**Our Food**

If any one asks you about your favorite food item, what will you answer? The list may include several things like bread, biryani, idly, sambar, vussulu-borugulu, cheese, dal, brinjal curry and so on. But if you are asked about their components, sources of ingredients and how they have been cooked, then, it may be difficult for you to answer. Generally we take interest in eating food and don't bother about other things, like what material we need to prepare brinjal curry or borugulu! How can idly be made soft? We take food for our health and energy. But we should know the sources of the materials required for preparing the food we eat. This type of information is very important. Hence, we will discuss about the ingredients, processing and sources of food in detail in this chapter. Observe the following food items and name them.

### Table 2 - Ingredients of some food items.

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Food items you like</th>
<th>Required ingredients</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Payasam</td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>Chicken curry</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>Pallikaram</td>
<td></td>
</tr>
</tbody>
</table>

To make different kinds of food we need different materials. These materials which are required to prepare food are known as ingredients. When you purchase packed food, biscuits or any cold drink, you will find their ingredients written on their packets. Have you ever thought where these ingredients come? Yes, it will be easy for you to say that we get vegetables and fruits from plants; eggs, milk, meat from animals. Is there any other source you can think of? Some vegetables have been listed below. Find out the source of each ingredient; if it is a plant part (P) or an animal (A), or something else (E).

### Table 3 : Who gives us food

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>P or A or E</th>
<th>Name of plant or animal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cooking Oil</td>
<td>P</td>
<td>Coriander plant</td>
</tr>
<tr>
<td>Honey</td>
<td>A</td>
<td>Tomato</td>
</tr>
<tr>
<td>Chips</td>
<td>A</td>
<td>Potato</td>
</tr>
<tr>
<td>Turmeric powder</td>
<td>P</td>
<td>Tomato</td>
</tr>
<tr>
<td>Salt</td>
<td>A</td>
<td>Cucumber</td>
</tr>
<tr>
<td>Dough</td>
<td>A</td>
<td>Sweet potato</td>
</tr>
<tr>
<td>Meat</td>
<td>A</td>
<td>Carrot</td>
</tr>
<tr>
<td>Rice</td>
<td>A</td>
<td>Carrot</td>
</tr>
<tr>
<td>Eggs</td>
<td>A</td>
<td>Potato</td>
</tr>
<tr>
<td>Sugar</td>
<td>A</td>
<td>Potato</td>
</tr>
<tr>
<td>Peanuts</td>
<td>E</td>
<td>Potato</td>
</tr>
</tbody>
</table>

Try to enrich this list as much as you can. You will find that from animals we get milk, eggs and meat. If you observe carefully you will notice that there are a number of animals from which we get different kinds of food. Goats and sheep give us meat. Hens and roosters are used as meat (chicken). Can you elaborate this list? In plants we eat different parts, like leaf of spinach and coriander plant, flower of cauliflower plant, fruit of tomato and drumstick plant. Table salt is confusing. Actually it is a mineral and obtained from the sea. In later classes you will learn about the components of food. Can you identify which part of the plant is eaten by us in the given table? You can also discuss with your friends.

### Table 1 - What did I eat yesterday?

<table>
<thead>
<tr>
<th>Name of student</th>
<th>Food eaten</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ashok</td>
<td>Rice, dal, milk, vegetables, jam, idly, bread</td>
</tr>
<tr>
<td>Neetham</td>
<td>Biryani, Chilli Chani, Rotti</td>
</tr>
</tbody>
</table>

**Food ingredients**

### Activity:

**Many things are needed to prepare food**

Srinivas wants to eat something special on Sunday. He asked his mother to make biryani. Srinivas wanted to help his mother. His mother asked him to prepare a list of materials which would be required to make biryani. Here is the list made by Srinivas - rice, salt, jeera, tomato, potato, onion, etc. Help Srinivas if he had missed any material and complete the list.

Srinivas was surprised that while cooking boiled rice we need only two materials, raw rice and water. But for making biryani we need many materials.

List out some food items you like to eat and try to find out what materials are used to prepare them.

