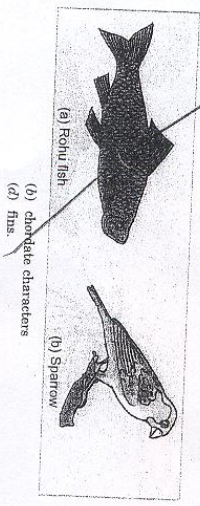


16. Following are the pictures of two insects. The common feature they share due to which they are kept in same phylum is



- (a) wings
(c) jointed appendages
17. The important feature of earthworms because of which it is placed in phylum annelida is
(a) eye
(c) setae
18. These two animals are in same phylum because of



- (b) legs
(d) found in our home
(b) annuli
(d) anus
(b) chondric characters
(d) fins
1. (c) 2. (b) 3. (b) 4. (a) 5. (c) 6. (d) 7. (b)
8. (a) 9. (d) 10. (c) 11. (d) 12. (d) 13. (d) 14. (a)
15. (c) 16. (c) 17. (b) 18. (b)

NCERT LAB MANUAL QUESTIONS

1. Name the phyla to which earthworm, cockroach, hony fish, and bird belong.
Ans. Phylum Annelida—Earthworm
Phylum Arthropoda—Cockroach
Phylum Chordata—Bony fish and bird
2. What is an adaptation?
Ans. Adjustment of an organism that helps it to survive and reproduce better than other organisms in a particular habitat is called adaptation.
3. In which body segments of an earthworm, is the aethidium found?
Ans. Segments—14th, 15th and 16th.
4. How does a cockroach adapt itself to a wide range of habitats?
Ans. It can change its body temperature according to the surroundings. It feeds on variety of food materials.
5. Mention two adaptive characters of a hony fish besides the possession of a streamlined body and air bladder.
Ans. (i) Secretion of slimy fluid to protect the body scales.
(ii) Scales on body.
6. Feathers are an adaptive feature of birds. How are they helpful to them?
Ans. They trap the air in between them. Therefore, it provides an insulation by not allowing the body heat to escape from the body of the bird.

Experiment 3

To study the external features (morphology) of root, stem, leaf and flower of monocot and dicot plants.

MATERIALS REQUIRED

Fresh specimen or preserved specimens of monocot plant—onion plant, and dicot plant—mustard plant.

(a) External features of monocot plant

- How to do it:
1. Keep the specimen on the table and carefully observe the features of different organs.
2. Compare the features of specimen with the features given here.
1. **Root:** The roots are in a cluster. These roots arise from the base of the onion bulb. The roots are fibrous and are hair like/thread like.
2. **Stem:** The stem in onion plant is modified stem. It is disc like. It is enclosed by the scale leaves. It forms a bulb. Stem is underground.
3. **Leaves:** Leaves are long, cylindrical, green, hollow from inside. The leaves have parallel venation.
4. **Flower:** Pedicel is present, bracts are present, white coloured and complete.
5. **Androecium (male whorl):** It has 6 stamen arranged in 2 whorls of 3 each. Anthers are long.
6. **Gynoecium (female whorl):** Style is short, and stigma is small.
Note: Whole plant is eaten as vegetable.
(b) External features of dicot plant

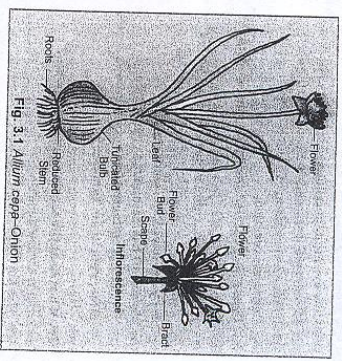


Fig. 3.1 Allium cepa- Onion

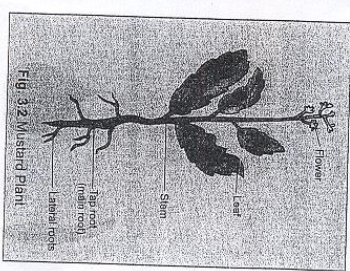


Fig. 3.2 Mustard Plant

- How to do it:
1. Keep the specimen on the table and carefully observe the features of different organs.
2. Compare the features of specimen with the features given here.

