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**E- CONTENT**



**CLASS- VI**

**SUBJECT- SCIENCE**

**CHAPTER NUMBER- 15**

**NAME OF CHAPTER- AIR AROUND US**

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# AIR AROUND US



# AT THE END OF THE CHAPTER, YOU WILL BE ABLE TO

- ▣ DEFINE AIR
- ▣ EXPLAIN THE DIFFERENT CONSTITUENTS OF AIR.
- ▣ DISCUSS THE PROPERTIES AND USES OF AIR
- ▣ EXPLAIN AIR AS MIXTURE
- ▣ PRESENCE OF AIR IN WATER AND SOIL
- ▣ INTERDEPENDENCE OF PLANTS AND ANIMALS

YOU HAVE LEARNT THAT ALL LIVING THINGS  
NEED AIR.

BUT CAN WE SEE AIR?

NO, WE CANNOT SEE AIR

HOW DO WE KNOW THAT AIR IS PRESENT ALL  
AROUND US?

WE CAN FELT IT PRESENCE IN SO MANY WAYS  
SUCH AS

RUSTLING OF LEAVES OF TREE

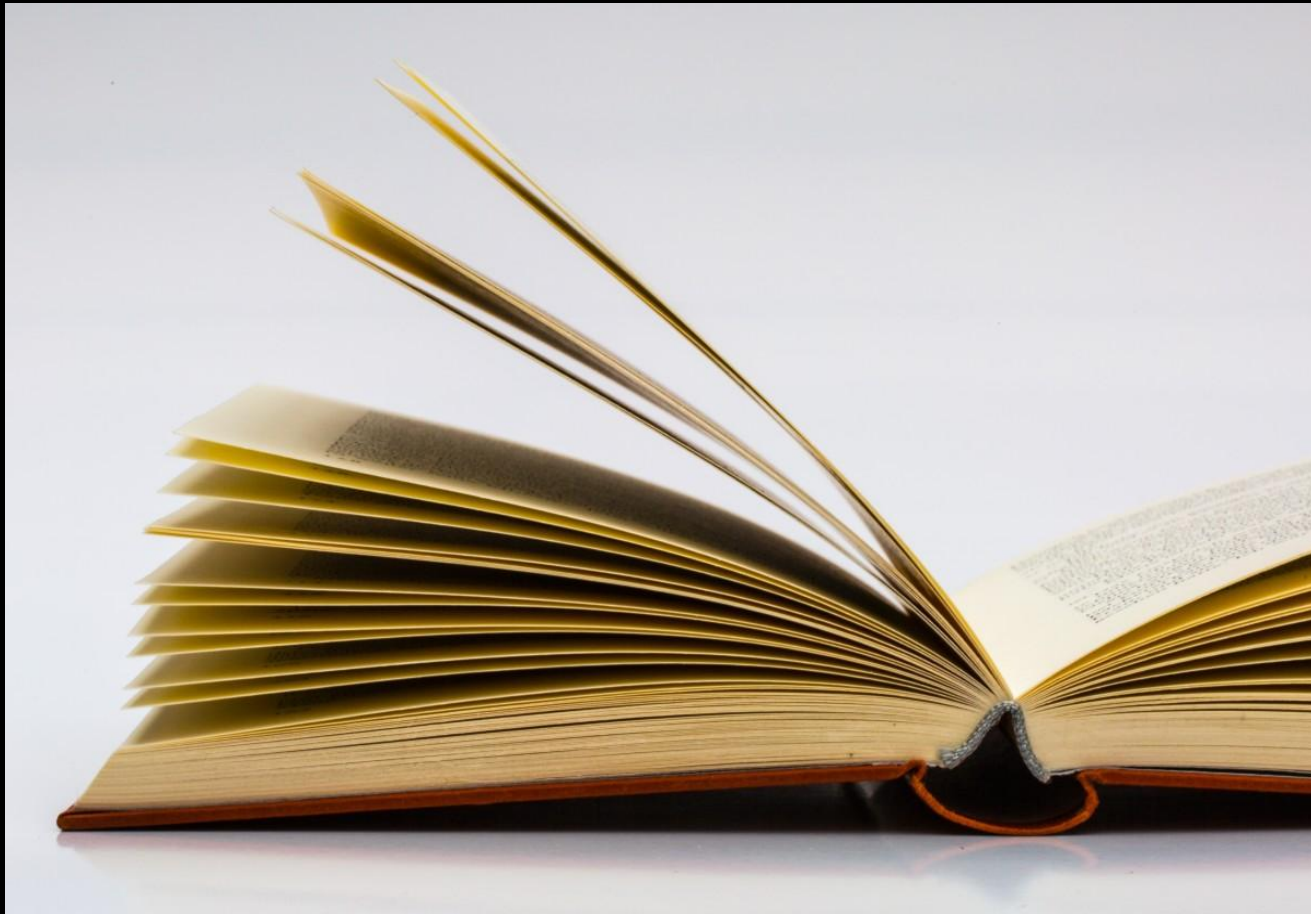


# THE CLOTHES HANGING ON THE CLOTHES-LINE SWAY





# FLUTTERING OF PAGES OF BOOKS



# WINNOWING



AND MANY MORE.

# WIND



YOU MIGHT HAVE SEEN TREES BEND WHEN WIND BLOWS.  
WHAT IS WIND ?  
MOVING AIR IS CALLED WIND.



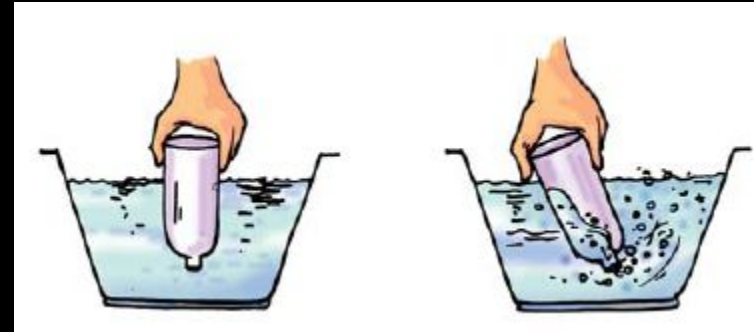
# AIR IS PRESENT ALL AROUND US

## ACTIVITY 1.

1. DIP THE OPEN MOUTH OF THE BOTTLE INTO THE BUCKET OR TROUGH FILLED WITH WATER.

2. NOW TILT THE BOTTLE SLIGHTLY.

3. AND OBSERVE WHAT HAPPEN.



Q. CAN YOU SEE BUBBLES COMING OUT OF THE BOTTLE.

Yes

Q. CAN YOU GUESS WHAT WAS IN THE BOTTLE.

'AIR'

WHAT WE HAVE LEARNT ?

