Our Food

If any one asks you about your favorite food item, what will you answer? The list may include several things like bahadi, biryani, idly - sambhar, vassalu-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. So, 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 1 - What did I eat

<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>Neelam</td>
<td>Biryani, Chilli Chami, Roti</td>
</tr>
</tbody>
</table>

- Are there any common food items in yours and your friends' list?
- Count the number of food varieties you have listed in the table?
- Do all the students eat the same type of food items?
- What food is served in your school at midday meal?

We eat different types of food material daily but some food items like rice, dal and vegetables are common in the daily menu in large parts of Andhra Pradesh. On special occasions we eat a larger variety of food.

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 from 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 ingredients 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).

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

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 or E</td>
<td></td>
</tr>
<tr>
<td>Honey</td>
<td>E</td>
<td></td>
</tr>
<tr>
<td>Chips</td>
<td>P</td>
<td></td>
</tr>
<tr>
<td>Turmeric powder</td>
<td>P</td>
<td></td>
</tr>
<tr>
<td>Salt</td>
<td>E</td>
<td></td>
</tr>
<tr>
<td>Dough</td>
<td>E</td>
<td></td>
</tr>
<tr>
<td>Meat</td>
<td>E</td>
<td></td>
</tr>
<tr>
<td>Rice</td>
<td>P or A</td>
<td></td>
</tr>
<tr>
<td>Eggs</td>
<td>E</td>
<td></td>
</tr>
<tr>
<td>Sugar</td>
<td>A</td>
<td></td>
</tr>
<tr>
<td>Peanuts</td>
<td>E</td>
<td></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.

Beet roots are high in carbohydrate levels and should therefore be used sparingly.

Don't eat bananas on an empty stomach; combining them with a bit of protein will help to normalize the insulin response caused by the sugar in the banana.
We usually say food is tasty. But how does food get its taste? The taste of food is added by the ingredients used for cooking. In table 5, you can also add any other preparation of any food item. Do you know the method of preparing food? 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 though farmers grow various types of food crops we generally use paddy. A variety of food items are prepared using rice. We eat more rice and rice products as compared to other cereals like wheat or maize. But in Rajasthan, maize, bajra and wheat is produced more than rice. So the main food in Rajasthan is chapatti or roti.

Many times we hear people saying that “I like this curry”. “I don’t like that”. This is not a good food habit. You should have a habit of eating all varieties of vegetable food items. This makes you strong and energetic.

Different methods of preparing food

Preparing food is an extremely important art, essential for life. There are many ways of preparing food. Rice is boiled but idly is not made in the same manner. For making idly, rice and dal are fermented, followed by steaming. Potato chips are fried in oil. Some processes have been mentioned in Table 5. Fill in the food items.

<table>
<thead>
<tr>
<th>Method of preparing food</th>
<th>Food items</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shallow frying</td>
<td>potatoes, eggs...</td>
</tr>
<tr>
<td>Steaming</td>
<td>fish...</td>
</tr>
<tr>
<td>Fermentation</td>
<td>chicken...</td>
</tr>
<tr>
<td>Boiling</td>
<td>fish...</td>
</tr>
<tr>
<td>Pickling</td>
<td>fish...</td>
</tr>
<tr>
<td>Sugar syrup</td>
<td>sugar preserves...</td>
</tr>
</tbody>
</table>

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?

Do you know?

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:

Discuss in groups and identify examples of different preservatives. Ask your parents other ways of preservation that they follow.

<table>
<thead>
<tr>
<th>Types of preservatives</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adding salt, chilli powder and oil</td>
<td>pickles,...</td>
</tr>
<tr>
<td>Adding only salt</td>
<td></td>
</tr>
<tr>
<td>Drying</td>
<td></td>
</tr>
<tr>
<td>Sugar syrup</td>
<td></td>
</tr>
</tbody>
</table>

Activity: Let us cook

What is your favorite food? Find out how it is prepared. Write the recipe in your note book.

Sweet potatoes are an excellent source of carotenoids, antioxidants.

Table 4 - Eat one/eat me not!