**Chicory is beneficial for digestion, the circulatory system and the blood**

**Beet roots are high in carbohydrate levels and should therefore be used sparingly**
We usually say food is tasty. But how
Tasty Food:-
prepared by this method.
Don’t forget to add the food items
methods of cooking which you know.
In table 5, you can also add any other
food depends on its ingredients, method
conditions are more suitable for growing
Even though farmers grow various types of
Do you know the method of
To make biryani or kheer, we use different types of ingredients such as ilaichi,
Now look at table 4 and try to fill it as shown.
Table 4 - Eat me/eat me not!
Table 5 - Processes involved in making food
Table 6 - How to preserve food
In table 5, you can also add any other
• Which parts of the plants do we
generally use?
• Do we also use flowers as food?
• Which plants are these?
• Is there any plant whose whole body is eaten?
We use various parts of plants for our food. Leaves, roots, seeds and fruits of
plants are widely used whereas stems and flowers are not so widely used. We
need several ingredients to cook different types of food. Whatever may be the
source of ingredients - plants, animals or minerals, we use some in plenty but others
are needed in only small quantities. Why is it so?
How people develop food habits?
People living in one region usually share
common food habits. You might have
seen paddy fields near your village. In
our state geographical and climatic conditions are more suitable for growing rice
so we produce more rice. Even
Peanuts contain beneficial protein, but many people are allergic to them and find
them hard to digest
Do you know?
Joseph knows how to make tomato
curry. Listen to him.
Activity-4:
Preservation of food
The discussion about food will be
incomplete unless we talk about food preservation. How do farmers protect rice from pests and store it after it is
harvested? How is rice stored in your
home? Why does curry get spoiled when kept out for a couple of days but pickle stays fresh for so long? It is only
because of preservation. For preserving certain food-items, they are salted and dried. In certain areas dried fish is
commonly used. Vegetables and meat are also dried and pickled.
• Try to find out how vegetables are pickled at home.
• Find out the ingredients that help to
preserve vegetables.
Salt and turmeric powder are used for
preservation while making pickles. In
coastal areas it's a common sight to see
fish being smoked for preservation.
• Try to find out more about this
process.
• What are the other food material
preserved by this process?
Preservation of food
Sugar syrup or honey is a good
preservative. Fruits are often
preserved in sugar syrup or honey.
Jams and fruit juices are good examples of preservation with sugar.
Activity-4:
Let us store food
Discuss in groups and identify examples of different preservatives. Ask your
parents other ways of preservation that they follow.
Table 6 - How to preserve food
Types of preservatives
Examples
Adding salt, chilli powder and oil
pickles,
Adding only salt
Drying
Sugar syrup
For preserving food we use different types of preservatives. But some food
items which are available in the market have harmful preservatives. So we must
Tomatoes are an excellent source of vitamin C (the vitamin C is most concentrated
in the jelly-like substance that surrounds the seeds)
Playing with Magnets

All of you would have seen a pin holder in your school office (see Fig. 1 (a)). You may have seen that in this pin holder, some pins are attached to the top or cap.

(a) Why do the pins get attached to the cap of the pin holder?
(b) What could be there in that cap?
(c) Why does it happen so?

You might have seen some metal stickers stuck to the door of an iron almirah or a refrigerator (see Fig 1 (b)).

(a) What is there in those stickers which makes them stick to the iron doors?
(b) Do they stick to wooden doors or plastic doors too?

1. Find out the wrong ones among the following statements for you.
   (a) We can get food from plants and animals only.
   (b) Spices, oil, salt and meat are the ingredients of a chicken curry.
   (c) Plants are the source of honey.

2. Collect information about the main food habits of different states of India. Refer to the Atlas, library books and discuss with your teacher.

3. Write the names of the animals on slips of paper. On the other side of the slip write the names of food we get from the animals - milk, eggs or meat.

4. Sort the slips into groups. Write the names of the animals in the correct portions of the circles shown below.

   (a) Are there any portions where none of the animals fit? Explain why?

There is more fiber in an orange than in most other fruits and veggies.
You will observe that the uniformly spread iron filings concentrate at two points of the paper sheet. At some distance you will find some scattered iron filings between these two points. This change in the speed of iron filings on the sheet of paper is due to the magnet present below it. The iron filings move towards its ends because of this property of attracting iron.

Activity-4: Finding materials attracted by magnets.
Take a bar magnet, nail, jump-slip, plastic scale, a piece of glass, key, paper, iron bolt, pen, blade, pencil, knife, stainless steel spoon, piece of chalk, wood and glass. Table 1

<table>
<thead>
<tr>
<th>Name of the object</th>
<th>Material of which the object is made</th>
<th>Attracted By Magnet (Yes/No)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jump Clip</td>
<td>Iron</td>
<td>Yes</td>
</tr>
<tr>
<td>Scale</td>
<td>Plastic</td>
<td>No</td>
</tr>
</tbody>
</table>

- Which materials are attracted by a magnet?
- Which materials are not attracted by a magnet?
- The materials that are attracted by magnets are called magnetic materials.
- The materials that are not attracted by magnets are called non-magnetic materials.
- Give your own examples for magnetic materials.
- Give your own examples for non-magnetic materials.
- Magnets have the property of attracting materials like iron. Based on this property of magnets they can be used to separate some mixtures.