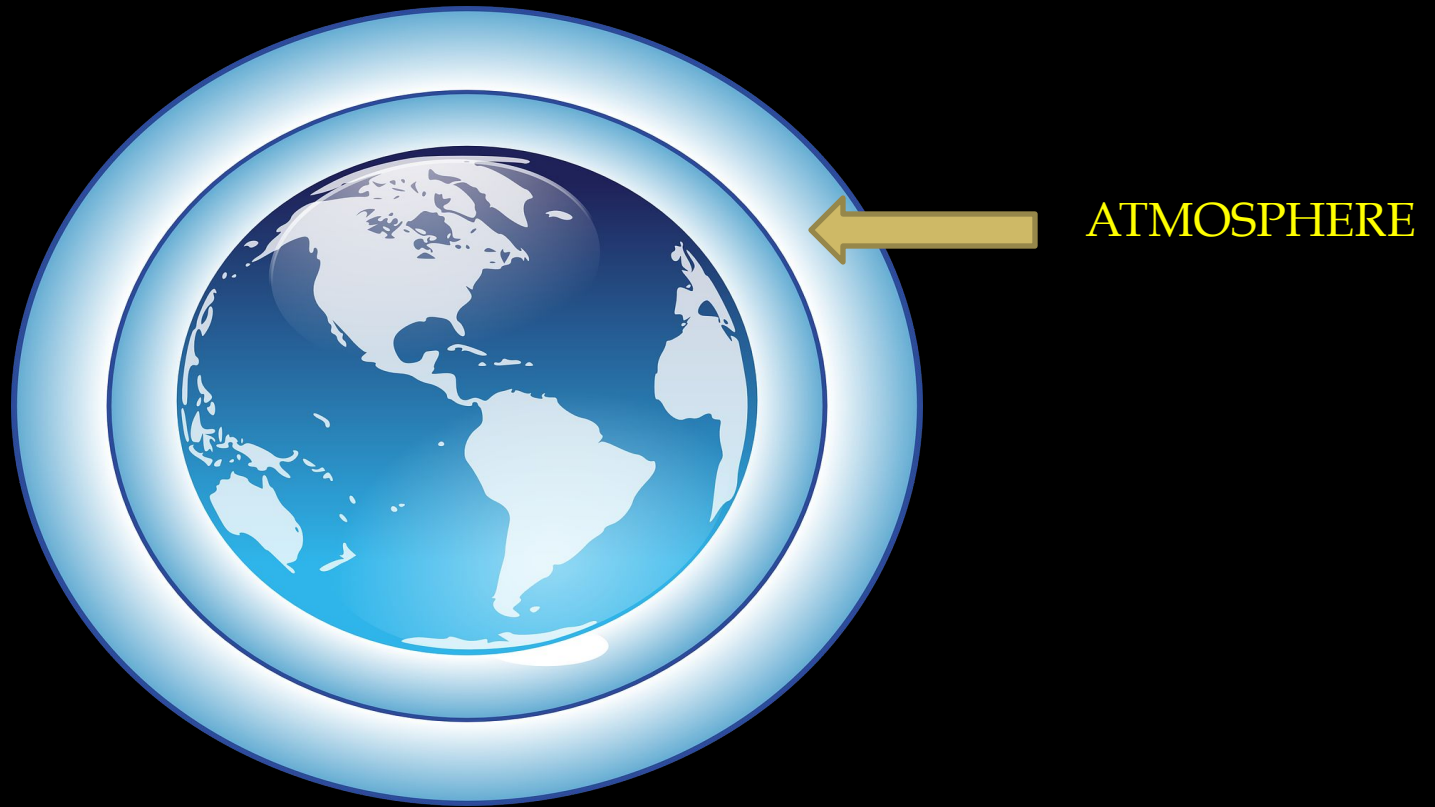
AIR OCCUPIES SPACE.

AIR IS PRESENT ALL AROUND US

AIR HAS NO COLOUR.

AIR IS TRANSPARENT.

# ATMOSPHERE



Our earth is surrounded by a thin layer which extends up to many kilometres above the surface of the earth called atmosphere.



Q why do mountaineers carry oxygen cylinder with them when they climb high mountains ?

As we move higher in the atmosphere, the air gets thinner and thinner that is why there is less air in higher mountains that's why the mountaineers carry oxygen cylinder when they climb high mountains.

# WHAT IS AIR MADE UP OF ?

Untill eighteen century, people thought that air was just one substance.

So , what is air actually made up of ?

Air is made up of many gases.

They are

- Water vapour
- Oxygen
- Nitrogen
- Carbon dioxide
- Dust and smoke



# WATER VAPOUR



WATER DROPLETS

Q. From where the water droplets on the outer surface of the glass tumbler comes from?

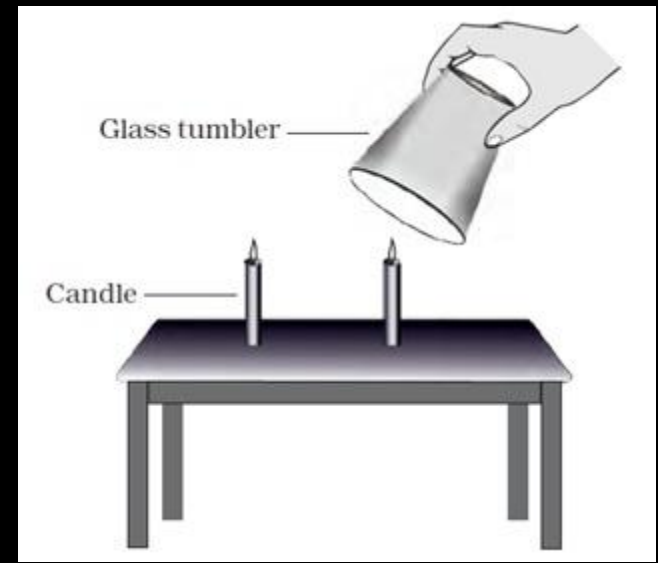
When the water vapour present in air comes in contact with the cooled outer surface of the glass tumbler the water vapour condenses and drops of water appear on the outer surface of glass tumbler. Therefore water vapour is present in air.