<table>
<thead>
<tr>
<th>Name of plant</th>
<th>Parts that we eat</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fenugreek (Methi)</td>
<td>Leaves, seeds</td>
</tr>
<tr>
<td>Mustard (Avalu)</td>
<td></td>
</tr>
<tr>
<td>Sugarcane</td>
<td></td>
</tr>
<tr>
<td>Carrot</td>
<td></td>
</tr>
<tr>
<td>Onion</td>
<td></td>
</tr>
<tr>
<td>Cabbage</td>
<td></td>
</tr>
<tr>
<td>Asafoetida (Ingvari)</td>
<td></td>
</tr>
</tbody>
</table>

Table 5 - Processes involved in making food

<table>
<thead>
<tr>
<th>Method of preparing food</th>
<th>Food items</th>
</tr>
</thead>
<tbody>
<tr>
<td>Curing and mixing</td>
<td></td>
</tr>
</tbody>
</table>

In table 5, you can also add any other methods of cooking which you know. Don’t forget to add the food item prepared by this method.

Tasty Food-

We usually say food is tasty. But how does food get its taste? The taste of food depends on its ingredients, method of preparation and our cultural habits. Do you know the method of preparing any food item?

Joseph knows how to make tomato curry. Listen to him.

“I like tomato curry. I learnt how to make it from my father. To prepare it, we need two tomatoes, one onion, two green chillies, one red chilly, turmeric powder, salt, oil, mustard seeds, black gram and jeera. First of all, clean all the vegetables in water, and chop them into pieces. Place a pan on the flame. Pour three spoons of oil. When oil becomes hot, put one spoon-full of mustard, black gram and jeera. Then add green and red chilly pieces and put a pinch of turmeric powder. Half a minute later add pieces of onion and tomato. Then add some salt and close the lid. After five minutes the tasty curry is ready.”

Activity: Let us cook

What is your favorite food? Find out how it is prepared. Write the recipe in your note book.

Table 6 - How to preserve food

<table>
<thead>
<tr>
<th>Types of preservatives</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adding salt, chilli powder and oil</td>
<td>pickles, ...</td>
</tr>
<tr>
<td>Adding only salt</td>
<td></td>
</tr>
<tr>
<td>Drying</td>
<td></td>
</tr>
<tr>
<td>Sugar syrup</td>
<td></td>
</tr>
</tbody>
</table>

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 not use them.
Playing with Magnets

1. List out the ingredients needed to make vada. Are they same for dosa? Identify the differences in your list.

2. Latha’s mother has prepared the following statements for you. Find out the wrong ones among these, don’t forget to give your reasons.
   (a) We can get food from plants and animals only.
   (b) Spices, oil and meat are the ingredients of a chicken curry.
   (c) Plants are the source of honey.

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

4. Suppose if fish / raw mango / lemons are given to you how would you preserve them?

5. Take a pin holder from your school office. Drop some pins, jump-clips, iron nails into it. What do you observe? Do they stick to wooden doors or plastic doors too?

6. Why does it happen so?

7. What is there in the cap of the pin holder?

8. What is there in the pin holder?

9. How do you feel? Write few lines about your experience.

10. List out the wrong ones among the statements for you.

11. Find out and write the names of some food items usually eaten by you?

12. Make a fruit chat with fruits of your choice.

13. Collect any wrapper of packaged food.

14. Some food material is given in the market, don’t forget to read about it.

15. Find out the ingredients of the food given in your village. Which parts of it are used as food?

16. Some food material is given below. What are the different possible ways of cooking them?

17. Find out and write them.

18. Meat - Groundnuts - potatoes - Spinach

19. With the help of your teacher discuss with your friend the ingredients of a chicken curry.

20. Write the names of these 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.

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

22. Are there any portions where none of the animals fit? Explain why?

23. You would notice that some of these objects (pins, jump-clips, nails) get stuck to the top of the pin holder while the other objects (paper, pencil, eraser) fall into the pin holder.

