

You may have seen many plants and their seeds around you. List the names of seeds in the following table :

Sr. No.	Name of the seeds
1	
2	
3	
4	
5	

Sr. No.	Name of the seeds
6	
7	
8	
9	
10	



Now collect all those seeds you have listed.

What is required ? Magnifying glass, collected seeds

What to do ?

- ☞ Take each seed one after another in your hand.
- ☞ Observe it with magnifying glass.
- ☞ Tabulate your observation in the following table :

Sr. No.	Name of seeds	Colour	How is its surface ? Smooth or rough ?	Is there any groove on that seed or not ?
1				
2				
3				
4				
5				
6				

Thus, seeds show many varieties. Now, we shall do next activity to know something more about the seeds. Dip the collected seeds in the water for 6 to 8 hours before starting the activity.



What is required ? Magnifying glass, pre-soaked seeds

What to do ?

- ☞ Take seed one by one and press it between your fingers.
- ☞ Do seed divides in to two halves ?
- ☞ Tabulate your observation in the following table :



Sr. No.	Seeds which are divided into two halves by pressing them	Seeds which are not divided into two halves by pressing them
1		
2		
3		
4		
5		

You may have seen that seeds like pea, mung, groundnut etc can be separated into two halves while we press them. These type of seeds are known as dicot seeds.



It is true that if we press any seed having a groove becomes separated into two halves ?

Some seeds like wheat, maize, pearl millet etc. cannot be separated into two halves while we press them. These type of seeds are known as monocot seeds. Which seeds are monocot and dicot amongst the seeds you have collected ?



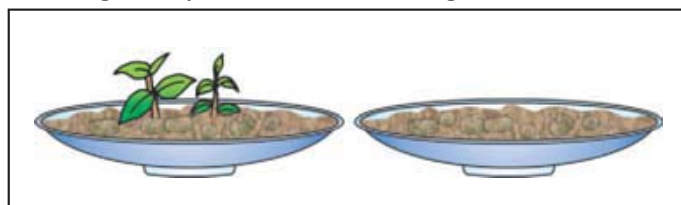
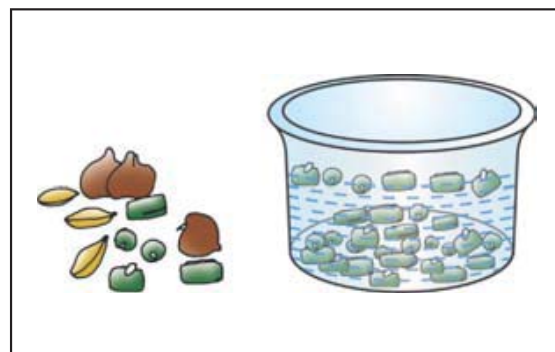
What is required ? Beaker, water, seeds of green gram, a bowl, clay

What to do ?

- ☞ Fill some water in a beaker.
- ☞ Drop all the mung seeds into that beaker.

Observations :

- ☞ You may have observed that some seeds sunk in the water while some of them float.
- ☞ Now, separate floating seeds and sunken seeds into separate bowl.
- ☞ Label them as floating seeds and sunken seeds.
- ☞ Provide water to both kinds of seeds regularly in the morning as well as in the evening.
- ☞ Observe both the bowl for five to six days.
- ☞ Which type of seeds can grow better ?



- **Tabulate your observation in the following table :**

Seeds	How many ?	How many of them germinate ?	Observation of seeds and their growth
Floating seeds			
Sunken seeds			



Do it yourself : Collect different type of seeds and repeat the above activity.

Let us do another activity to understand that many other factors can affect the germination of seeds.



What is required ? Glass cup, plastic/steel ruler, seeds of mung or kidney bean, water and three pieces of cloths.

What to do ?

- ☞ Take a ruler. (plastic or steel)
- ☞ Tie four to five seeds on the ruler at its central part as well as at the lateral sides and cover them with a cloth.
- ☞ Now put this ruler into a glass cup.
- ☞ Now, fill the glass with water in such a way that seeds remain at the upper surface of the water.
- ☞ Put this glass in a room.
- ☞ Observe all the seeds after five to six days.



● Tabulate your observation here :

Sr. No.	Site of seeds where they tied	What is absent there ?			Seed germination and its growth
		Water	Heat	Air	
1	At the bottom				
2	In the middle				
3	At the top				

What is your conclusion ? What shall we do to germinate seeds ? Not down here.

For germination of seed and are necessary.

Do it yourself :

Take three cups. Put seeds at the bottom of one cup and cover them with soil. Take some soil in second cup and put seeds on that soil and cover seeds with soil. Fill third cup with soil and put seeds on that soil. Give water to all the three cups for four - five days regularly in the morning as well as in the evening. Observe the germination of seeds in each cup. Which seeds show better germination ? Observe that.

