

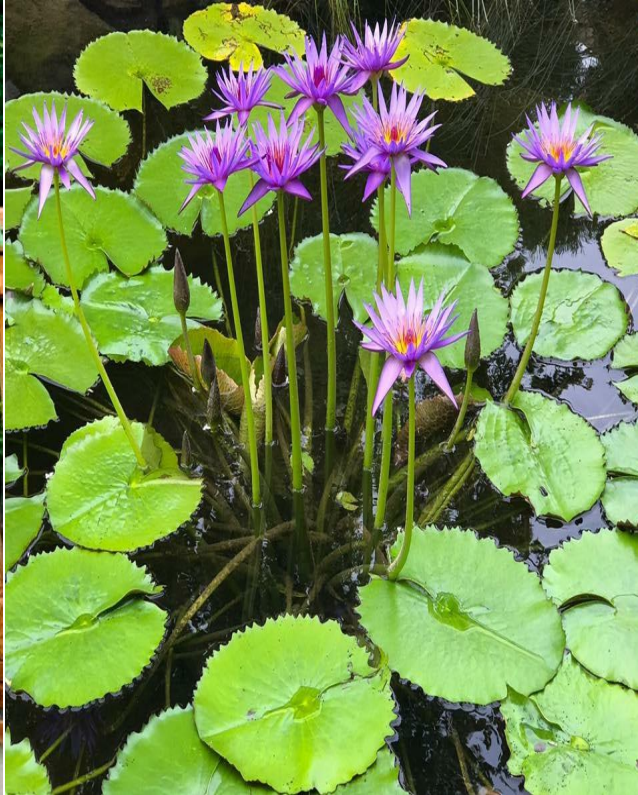
Plants

Questions

- What are the various parts of a plant?
- Where are roots found? Why are they found there?
- Why are leaves green?
- When are the flowers produced?
- Will grass produce fruits?
- Where do plants come from?

Let's Inquire Plants!

Examine the plants and answer the questions below.



Questions

1. Guess the (climatic) conditions to which these plants are adapted to survive? Are there places only these plants can survive?
2. What features might allow them to survive well in the climatic conditions in their respective habitats?

Please work as a group and be prepared to present your results.

Can you recognize these images/specimen?

Observe carefully different plant parts given below



Observe and deduce:

Given are parts of different plants. Observe, draw and describe them.

	Plant 1	Plant 2	Plant 3	Plant 4
1. Draw the diagram				
2. Describe the picture				

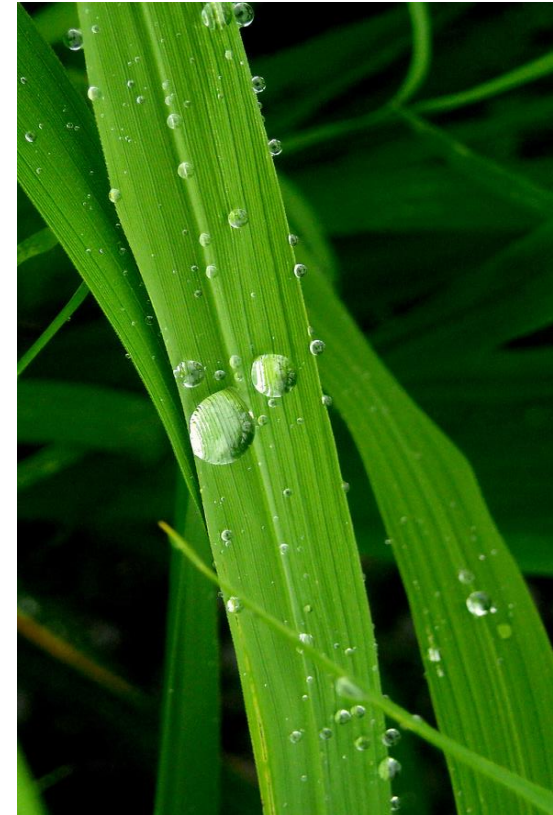
3. What are the similarities you see in the parts? Why are they similar?

4. What functions do they perform?

5. what are the differences you see in the parts? why are they different?

6. How are these plant parts modified to suit the conditions in the place they grow?(to perform the same function in different conditions)

Can you recognize these images/specimen?
Observe carefully different plant parts given below



Observe and deduce:

Given are parts of different plants. Observe, draw and describe them.

	Plant 1	Plant 2	Plant 3	Plant 4
1. Draw the diagram				
2. Describe the picture				

3. What are the similarities you see in the parts? Why are they similar?

4. What functions do they perform?

5. what are the differences you see in the parts? why are they different?

6. How are these plant parts modified to suit the conditions in the place they grow?(to perform the same function in different conditions)

Can you recognize these images/specimen?
Observe carefully different plant parts given below



Observe and deduce:

Given are same parts of different plants. Observe, draw and describe them.