24. Why do the pins get attached to the cap of the pin holder?

25. What could be there in that cap?

26. Why does it happen so?

27. How were these magnets discovered?

28. What material is needed for making magnets?

29. How were these magnets discovered?

30. Let us try to find the answers to these questions.

31. Find the names of the pin holder’s cap.

32. If you 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.

33. Why do the pins get attached to the cap of the pin holder?

34. What would be there in that cap?

35. Does it attract objects other than pins?

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

37. What is there in those stickers which makes them stick to the iron door?

38. Do they stick to wooden doors or plastic doors too?

39. Right now, the Neodymium is the strongest magnet currently known.

40. Cakes and cookies contain too much sugar and not enough vitamins and minerals.

Tomatoes are very high in the carotenoid Lycopene; eating foods with carotenoids can lower your risk of cancer.
Magnets we discussed are not natural magnets. These magnets are man-made magnets.

Magnets of different shapes

The shapes of magnets we see and use in our daily life possess different shapes. Some of the usual shapes of magnets are shown in Fig. 2.

Think: Can we make a magnet in a required shape?


Poles of a Bar Magnet

Does the property of attracting iron filings remain same for all parts of a bar magnet?

Spread some iron filings uniformly on a sheet of paper. Place a bar magnet below this sheet.

- What do you observe?
- Do you observe any change in the pattern of iron filings spread over the sheet?

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 spread 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 magnet. Thus, the ends of the bar magnet attract more iron filings than the middle part of the magnet.

By this activity we can conclude that every bar magnet always has two ends whose attracting capacity is more than its other parts. These ends are called poles of the magnet.

Activity-2: Finding directions with a bar magnet.

Suspend the bar magnet freely with the help of a thread tied around its center as shown in Fig. 4. Does the magnet remain stationary? Wait for some time. What do you find now?

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?

Magnet 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 points 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.

Activity-3: 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.

Activity-4: Finding materials attracted by magnets.

Take a bar magnet, nail, jump-clip, plastic scale, a piece of glass, key, paper, iron bolt, pen, blade, pencil, knife, stainless steel spoon, piece of chalk, wood and a 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 materials.

Activity-5: Once the Greek historian Archimedes of the "Eurycles" used lodestone to win enemies in battles 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.

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.

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 2:** Change the direction of the bar magnet

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 3:** What force is acting on it?

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.

<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>Attracted</td>
<td>Attracted</td>
<td>Attracted</td>
</tr>
<tr>
<td>Changes observed when brought close to other pole of the bar magnet</td>
<td>Repelled</td>
<td>Repelled</td>
<td>Repelled</td>
</tr>
</tbody>
</table>

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 poles of a bar magnet and not repelled by any pole, then you can say that it is not a magnetic substance.
- If an object is neither attracted nor repelled by either pole, then you can say that it is neither a magnet nor a magnetic substance.

**Activity 4:** Make your own magnet

Take an iron nail and place it on a table. Make sure that the nail neither attracts nor repels iron pins or iron filings. Take a bar magnet and place one of its poles near one edge 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 5:** 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, horse shoe 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 bar 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 materials 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?
3. For which purposes do people use magnets in their daily life? Ask your family members and other
Can we convert water into ice? Explain what we should do?

**Liquid Form**

What happens if ice is kept in the open air?

If we heat ice, it will change into water. If water is heated, it will turn into water vapour. If air is heated, it turns into water vapour. Similarly, when water is heated, it becomes gaseous form.

**Gaseous Form**

What happens when water is heated?

The gaseous form of water is water vapour which is prevalent in the air surrounding us. We know that when ice is heated, it converts into water and when water is heated, it turns into water vapour. Similarly, when water is heated, it becomes gaseous form. If water is cooled further, we will get ice.

So, we understand that these three forms of water are interchangeable.

**Evaporation and formation of clouds**

*Fig. 5*

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 seen that water on wet roads, roof tops and some other places dries 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 very cool as compared to the air coming out of these is a magnet? Explain the process.

**Teacher said that Earth is a magnet.**

But Sreevidya has some doubts and she asked her teacher some questions. What may be the questions?

**Surya was wonderstruck to know that Earth is a big magnet and appreciated efforts of scientists to discover this.**

**Do you notice any such things in magnets to appreciate?**

**Karan wants to prepare a toy using some magnets to make people understand the slogan "Reject bad food and accept only good food". Can you help him to prepare the toy? If yes, how?**

**Science**

**Fig. 2 : Ice**

Snow occurs naturally.