Activity-5: Can we separate iron filings from soil?
Take a bar magnet and roll it in the soil in your school ground for some time. Pull out the magnet. What do you feel? Does anything get attached to the magnet? You may find some dark particles of soil sticking to the magnet. Now gently remove these dark particles from the magnet and collect them in a sheet of paper. These are iron filings.

Once the Greek mathematician Archimedes of the “Eureka” used lodestone to win enemies in battle by using lodestone to get the nails from the ship. So the ship would sink.

Mountaineers and army people also carry a compass with them so that they do not lose their way in an unknown place. After that we can also identify the East and West between them.

A compass is used to find directions. It is mostly used in ships and airplanes. Mountaineers and army people also carry a compass with them so that they do not lose their way in an unknown place.

Note: Don’t place compass and magnets together.

Activity-6: Attraction and Repulsion Between Two Magnets
Take two similar magnets, place them in four different ways as shown in Fig. 6 and record your observations.

You will notice that the magnet finally takes a position in the North-South direction. Mark the end that points towards the North with some colour. Now disturb the magnet and again wait for some time.

- Where does the coloured portion come to rest?
- Repeat this experiment at another place. What do you observe?
- Magnets always come to rest in the North-South direction. In each case the marked end points towards North. This end is known as North pole of the magnet. The other end, which points towards the South is known as South pole of the magnet. This property of magnets is called directional property. It is exhibited only by magnets. We use this property to make the magnetic compass.

Magnetic Compass
A compass is usually a small box with a glass covering it. A magnetized needle is pivoted inside the box in such a way that it can rotate freely. The compass also has a dial with directions marked on it. The compass is kept at the place where we wish to know the direction. Its needle indicates the North-South direction when it comes to rest. The compass is then rotated until the north and south marked on the dial are exactly below the two ends of the needle. To identify the North Pole of the magnetic needle, it is usually painted in a different colour (see Fig. 5). Then we identify north and south at that place. After that we can also identify the East and West between them.

A compass is used to find directions. It is mostly used in ships and airplanes. Mountaineers and army people also carry a compass with them so that they do not lose their way in an unknown place.

Note: Don’t place compass and magnets together.

Some vets use magnets to retrieve wire and metal from animals stomachs.
We saw that a suspended bar magnet always comes to rest in the North-South direction.

Activity-7
Place a bar magnet on a table in any direction. Suspend another bar magnet over it as shown in Fig. 7. The suspended bar magnet should be fairly close to the one kept on the table. Observe in which direction the suspended bar magnet comes to rest.

Change the direction of the bar magnet placed on the table.

• Do you find any change in the direction of suspended bar magnet?

Activity-8
Take an iron nail and place it on a table. Now remove the bar magnet and bring some iron filings or alpins close to the nail. What do you notice?

The iron filings or alpins get attracted to a magnetic substance due to the presence of a magnet near it, is called magnetic induction.

Activity-9
Take a magnetized needle. Tape the needle to a light cord. Float the cord in a glass of water as shown in Fig. 10. Now add a little detergent to water to help the cord float freely. In what direction does your magnetized needle point?

It points along the North-South direction. Thus it acts as a magnetic compass.

Activity-10
Take three objects one after the other close to one pole of the bar magnet and observe whether they get attracted, repelled or not attracted. Record your observation in table 2. After that bring those objects close to the other pole of the bar magnet in the same way and record your observations.

Table 2

<table>
<thead>
<tr>
<th>Observation</th>
<th>Object - 1</th>
<th>Object - 2</th>
<th>Object - 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Changes observed when brought close to one pole of the bar magnet</td>
<td>Armat/ Repelled/ Not Armat</td>
<td>Armat/ Repelled/ Not Armat</td>
<td>Armat/ Repelled/ Not Armat</td>
</tr>
<tr>
<td>Changes observed when brought close to other pole of the bar magnet</td>
<td>Armat/ Repelled/ Not Armat</td>
<td>Armat/ Repelled/ Not Armat</td>
<td>Armat/ Repelled/ Not Armat</td>
</tr>
</tbody>
</table>

Activity-11
Make your own magnetic compass.

