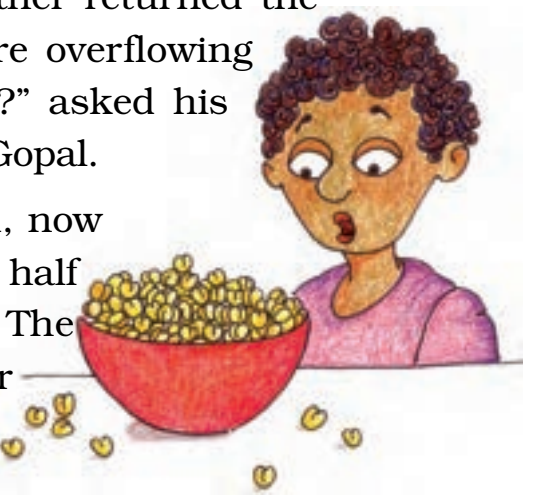
5. Seeds and Seeds

Gopal was waiting for his mausi's family to visit them. They will be coming the next day for their holidays. He was thinking about all the fun and nice food that he would have with his cousins. Just then his mother called out, "Gopal, before you sleep, remember to soak two small bowls (*katoris*) of *chana* (gram)." She was going to his Bua's house and would return only in the morning.

As he was soaking the *chana*, Gopal thought, "How will two small bowls of this be enough for eight persons?" So he soaked another two bowls of *chana*. When his mother returned the next morning, she saw that the *chana* were overflowing from the vessel. "How much did you soak?" asked his mother. "How did that happen!" wondered Gopal.



"You soaked too much! Anyway it is good, now I will cook half of them, and leave the other half to sprout. I can send these to your aunt. The doctor has told her to eat sprouts", mother said. She tied half of the soaked *chana* in a wet cloth, and hung them up to sprout.



Discuss

- What things are soaked before cooking in your house? Why?
- What things do you eat after sprouting? How are they sprouted? How much time does it take?
- Has the doctor or someone you know ever told you to eat sprouts? Why?

Do this and find out

Do you remember that in Class IV you did an activity with seeds? Now try another one.

- Take some *chana* and three bowls.
- Put five *chana* in the first bowl and fill it up with water.
- Put a damp piece of cloth or some cotton wool in the second bowl. Now keep the same number of *chanas* in it. Make sure that the cotton wool or cloth remains wet.
- Put the same number of *chanas* in the third bowl. Do not put anything else in it. Cover all the three bowls.

Observe after two days and note the changes in the bowls.

	Bowl 1	Bowl 2	Bowl 3
Are the seeds getting air?	No	Yes	Yes
Are the seeds getting water?			
What changes did you see?			
Have the seeds sprouted?			

Tell and write

- In which bowl did the seeds sprout? What difference did you see between this bowl and the other bowls?
- Why did Gopal's mother tie the *chana* in a damp cloth?

Teacher's Note : Sprouting time of seeds may vary according to the temperature and humidity of the weather.



When you split the whole *masoor*, you get me – *masoor dal*. But then you cannot sprout me! Can you think why?



Draw

- Look carefully at your sprouted *chana* and make its drawing?

Project : Plant your seeds

Take a clay pot or a tin can with a wide mouth. Make a small hole at the bottom of the can. Fill your can with soil. Put four or five seeds of the same kind in the soil and press them gently. Different groups can plant different kinds of seeds, such as mustard (*sarson*), fenugreek (*methi*), sesame (*til*) or coriander (*dhania*).





Write

Name of the seed : _____

The date on which you planted them: _____

The day you observe something coming out of the soil, start filling the table:



To find the height of a plant use thread and then measure it on the scale.

Date	Height of the plant (in cm)	Number of leaves seen	Any other change



Find out

- How long did it take for the plant to come out from the soil?
- What was the difference in the height of the plant on the first and second day?
- On which day did the height of the plant increase the most?
- Did new leaves come out of the plant every day?
- Was there any change in the stem of the plant?



Discuss

- Which seeds took the most number of days for the stem to come out of the soil?
- Which seeds took the least days to come out of the soil?
- Which seeds did not grow at all? Why?
- Did anyone's plant dry up or turn yellow? Why did this happen?
- What would happen if the plants do not get water?

Straight from your heart

- What is inside the seed?
- How does a big plant grow from a tiny seed?

Teacher's Note : Students are not supposed to be given formal information in response to these questions. These are meant to explore their own intuitive ideas. Discussion in class will help them think about how plants need air, water and soil.