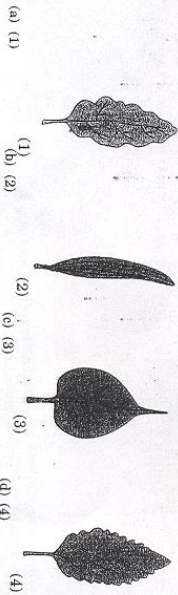
1. Root: Tap root system. The main root is present and it has lateral branches – secondary and tertiary.
 2. Stem: Stem is erect, hard, branched and green in colour.
 3. Leaves: Broad, big, often lobed, alternately arranged on stem axis (eaten as green leafy vegetable).
 4. Flower: Flowers are bright pale yellow with four free petals.
- Other monocot plants are – rice, wheat, grass, maize, sugar cane, etc.
Other dicot plants are – gram, pea, bean, etc.

VIVA VOCE QUESTIONS

- Q1. What is the study of external features of organisms called?
Ans. Morphology.
- Q2. How are monocot plant roots different from dicot plant roots?
Ans. Monocot plant roots are in cluster and fibrous.
- Q3. Name the venation of dicot leaves.
Ans. Reticulate venation.
- Q4. How many cotyledons does a rice seed have?
Ans. One.
- Q5. If a leaf has parallel venation, it is a leaf of plant.
Ans. Monocot.
- Q6. Why a grass plant is monocot?
Ans. Because it has features of a monocot plant.
- Q7. Shashank collected two cotyledonous seeds, one of these is incorrect find out.
Rice, Pea, Bean, Tamarind
Ans. Rice.
- Q8. What does the term angiosperm mean?
Ans. Angio-enclosed, sperm – seed.
- Q9. The leaves of onion are.....
Ans. Green, cylindrical and hollow.
- Q10. Which type of stem is found in onion plant?
Ans. Underground, disc shaped.

Multiple Choice Questions

1. Swati has listed following features of a plant. Which feature is incorrect about the plant?
(a) It has fibrous roots
(b) Leaves are long, ribbons shaped
(c) The root is tap root system.
(d) Broad leaves, reticulate venation.
2. Shashank noted following features of a plant.
(i) Strong stem.
(ii) Broad leaves, reticulate venation.
(iii) Monocot
Which type of plant it is?
(a) Monocot and dicot
(b) Dicot
(c) Any plant
(d) Monocot
3. These are drawing of leaves of plants. Which leaf belongs to monocot plant?



4. These are the seeds of some plants. One seed is not of same category. Identify it.



1. Gram
(a) 1



2. Pea
(b) 2



3. Maize
(c) 3



4. Bean
(d) 4

5. Which student has labelled the figure correctly.



1. Swati
(a) 1



2. Saran
(b) 2



3. Shannu
(c) 3



4. Shashank
(d) 4

Answers

1. (b)
2. (b)
3. (b)
4. (c)
5. (a)

Experiment 4

To study the life cycle of mosquito.

MATERIALS REQUIRED

Preserved specimen of life cycle of mosquito.
OR
Chart showing life cycle of mosquito.

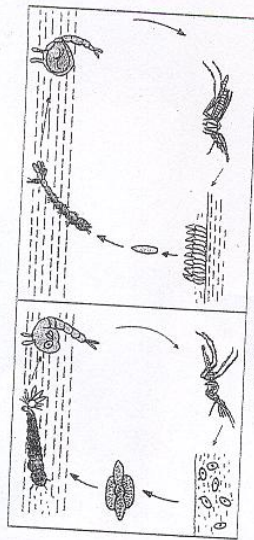


Fig. 4.1 Life cycle of mosquito

Adult Mosquito

1. An adult mosquito is about 3 mm to 5 mm in size. It is soft, thin and greyish black. It has scales on its body.
2. The body is divided into – head, thorax and abdomen.
3. Head has 2 compound eyes (kidney shaped) and 2 long antennae, male mosquito has more bristles than female mosquito on its antennae.
4. Mouth parts is of 'sucking type' in male mosquitoes as they suck/suck nectar of flowers. In females it is of 'piercing and sucking type' because they feed on blood of human. There are five parts.
5. Thorax has a pair of wings and 3 pairs of legs.
6. Abdomen is long slender and has 10 segments.
7. There are a pair of wings. These are long, thin and membrane like. Also there are pair of halteres. These both beat to give high pitched sound of mosquitoes while flying.