# OXYGEN

## Activity-2

1. Fix two candles on the table
2. Light the candles.
3. Cover one of the candle with an inverted glass tumbler or bell jar.
4. Observe both the candle carefully.



Q why the candle covered with glass tumbler or bell jar got extinguished ?

- The candle got extinguished because the component of air which supports burning inside the tumbler or bell jar is limited that's why it got extinguished ..

Q what is the name of that component of air ?

- oxygen



Why during an incident of fire, one is advised to wrap a woollen blanket on a burning object ?

The woollen blanket cuts off the supply of air (oxygen) which help in burning of the object. When the supply of oxygen is cut out the objects stops burning.



# NITROGEN

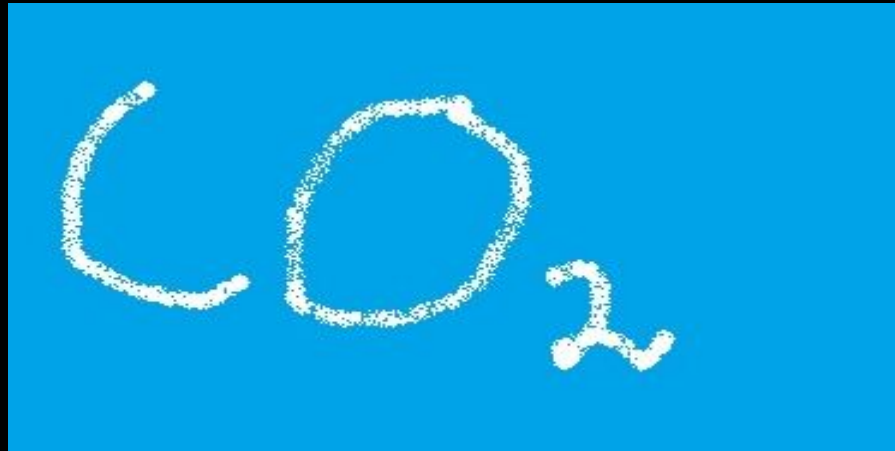
- Nitrogen is the major component of air.
- Unlike oxygen, it does not support burning
- Its takes up nearly 78 % of the air.

# CARBON DIOXIDE

-CARBONDIOXIDE MADE UP A SMALL COMPONENT OF THE AIR AROUND US.

-PLANTS AND ANIMALS CONSUME OXYGEN FOR RESPIRATION AND PRODUCE CARBON DIOXIDE.

-PLANT AND ANIMAS MATTER ALSO CONSUMES OXYGEN ON BURNING AND PRODUCES MAINLY CARBON DIOXIDE AND FEW OTHER GASES.



# DUST AND SMOKE

-The burning of matter produces smoke also.

-Smoke contains a few gases and fine dust particles and is also harmful.

Q why we see long chimneys in factories ?

The long chimneys in factories take away the harmful smoke from our noses.





# DUST AND SMOKE

## Activity-3

1. Find a sunny room in your school or home.
2. Close all the doors and windows with curtains pulled down to make the room dark
3. Open the door or a window facing the Sun, just a little to allow sunlight to enter the room only through a slit.
4. Look carefully at the incoming beam of sunlight.



Q what do you see in the beam of sunlight ?

- Tiny shiny particles.

Q what are these tiny shiny particles ?

- These are dust particles.

Q what you have learnt from this activity ?

-Air also contain dust particles.

Q Why do you think, the policeman is wearing a mask ?



-The policeman is wearing a mask because the policeman always exposed to dust and smoke of the vehicles which is harmful to the health therefore in order to protect from dust and smoke the policeman is wearing a mask.