	Plant 1	Plant 2	Plant 3	Plant 4
1. Draw the diagram				
2. Describe the picture				

3. What are the similarities you see in the parts? Why are they similar?

4. What functions do they perform?

5. what are the differences you see in the parts? why are they different?

6. How are these plant parts modified to suit the conditions in the place they grow?(to perform the same function in different conditions)

Can you recognize these images/specimen?
Observe carefully different plant parts given below



Observe and deduce:

Given are parts of different plants. Observe, draw and describe them.

	Plant 1	Plant 2	Plant 3	Plant 4
1. Draw the diagram				
2. Describe the picture				

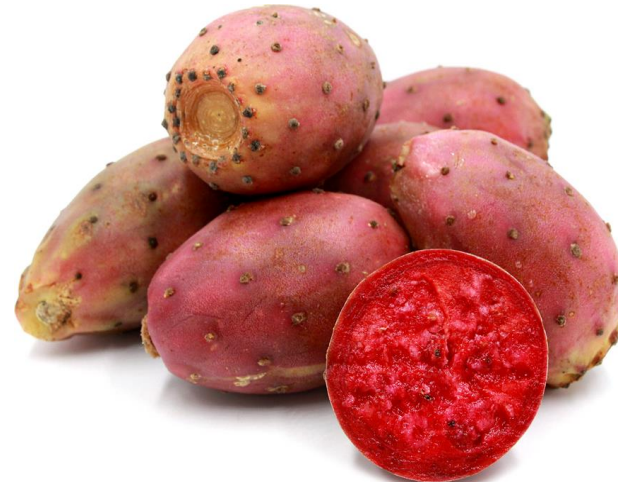
3. What are the similarities you see in the parts? Why are they similar?

4. What functions do they perform?

5. what are the differences you see in the parts? why are they different?

6. How are these plant parts modified to suit the conditions in the place they grow?(to perform the same function in different conditions)

Can you recognize these images/specimen?
Observe carefully different plant parts given below



Observe and deduce:

Given are same parts of different plants. Observe, draw and describe them.

	Plant 1	Plant 2	Plant 3	Plant 4
1. Draw the diagram				
2. Describe the picture				

3. What are the similarities you see in the parts? Why are they similar?

4. What functions do they perform?

5. what are the differences you see in the parts? why are they different?

6. How are these plant parts modified to suit the conditions in the place they grow?(to perform the same function in different conditions)

Clue and pictures

Lady's finger



• Description

1. Habit and habitat- It is an erect bushy shrub, green, soft stemmed found on land ie. terrestrial in habitat
2. Root- The plant bears a strong tap root that penetrates deep into soil. The root hairs are also produced by mother root.
3. Stem- The stem is green and prickly as it has conspicuous epidermal hairs.
4. Leaves- It has broad green leaves, palmate compound with network like veining pattern ie. reticulate venation. The leaf stalk, petiole is broad. The leaves have small pores called stomata that helps in transpiration and gaseous exchange.
5. Flowers- The bisexual buds and flowers are borne on stem at maturity. The bunch of flowers ie. inflorescence is brightly coloured yellow and very attractive.
6. Fruits- The flowers on fertilization and development bears long thin green fruits called silique. It is known to break at the tip for the dispersal of seed.
7. Uses- Ladies finger is used as a vegetables. The mucilage is known to have medicinal properties. The leaves and young stem is used as fodder.

• Questions

1. What do you think is the function of deep roots?
2. Why should the stem be prickly?
3. What might pollinate the flower and why?
4. Describe the leaves.