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.

**Solid Form**

- Snow occurs naturally.

**Gaseous Form**

- Raindrops very lighter from 0.03 to about 0.25 inch diameter.

**Liquid Form**

- Can we convert water into ice?
- Explain what we should do?

- Liquid Form
- What happens if ice is kept in the open air?
- If we heat ice, it will change into water.
- Water in liquid form is present in oceans, seas, lakes, rivers and even underground.

- 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 converts into water and when water is heated, it turns into water vapour. Similarly, when water is heated, it becomes gaseous form.
- If water is cooled further, we will get ice.
Ice-cold water in the glass cools its surface. Air around the glass contains water vapour which is warmer than the surface of the glass. Due to the cold glass, air close to its surface will also become cooler. This changes the water vapour in the air around the surface of the glass into water and forms small drops on the outer surface of glass.

Have you ever observed in your daily life where water vapour changes into water? List them out.

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**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?

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Water cycle

When it rains ponds, lakes etc are filled with water. Water from rainfall runs into the ground as well as the water in seas, oceans, rivers, ponds etc. This water converts into water vapour by the process of evaporation.

**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.

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**Do you know:**

1. How are clouds formed? Explain?
2. Why do we experience cloud like phenomena on the surface of seas, lakes, ponds etc? Is it part of cycle formation?
3. Why and where do clouds form?
4. Why do clouds become laden with water vapour?
5. Why do we experience cloud like phenomena on the surface of seas, lakes, ponds etc? Is it part of cycle formation?
6. Correct the given sentence if necessary.

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**K E Y W O R D S**

Evaporation, condensation, water cycle, cloud, water vapour, atmosphere, stream, droplets, dew, rain, hail, breeze, wind

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**What we have learnt**

- Water on the Earth can exist in 3 forms: ice (solid form), water (liquid form) and water vapour (gaseous form).
- The process of changing of water into water vapour is called evaporation.
- If water receives more heat, it evaporates faster.
- Clouds are formed from tiny droplets of water vapour.
- Evaporation of water from the surface of seas, lakes, ponds etc. is part of cloud formation.

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**Improve your learning**

1. How are clouds formed? Explain?
2. How does the rain water reach from clouds to rivers or oceans?
3. When do clouds become cold?
4. Explain the relationship between the heat of sun and evaporation.
5. Why do we experience cloud like phenomena on the surface of seas, lakes, ponds etc? Is it part of cycle formation?
6. Correct the given sentence if necessary.

If the rain drops are very small, they are collectively termed drizzle.

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**Activity - Condensation**

Take some water in a glass. Add some pieces of ice to it. Observe for few minutes.

- What changes do you observe on the outer surface of the glass?
- You would observe formation of small drops of water on the outer surface of the glass.
- Why are these drops formed?
- Do they get formed if there is no ice in the glass?

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The clouds moving in air are generally at higher levels. Sometimes the cool breeze blowing along with air makes the clouds cooler. This leads to water droplets present in the clouds to condense and form large water drops. Further cooling of clouds increases the size of their water drops and clouds become heavy and descend towards the earth. The colour of such clouds changes from white to grey giving us the feeling of dark clouds gathering. When the size of the water drops increases further it becomes difficult for the cloud to hold them and water drops begin to fall. This is called "rain" (Fig 11).

In our daily life, we observe that before raining, clouds descend towards the earth's surface and we experience a cool breeze before rainfall.

In very cold conditions, the drops of water turn into crystals of ice and fall as snow. Sometimes big drops of water solidify into ice and fall as pieces of ice known as hailstones.

Do you know:

Generally, we get rains in some particular months during the year. In our state, rains occur normally from June to September. During that season you might have observed in the sky that clouds are moving along with the winds blowing from western direction (South West side). These winds are called "South West monsoon". Similarly, we observe in the months of November and December rains occur due to movements of clouds in the direction of winds blowing from Eastern side (North East side). These winds are called "North East Monsoon". Now a days we are not getting timely rains and seasons are also changing slightly. Think, why is it happening so?
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 doubts 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 rains?

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