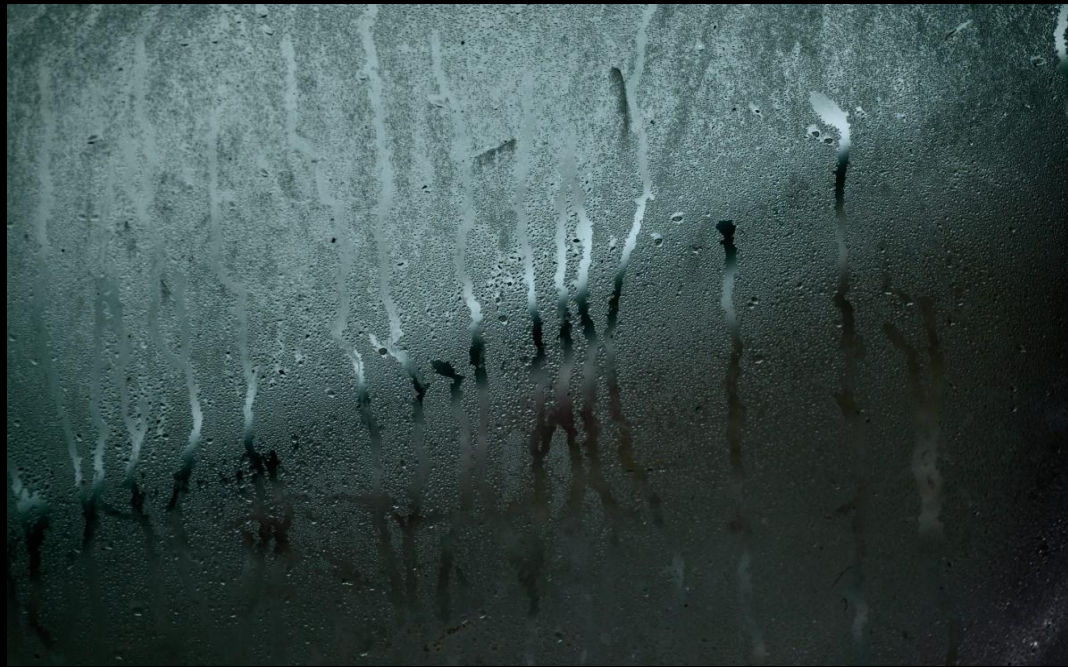


Q Why we should breath through our nose?



We should breath through our nose because fine hair and mucus are present inside the nose to prevent dust particles from getting into the respiratory system.



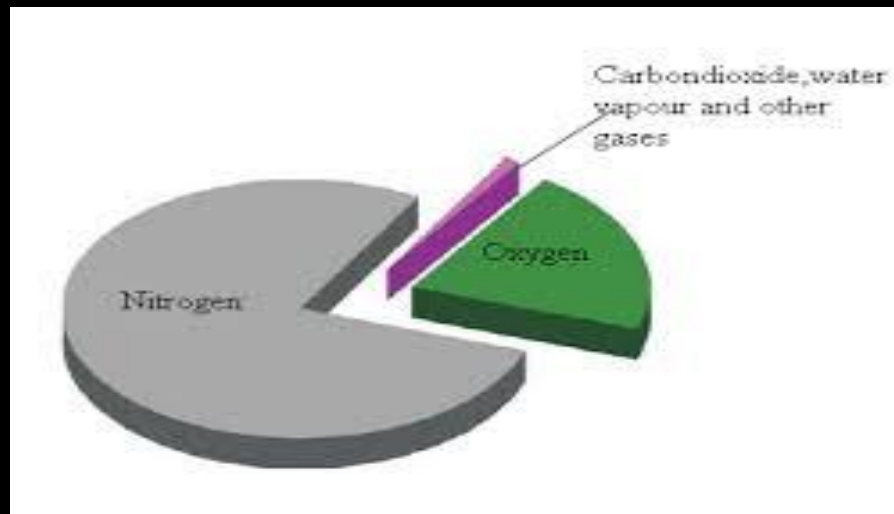


Q why the transparent glass of windows, if not wiped off regularly, appear hazy ?

-Air contain some gases, water vapour and dust particles that stick to transparent glass of window that is why the transparent glass of windows, if not wiped out regularly, appear hazy.