Think and imagine

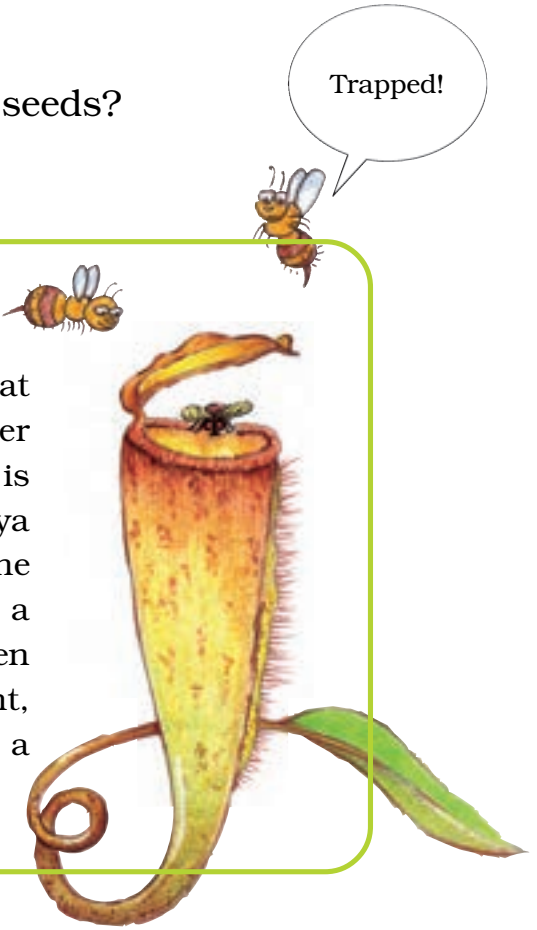
- What would happen if plants could walk? Draw a picture.

Find out

- Do some plants grow without seeds?

Plants which hunt!

There are some plants which trap and eat frogs, insects and even mice. The Pitcher plant (Nepenthese) is one such plant. It is found in Australia, Indonesia and Meghalaya in India. It has a pitcher-like shape and the mouth is covered by a leaf. The plant has a special smell that attracts insects to it. When the insect lands on the mouth of the plant, it gets trapped and cannot get out. What a clever way to hunt!





So many seeds!

How many types of seeds can you collect? Where will you find them? Each of you should try to collect as many different types of seeds as you can. After that, put all the seed collections together. Now observe these seeds carefully – their shapes, sizes, colours, textures (smooth

or rough). Make a seed chart to put up in the class. You can start with a table like this.

Name of the seed	Colour	Shape (draw)	Texture
Rajma	Reddish brown		Smooth



Think

- Did you keep aniseed (*saunf*) and cumin (*jeera*) in your list?
- Which was the smallest seed and which was the biggest seed in your collection?



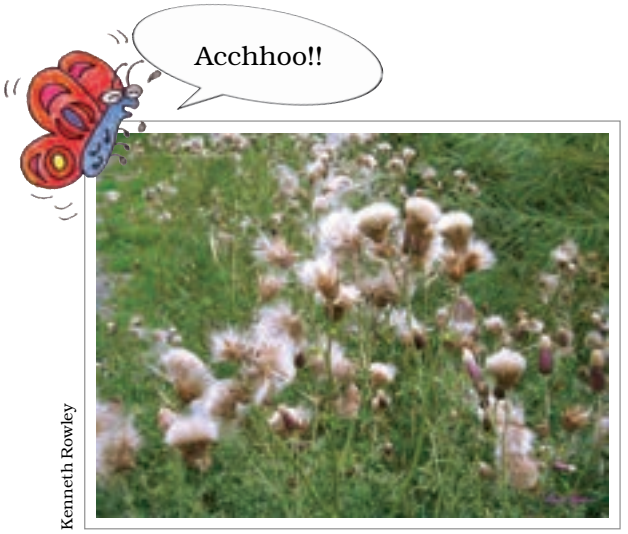
Make lists of :

- Seeds that are used as spices in your home.
- Seeds of vegetables.
- Seeds of fruits.
- Light seeds (check by blowing them).
- Seeds which are flat.
- Make more groups. How many groups of seeds did you make?
- Do you know any games that you can play with seeds? Discuss with your friends.

