

A practical overview of seed dispersion

Have you ever seen small plantlets growing out from soil in gardens, in between the rocks, in the corners and walls, and everywhere. Have you ever wondered how these plants are growing everywhere? No one has sown the seeds there. Right! Then how these plants are growing there? The only answer is the seeds.

- Plants make seeds that can grow into a new plant. Dispersal of seeds is very important for the survival of plant species. The fruits have this single purpose – seed dispersal. Seeds in fruits need to be dispersed far from the mother plant, to grow in suitable sites and reduce the competition with the mother plant for resources.
- Some fruits disperse their seeds themselves and some require other agents like wind, water, animals, birds, etc.
- Seeds dispersed by wind are lightweight and have wing-like structures that allow them to be carried by the wind.
- For example, the dandelion – have hairy, weightless structures that are suited to dispersal by wind.
- Seeds dispersed by water are contained in light and buoyant fruit, giving them the ability to float.
- Coconuts are famous for their ability to float on water to reach the land where they can germinate.



Activity:

- Take a large bowl or tub and fill it with water.
- Drop a coconut in the water and check how it floats and how far it floats.
- Animals and birds eat fruits and the seeds that are not digested are excreted in their droppings far away.
- Some animals like squirrels, bury acorns and other seeds containing fruits for winter use at many places. If they forget those sites and the conditions are favorable, the seeds germinate and develop into a new plant.
- Some fruits have hooks or sticky structures that stick to the animal's coat and are then transported to another place.
- Humans are excellent seed dispersers. They play a big role in dispersing seeds by carrying the fruits to new places and throwing away the inedible part that contains the seeds. They also import and export the seeds to introduce new varieties.
- The seeds of dispersers like in peas and flax reside in pods, and as the pod dries out once the seeds are ripe. When dry, it will eventually burst expelling and scattering the seeds in every direction.

Activity:

- Head outdoors to start this activity.
- Place a plastic table cloth on the ground.
- Get a packet of seeds from a shop if available and pour them into a balloon.
- Blow the balloon now and tie it.

- Finally, pop the balloon on the plastic sheet and watch what happens.
- The seeds fall and disperse on the plastic sheet. In the same way, the pods explode and disperses the seeds.



- Once pods or balloons burst, measure the distances of the seeds traveled.

Activity to show seed dispersal mechanisms

- Clear an open area in the room where you perform this activity.
- Now place a fan on a table or chair aiming to this place in your room. You can also perform this activity outside on a windy day.
- Now attach a paper clip to a plain paper without making any changes to it.



- Next attach a paper clip to a crumpled paper.
- Also attach a paper clip to a cotton ball.
- Attach a paper clip to a helicopter model made with a paper.
- So these four types of models with a paper clip are prepared now. Now assume these paper clips in all the models as the seeds now.
- Turn on the fan. Standing in the same place, try dropping your seeds one at a time in front of the fan. Also try dropping a plain "seed" (for example, a regular paper clip with nothing attached) to see what happens.



- How far do the seeds get blown by the fan? Do certain seeds take longer to reach the ground than others?
- Think about your results. Have a friend use a stopwatch to time how long it takes the seeds to hit the ground.

What did you observe from this experiment?

- ✚ You should find that adding light materials to the “seed” (paper clip) can make it fall more slowly and blow farther.

- ✚ Here shape also matters. A paper clip attached to a crumpled-up piece of paper will still fall very fast.
- ✚ A piece of paper with a 'wing' – a helicopter model piece of paper will fall more slowly and be blown farther by the fan like a dandelion seed.



- ✚ In the same way seeds depending on their size, shape, weight, and other factors they disperse by various mechanisms.
- ✚ These seeds and their designs in nature are the ones most likely to reproduce.