# COMPOSITION OF AIR

- The gases in air are mainly nitrogen, oxygen, small amount of carbon dioxide, and many other gases.
- There may be variation of composition of air from place to place.
- The two gases oxygen and nitrogen together make up 99% of the air.
- The remaining 1% is constituted by carbon dioxide, water vapour and few other gases.





How does oxygen become available to animals and plants living in water ?

#### Activity 4

1. Take some water in a glass or metal container.
2. Heat it slowly.
3. Well before the water begins to boil, look carefully at the inner surface of the container.



Q. Can you see tiny bubbles at the inner surface of the container ?

- Yes

Q From where these tiny bubbles come from ?

- These bubbles come from air dissolved in water.

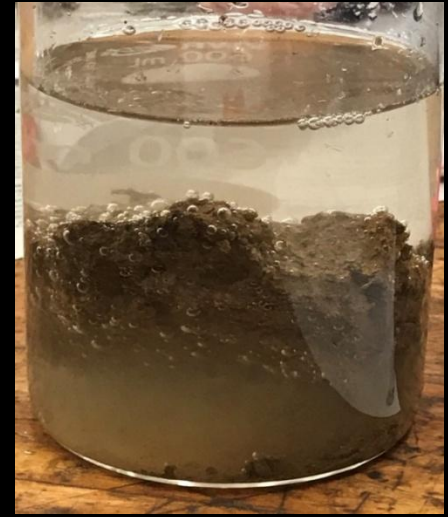
Q What you have learnt from this activity ?

Air (oxygen) is present in water and the animals living in water used the dissolved oxygen in water.

# How does oxygen become available to animals and plants living in water ?

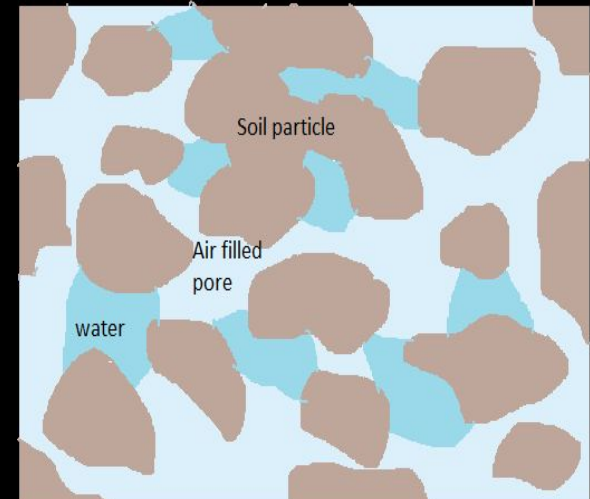
## Activity 5

1. Take a lump of dry soil in a beaker or glass.
2. Add water to it and observe.



Q How the bubbles were formed ?

When the water is poured on the lump of soil, it displaces the air which is present in the soil and the air comes out in the form of bubbles.