Take an iron nail and place it on a table. Make sure that the nail neither attracts n-neck pins or iron filings. Take a bar magnet and place one of its poles one end of the nail. Without lifting the bar magnet, move it along the length of the iron nail till you reach the other end. Then lift the bar magnet, bring it to the first end of the nail and move along the length again as shown in Fig. 9. Repeat this process 20-30 times. Always move the magnet in one direction, don’t drag the magnet back and forth.

Activity-12
Make your own magnetic compass.

Bring three objects one after the other close to one pole of the bar magnet and observe whether they get attracted, repelled or not attracted. Record your observation in table 2. After that bring those objects close to the other pole of the bar magnet in the same way and record your observations.

What do you conclude by comparing the recorded observations?

By the above observations we conclude the following:

If an object is attracted by one pole of the bar magnet and repelled by its other pole, then you can say that it is a magnet.

If an object is attracted by both the poles of a bar magnet and repelled by any pole, then you can say that it is neither a magnet nor a magnetic substance.

If an object is attracted by both the poles of the bar magnet, and repelled by its other pole, then you can say that it is a magnet.

Activity-13
Finding out whether the given object is a magnet or not

You have been given three objects of same size, shape and colour and a bar magnet. You have to decide which one among them is a magnet, which is not a magnet but made up of a magnetic material or a non-magnetic material.

Bring three objects one after the other close to one pole of the bar magnet you have to decide which one among them is a magnet, which is not a magnet but made up of a magnetic material or a non-magnetic material.

Activity-14
Magnetic induction

Take a safety pin and bring it close to an alpin. Does it attract the alpin? Why?

Bring the safety pin close to one pole of a bar magnet and see how it gets attracted to the magnet. Now bring an alpin and touch it to the safety pin as shown in Fig. 11 (a). Does safety pin attract the alpin? Why?

In the above two cases, we notice that the safety pin acts as a magnet when it is in contact with another magnet. Magnetic property is induced in safety pin due to the bar magnet. Magnetic property possessed by a magnetic substance due to the presence of a magnet near it, is called magnetic induction.

If the safety pin is not in contact with the bar magnet, can it attract the alpin?

What happens if we place the bar magnet very close to the safety pin but not touching it?

Let us find out.

Take a bar magnet in one hand and a safety pin in the other hand, hold them in such a way that they are close to each other but not in contact as shown in Fig. 11 (b).

Ask your friend to bring an alpin and touch the safety pin. You will notice that the alpin will stick to the safety pin. This shows that due to magnetic induction safety pin acts as a magnet.

Keywords
Magnet, magnetic material, non-magnetic material, North Pole, South Pole, Magnetic compass, like poles, unlike poles, attraction, repulsion, magnetic induction.

What we have learnt

• Lode stone is a natural magnet.

• Magnets are of different shapes i.e. bar magnets, horseshoe magnets, ring type magnets, etc.

• The materials that are attracted by magnets are called magnetic materials. The materials that are not attracted by magnets are called non-magnetic materials.

• A magnet always has two ends whose attracting capacity is more than other parts of it. The poles of the magnet lie at these ends.

• Each magnet has two poles - North and South.

• A freely suspended magnet always aligns in the North-South direction.

• Unlike poles of two magnets attract each other, whereas like poles repel each other.

• Magnetic property possessed by a magnetic substance due to the presence of a magnet near it, is called magnetic induction.

Improve your learning

1. Predict which of the following material are magnetic and non-magnetic material. Test with a bar magnet and check your predictions. What do you say after testing all materials?


2. List out the magnetic and non-magnetic materials in your class room.

3. For which purposes do people use magnets in their daily life? Ask your family members and other
Rain: Where Does It Come From?

Rain is a common phenomenon like air and sunlight in our daily life. We generally get more rains in rainy season. Our general observation is that if the sky is cloudy then there is a possibility of rain. But clouds do not lead to rains every time. Some times we witness sudden rains.

- Why do clouds cause rain?
- What is the relation between rains and clouds?
- Why don't all clouds cause rain?

To understand about clouds and rains we need to first know something about water.

**Forms of Water**
All of us know that water is available in nature in three forms. These are:
- Liquid Form
- Solid Form
- Gaseous Form

**Liquid Form**
Water in liquid form is present in oceans, seas, lakes, rivers and even underground. It is our common experience that on cold winter mornings when we speak, some water from our mouth gets cooled suddenly to form smoke-like vapour. These tiny droplets of water are called `water vapour`.

**Solid Form**
Ice is the solid form of water. Snow occurs naturally. Raindrops that are not shaped like this, they are shaped like this as they fall. Raindrops vary in size from 0.02 inch to about .031 inch diameter.