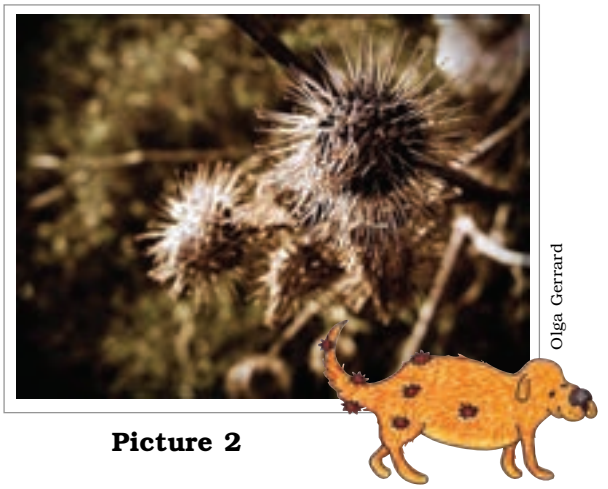
Wandering seeds

Plants cannot move around. Once they grow, they remain in the same place. But their seeds are great travellers! They can reach far and wide. Look at picture 1 on the next page and see the flying seeds.





Picture 1



Picture 2

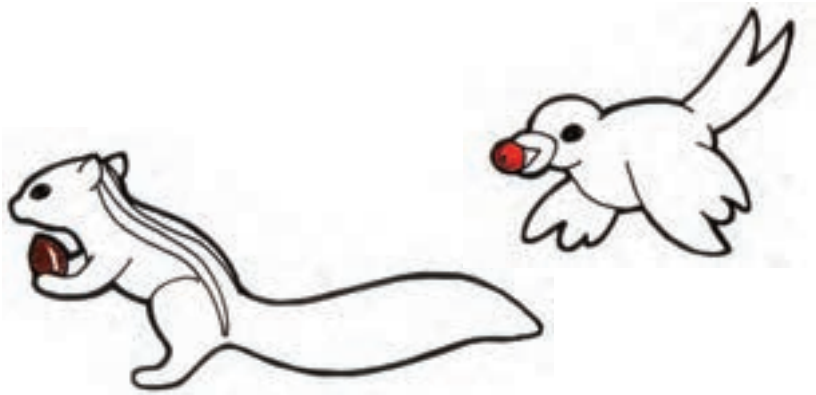
- Have you ever seen any seed that can fly?
- What is it called in your area?
- Look at your seed collection. Guess how many of those could have travelled by flying.

Look at picture 2. This seed cannot fly, but it can still travel by sticking on to the fur of animals or on our clothes. In this way it gets a free ride! Did you get any new idea from these seeds? Read how the idea of Velcro came to George Mestral.



This happened in 1948. One day George Mestral came back from a walk with his dog. He was amazed to find seeds sticking all over his clothes and on his dog's fur. He wondered what made them stick. So he observed these seeds under a microscope. He saw that the seeds had many tiny hooks which got stuck to clothes or fur. This gave Mestral the idea of making Velcro. He made a material with similar tiny hooks that would stick. Velcro is used to stick together many things – clothes, shoes, bags, belts and many more. What a way to take inspiration from nature!

Look at the pictures given below and guess how the seeds travel and reach different places.





- Some plants spread their seeds over long distances. When the soyabean pods are ripe, they burst and the seeds are thrown out. Have you ever heard their sound?
- Think what would happen, if seeds did not spread and remained at one place only.
- Make a list of the different ways by which seeds are spread.



Who came from where?

Have you included human beings also in your list? Yes, we also carry seeds from one place to another, knowingly or unknowingly. We bring the seeds of plants that we find beautiful or useful, to grow them in our garden. Later the seeds of these plants spread to other places. Many years later people may not even remember that these plants did not grow here earlier. They were brought from somewhere else. Do you know from where chillies came to our country? These were brought to India by traders coming from South America. Today we cannot think of food without chillies!

Read this poem to know which plant came from where.

Did you know this?



From South America
long ago,
came a tomato,
a potato,
and a green chilli.



Do you know this?

A cabbage came
from Europe,
and also a pea.
From Africa
came a coffee bean,
and a green *bhindi*.





They crossed the land.
They crossed the sea.



Did you know this?

(*Bhindi* is also called okra, and *methi* is called fenugreek)











A mango sang,
'Come in! Come in!'
An orange smiled
inside its skin.
'Welcome to India,'
a banana said.
the *methi* and spinach,
brinjal and radish,
nodded its head.













Did you know this?
...





– *Rajesh Utsahi*
Chakmak, May-June 2002
(Translated by Anupa Lal)

आलू मिर्ची चाय जी, कौन कहाँ से आए जी! आलू मिर्ची चाय जी, कौन कहाँ से आए जी! आलू मिर्ची चाय जी, कौन कहाँ से आए जी!

What all was grown in India long ago? Were mangoes and bananas grown here? What came from other countries? Imagine food without potatoes or tomatoes!



What we have learnt



- Reena has drawn this picture of the seed sprouted by her. What do you think the seeds need for sprouting? Write in your own words. How would Reena's seeds look if they did not get the things needed. Show by drawing a picture.
- How do seeds spread to far off places? Write in your own words.