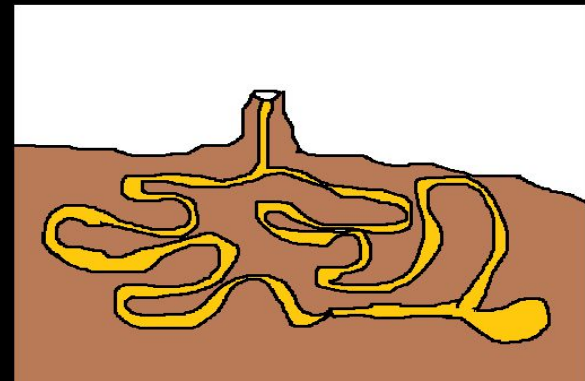
# ANIMALS THAT LIVE IN SOIL



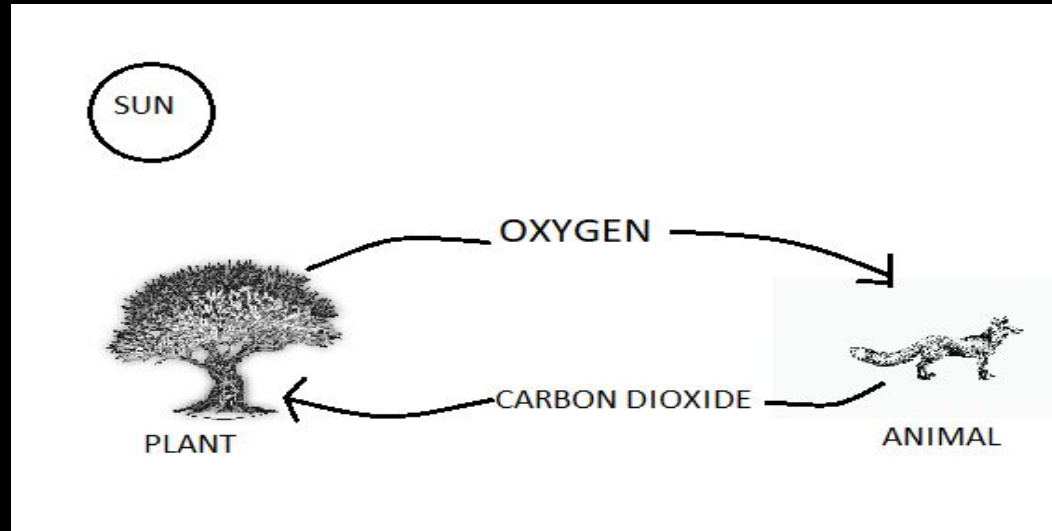
- There are some organisms that live in the soil.
- A lot of burrows and holes are formed in deep soil by animals living in the soil.

- The burrows also make spaces available for air to move in and out of the soil and in this way some of the animals can breathe inside the soil and live.

BURROW



# INTERDEPENDENT OF PLANTS AND ANIMALS



-Plants release oxygen during the process of photosynthesis.