**Gaseous Form**
What happens when water is heated? The gaseous form of water is `water vapour` which is present in the air around us. We know that when ice is heated it changes into water and if water is heated it turns into water vapour. Similarly when water vapour is cooled we can get back water. If water is cooled further we will get ice.

**Evaporation and formation of clouds**
What happens to the water in wet clothes when they are kept in sunlight? When we want to dry clothes quickly we wave them about or keep them under a fan.

- • Does the water in wet clothes dry up only due to sunlight or due to other reasons?
- You must have noticed that when water on wet roads, roof tops and some other places drips up after some time though there is no sunlight.
- • Where does this water go after drying up?

If you heat water kept in a bowl by using a stove, you may notice water vapour coming from the bowl. Thus, when water is heated, it gets converted to vapour and mixes with the air. This is what happens to the water in wet clothes also.

The process of water changing into water vapour is called `evaporation`. If water is gently heated it will become water vapour due to the heat supplied by sunlight.

- • Does smoke-like vapour come out of our mouth in winter?
- • Do we experience this in summer as well?

In winter, the air in our atmosphere is very cold as compared to the air coming out from our mouth. Water vapour present in the air coming out from our mouth gets cooled suddenly to form very tiny droplets. These tiny droplets concentrated in a limited area, appear like smoke or a small cloud near our mouth.

**Some monkeys are omnivores which eat other animals.**

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**Some monkeys are omnivores which eat other animals.**
The process of conversion of water vapour into water is called “condensation”.

**Clouds and rain**

On a warm day, the sun heats up the ground as well as the water in seas, oceans, rivers, ponds etc. This water converts into water vapour by the process of evaporation.

This water vapour rises up into the atmosphere. As we move away from the surface of the earth, the air becomes cooler. Hence, when water vapour reaches higher levels it condenses due to contact with cool air and forms small drops or water droplets. These tiny droplets remain floating in air at higher levels of the atmosphere and appear as clouds.

**Activity - Clouds in kitchen**

Take a vessel filled with water. Keep it on a stove and heat it slowly. Observe for some time. Now cover the vessel with a plate. Remove the plate after a couple of minutes (Fig 10). Do you see any changes on the inner surface of the plate?

Pour some cool water on the plate and observe what happens?

What similarities do you find between evaporation of water from surface of water bodies and evaporation of water from a bowl heated in the kitchen?

From both cases discussed above, we know that water vapour helps to form clouds.

The clouds formed on the surface of the different water bodies do not stay there. They start to move from one place to another in the direction of winds.

As more clouds come together they become laden with water vapour. Winds bring the clouds from the sea to the land. The cooler air in the upper layers of the atmosphere cools the clouds.

- Have you observed the colour of a cloud before rain?
- How are clouds converted into rain?

We all know that without clouds, it will not be possible to get rains and all clouds do not cause rains. Sometimes, they cause intense rainfall. This is called “rain”.

**Activity - Clouds in the kitchen**

Pour some cool water into a bowl and heat it slowly on a stove. After a couple of minutes, do you observe any change on the inner surface of the bowl? Observe for about a minute. What was the temperature difference on the outer surface of the bowl and the inner surface of the bowl before and after the experiment?

The conversion of water into condensation is known as condensation. When the temperature of the bowl is reduced, water vapour present in it cools down and forms water droplets. These droplets are collectively termed dew.
7. Which of the following days is more suitable for drying of washed clothes? Explain why.
   (a) Windy day  (b) Cloudy day

8. Which of the following statements are right or wrong?
   (a) Evaporation takes place quickly when more heat is supplied.
   (b) For condensation of water, it should be cooled.
   (c) Water vapour is obtained from water by evaporation.

9. Visit your school library or internet, collect information about (Kashmir) Dal Lake regarding in which season water in the lake becomes ice and snow fall is very high and why the place attracts more tourists?

10. Draw a diagram to explain the water cycle.

11. How do you feel when you see the beauty of Rainbow in the sky? Express your feelings in the form of a song or a poem.

12. Why do clouds, once seen at a particular point, may not be there after some time?

13. How do you appreciate the contribution of water cycle in making water available for various needs of plants and animals?

14. Revanth blew air from his mouth onto the mirror while he was getting ready to go to school. He observed that the image in the mirror was not clear. Do you have any doubt to raise in this situation? Prepare questions on your doubts.

15. Why does the driver of a vehicle wipe the glass inside, even if the wiper is working on the outer surface of the glass when he drives in rain?

* * *

A monsoon is a seasonal wind, found especially in Asia that reverses direction between summer and winter and often brings heavy rains.