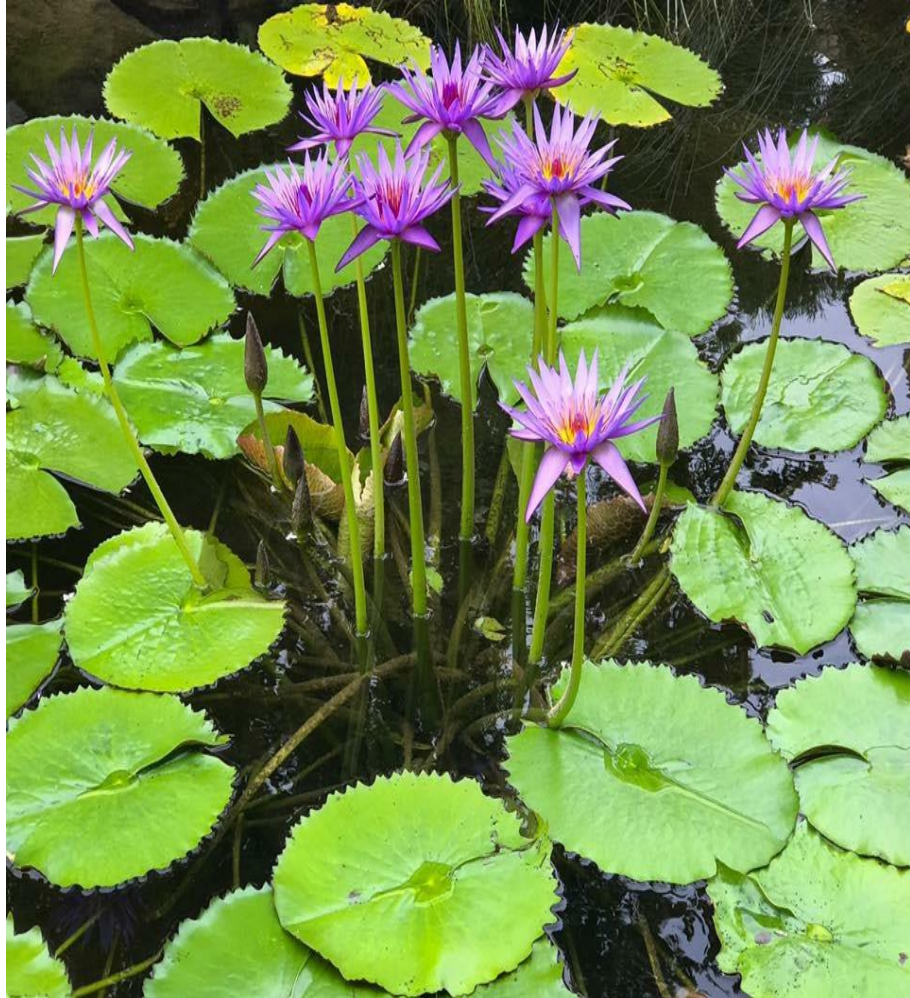
What habitat are they adapted to?



Clues

1. The root travels deep in the soil for anchorage and search of water.
2. The stem is be green, erect branched with broad leaves.
3. Leaves are large and showy, palmate compound with network like vein pattern.
4. The flowers are borne on stem, large.
5. The flowers are pollinated by insects.