-Animals and plants uses the oxygen during respiration and releases carbon dioxide.

-In this way the balance of oxygen and carbon dioxide in the atmosphere is maintained through respiration in plants and animals and by photosynthesis in plants.

# WINDMILL



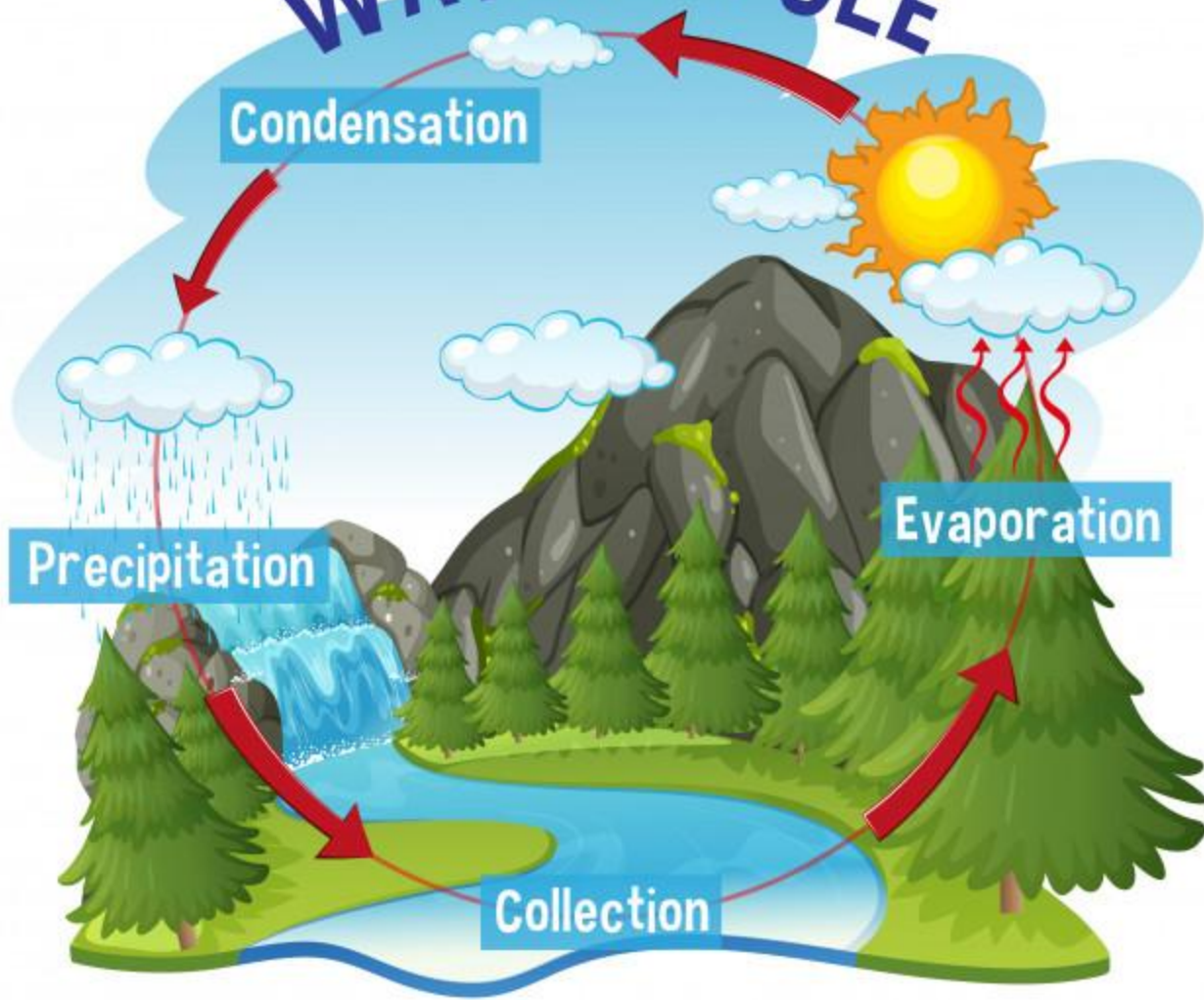
- Windmill is used to draw water from tube wells and to run flour mill.
- Windmill is also used to generate electricity.