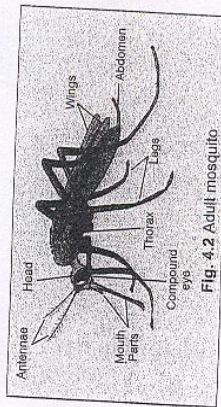


Fig. 4.2 Adult mosquito.

Life Cycle

1. **Copulation:** The mosquitoes male and female copulate in air while flying.
2. **Oviposition (Laying of eggs):** After copulation the eggs are laid in standing water, in pools, puddle, well, ditch, storage tank, coolers, etc.
3. **Eggs:** Eggs of *Culex* mosquito is laid in clusters of 150 – 300 eggs. It is called 'raft'. Eggs are cigar shaped. Eggs of *Anopheles* mosquito is laid singly. The eggs are black and with air float on the sides.
4. **Larva:** The larva is called **wriggler**. It is hatched out of eggs after 2-3 days. The larva wriggles in water, swims, feeds on aquatic microorganisms. Larva of anopheles feeds at the surface of water and culex larva feeds at bottom of water body. Larva swims for 15 days and gain length. They undergo four moults.
5. **Pupa:** After the four moults the larva sinks to the bottom and takes coma shape. It is called pupa. **Culex pupa** is greyish coloured and **anopheles pupa** is greenish grey.

Pupa does not feed because it does not have mouth and anus. It depends on the stored food. This stage lasts upto 2-7 days.

6. **Imago:** Young mosquito is called **imago**. It comes out after hatching of pupa. It takes about one month for the complete life cycle from egg to imago stage. Imago matures sexually after a week of hatching. Lifespan of mosquito is 3 weeks. It generally dies after copulation. Female mosquitoes live for one to many months till them they keep laying eggs.

Note:

1. Blood meal is required by a female mosquito before oviposition.

Type of mosquito

Disease

<i>Culex</i> (Female)	Filariasis (Elephantiasis), Dengue.
<i>Aedes</i> (Female)	Dengue (Bone breaking fever), Yellow fever
<i>Anopheles</i> (Female)	Malaria

VIVA VOCE QUESTIONS

- Q1. Name the mosquito that causes malaria.
Ans. Female anopheles mosquito.
- Q2. How are the eggs of anopheles mosquito different from culex eggs?
Ans. Anopheles eggs have air float on the sides.
- Q3. Are the eggs of anopheles laid in raft?
Ans. No. They are laid loose.
- Q4. What is position of anopheles larva in water?
Ans. Horizontal to water surface.
- Q5. How can we identify the culex eggs from that of anopheles?
Ans. Culex eggs are laid in cluster that appears like a raft.
- Q6. What is the position of culex larva in water?
Ans. It is at 45° in water.
- Q7. How many eggs does the female culex mosquito lay at one time?
Ans. 150-300 eggs.
- Q8. Which mosquito causes filariasis?
Ans. Female culex mosquito.
- Q9. How can we prevent mosquito breeding?
Ans. By destroying breeding grounds, i.e., not allowing water to collect anywhere.
- Q10. What is the symptom of malaria fever?
Ans. High fever after chilling and shivering.

Multiple Choice Questions

1. Eggs of culex mosquito are laid in
(a) Single (b) Cluster (c) Cluster in water (d) Single in water.
2. Larva of culex is at an angle to water surface, it is
(a) 100° (b) 45° (c) 90° (d) 360°.
3. Larva of anopheles is
(a) Parallel to water surface (b) At right angle (c) Vertical (d) Angular.
4. Which mosquito causes malaria?
(a) Anopheles (b) Female anopheles (c) Female culex (d) Aedes.