Dispersal of seeds :

Dispersal of seeds in plant shows various methods in various plants. We shall study some of them.

By Human :

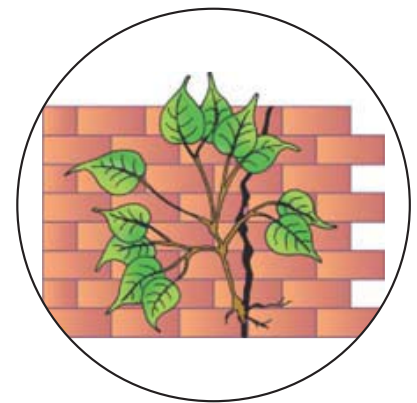
We eat fruits and throw away seeds. These seeds grow when they get suitable conditions. Thus, human plays a role in seed dispersal.

By Birds :

Birds eat fruits and swallow seeds. These seeds come out with their stool and they spread at different places. E.g. Seeds of peach, seeds of *Ficus*.



How does the banyan tree grow on the wall ?

**By Insects :**

Insects like ant use many seeds as their food. They store some food as reserve food material. Sometimes, this bulk of food is forgotten by them. And thus seed dispersal takes place.

By Animals :

Animals use fruits of plants in their food. Seeds come out with their stool. Thus, seed dispersal takes place. E.g. Seeds of *Acacia* (Babool).

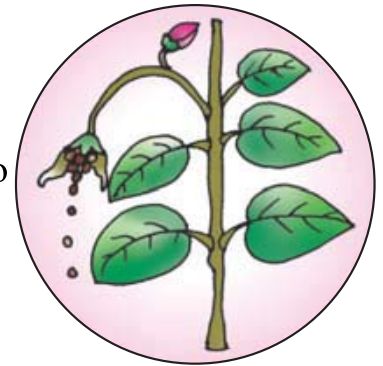
Some plants have thorny seeds. *Xanthium*, *Hetropogon* and some grasses are examples of such plants. These seeds stick to the body of animals, when they come in contact with them. These animals rub their body with a wall or any other thing and those seeds are sprayed over different places.



Wellcrow which has one surface hairy and another with claw like structures used in things like clothes, shoes, bag etc. Is well-known today. George de Mustra was inspired to the discovery of wellcrow from a grass known as Hetropogon.

Air :

Some seeds are very light in weight. They can move to many distant places due to wind.



Water :

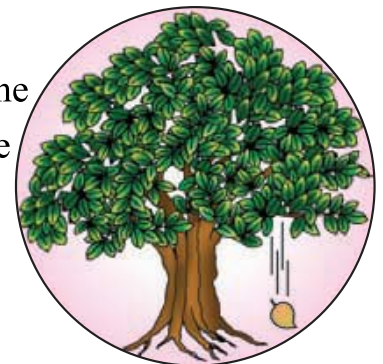
Some seeds migrate by floating on water e.g. Seeds of Alfa (*Medicago sativa*), Basil seeds (Avchi-bavchi) (*Oscimum gratissimum*), seeds of coconut etc.



Gravitational force :

Heavy, spherical fruits of some plants ripen and fall on the ground due to gravitational force and roll away for some distance.

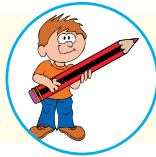
Thus, along with fruits seeds too spread.



Internal force :

Pods of some plants burst when their water evaporate. Seeds are blown very far from the plants. In this way dispersal of seeds takes place. E.g. Black gram (Udad), Pea etc.



**Q. 1 Select the correct option :**

- (1) Sheela presses a soaked seed and the seed is separated into two halves. Select any one option for that seed.

(a) Wheat (b) Groundnut (c) Maize (d) Pearl Millet

- (2) Mahesh pushes a soaked seed and the seed is not separated into two halves. Select any one option for that seed.

(a) Groundnut (b) Maize (c) Green gram (d) Pea

- (3) What does a seed need to germinate and to grow well ?

(a) Air (b) Water (c) Heat (d) all of them

Q. 2 Answer the following question in brief :

- (1) Give reason : Many plants grow everywhere during monsoon season.
 (2) Why does seed dispersal is necessary ?

Q. 3 Give differences : Monocot seed and Dicot seed

Monocot seed	Dicot seed

Q. 4 Classify the following seeds into monocot seed and dicot seed :

Wheat, Green gram, Maize, Turkish gram, Bengal gram, Sesame seeds (Til), Pearl millet (Bajara), Rice, Groundnut, Fennel

Monocot seed	Dicot seed

Q. 5 Observe the dispersal of seeds found around you :

Sr.	Name of seed	Factor responsible for dispersal