Lotus



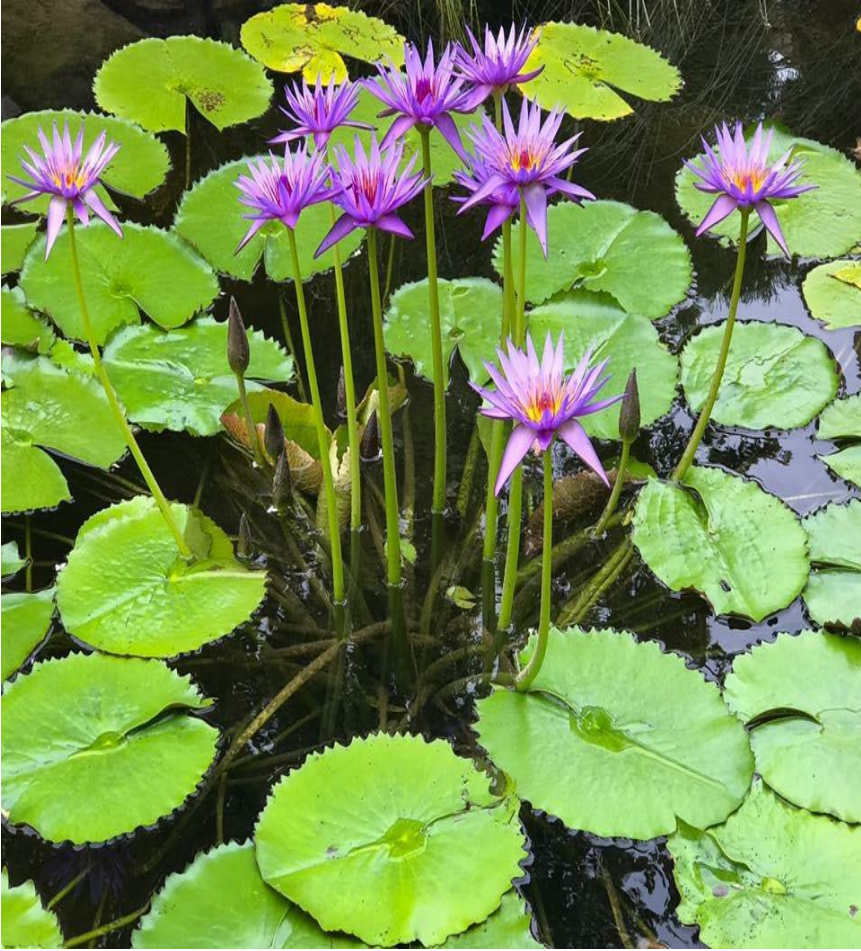
• Description

1. Habit and habitat- It is a rooted aquatic partially submerged plant found generally in fresh stagnant water bodies.
2. Root-The roots are completely submerged, attached to mud, soft. They are poorly developed and cling to mud that lacks oxygen.
3. Stem-The stem underground rhizome that produces roots at nodes. It is soft and often spongy due to air filled cavities present inside. It is smooth and slippery externally.
4. Leaves- It has broad green leaves with network like veining pattern. The leaf margin may be round sometimes serrated. It is thick and leathery. It has thick cuticle and hence water resistant. Leaves also have air sack on the lower side which enables them to stay afloat on water. The petiole is erect rising phototropically to the surface of water.
5. Flowers- The bisexual buds and flowers are borne on the tip of the stem above the water. The flowers are generally large, showy and brightly coloured.
6. Fruits- The green fruits are embedded in the central seat of flower. On maturity, the fruits are ripened.
7. Uses- The lotus flowers finds its utility in cosmetic and floriculture industry. The root and stem are used in salads, soups and as vegetables. The leaves are used in wrapping food and flowers.

• Questions

1. What makes some root float?
2. Is it because lotus needs more water, it has adapted to aquatic habitat? Justify your answer.
3. Why is its leaf thick and leathery?
4. Amidst the water, what might be the pollinating agent of lotus?
5. How is seed dispersal achieved?

Guess the modification?



Clues

1. The plant grows on aquatic habitat.
2. The stem is submerged and produce roots in oxygen lacking mud.
3. The stem is soft and spongy.
4. The petiole of leaf is soft, erect and bears the leaf on the tip
5. The leaves are thick leathery, water resistant and had stay afloat on water

Cactus



- **Description**

1. Habit and habitat- It is a stout herbaceous succulent. It is found in dry areas and deserts.
2. Root- The roots are superficial, spreads across the sand surface. It helps in anchoring plant to sand.
3. Stem-The stem is modifies into thick water storing tissue. It also has sunken stomata.
4. Leaves- Leaves are reduced to thorns.
5. Flowers- The large attractive showy flowers are borne in favourable seasons.
6. Fruits- The fruits are densely coloured and sweet.
7. Uses- The sweet fruits are edible. It is used as an ornamental plant. It is a part of a diet in some cultures and also employed in medicine.

- **Questions**

1. What other function can superficially spread roots carry other than anchorage and how?
2. Comment on the appearance of leaf and stems.
3. What do you think is the pollination mechanism? Why?

Why these modifications?



Clues

1. The roots are superficial and spread over the substratum.
2. The stem is fleshy and thick.
3. The leaves are reduced into thorns.
4. Often found in plants like cactus, Aloe vera, Asparagus.
5. Found in drought conditions.

Paddy



- **Description**

1. Habit and habitat- It is an erect grass variety that grows on stagnant water.
2. Root- The roots are fibrous and propagates vegetatively.
3. Stem-The stem is generally hollow and green, stout.
4. Leaves- Leaves are long and sharp edged. The venation is parallel. The leaves curl inwards during lack of water to avoid loss of water. The stomata is distributed evenly on both sides.
5. Flowers- The flowers are dull, white and small. They are borne in clusters and light weighing. They are wind pollinated.
6. Fruits- The fruit is a small structure called grain and has a hard coating called bran.
7. Uses- It is the staple for most of world's population. The grass and left overs are used as fodder.

- **Questions**

1. Comment on the appearance of leaf and stems.
2. What do you think is the pollination mechanism?
3. Comment on the uses of the plant.

Guess the mode of pollination




Clues

1. The flowers are dull and white coloured.
2. They are light weight.
3. Do not possess nectar.
4. Generally borne on clusters and produced in large numbers.
5. Found in grass varieties like paddy, wheat etc.

Evaluate

- List out the adaptation you have come across.
- Make a plant album of the local trees and plants around your village. Describe the habitat, structure and functions. List out the uses and collect the information on cultural values from elders.
- **Worksheets to summarise the concept- Correlation between habitat , modification and function**

Go around your locality observing plants. Record interesting plant parts showing relation between structure and function (example shown in the table below).

Structure	Form – What it looks like?	Function – What it does?	How the form allows it to complete its function?	Other similar examples	
<p>Eg. Prickly pear cactus</p> 	<ol style="list-style-type: none"> 1. Flat and green 2. Thick and spongy stems 	<ol style="list-style-type: none"> 1. synthesize food 2. Store water 	<ol style="list-style-type: none"> 1. More area to trap sunlight 2. They can store when available and use during drier times. 	<ol style="list-style-type: none"> 1. Aloe vera 2. Pirandai (பிரண்டை) 	