# USES OF AIR



# WATER CYCLE



Condensation

Precipitation

Evaporation

Collection

# WHAT YOU HAVE LEARNT

1. Air is found everywhere. We cannot see air but we can feel it
2. Moving air is called wind.
3. Air occupies space.
4. Air is present in water and soil.
5. Air is a mixture of nitrogen, oxygen, carbon dioxide, water vapour , and a few other gases. Some dust particles may also be present in it.
6. A layer of air that surrounds the earth is known as atmosphere.
7. Aquatic plants and animals use dissolved air in water for respiration.
8. Plants and animals depend on each other for exchange of oxygen and carbon dioxide from air.

# SOME USEFUL WEBSITE LINKS

1. <https://www.youtube.com/watch?v=wh4bgNJJjs8&t=8s>
2. <https://nroer.gov.in/55ab34ff81fccb4f1d806025/page/58870e8d472d4a1fef810a8c>
3. <https://nroer.gov.in/55ab34ff81fccb4f1d806025/page/5887195d472d4a1fef8110a5>
4. [https://diksha.gov.in/play/collection/do\\_312796455254507520120350?contentType=TextBook](https://diksha.gov.in/play/collection/do_312796455254507520120350?contentType=TextBook)
5. <http://epathshala.nic.in/watch.php?id=1356>
6. <http://epathshala.nic.in/watch.php?id=1352>
7. [https://nroer.gov.in/55ab34ff81fccb4f1d806025/searchresults/?search\\_text=air#results](https://nroer.gov.in/55ab34ff81fccb4f1d806025/searchresults/?search_text=air#results)
8. <http://ncert.nic.in/textbook/textbook.htm?fesc1=0-16>
9. <https://www.youtube.com/watch?v=zxfun6TvBEo>
0. [https://www.youtube.com/watch?v=YauPG7JW\\_V4](https://www.youtube.com/watch?v=YauPG7JW_V4)
1. <https://www.youtube.com/watch?v=s73ShSTMQVc>
2. [https://www.youtube.com/watch?v=vz57ICZ2wqI&list=PLCzaIJYXP5YceUIiOoofUVLL0a\\_Oi4Df8](https://www.youtube.com/watch?v=vz57ICZ2wqI&list=PLCzaIJYXP5YceUIiOoofUVLL0a_Oi4Df8)