

**Tue), Class-X, EVS.**

**Ch-4, Topic (Combating Deforestation)**

**Home Assignment....**

- 1) Define Deforestation.
- 2) Is deforestation a problem in India?
- 3) What are the effects of deforestation?
- 4) What is the rate of deforestation in India?
- 5) How can we control deforestation?

....(To be continued next class....)

CLASS – X

HOME ASSIGNMENT

Subject- SUPW

Date – 28.04.2020

**HANDKERCHIEF PAINTING**

I have already discussed about this topic in your previous class and also have discussed the procedure to do handkerchief painting, today I will give you an example of handkerchief painting which you have to follow while doing your project work.



## Mathematics- Similarity

Class:-X

Assignment:- Date:-28.04.20

### Rules (or axioms or criterions) for similarity of triangles

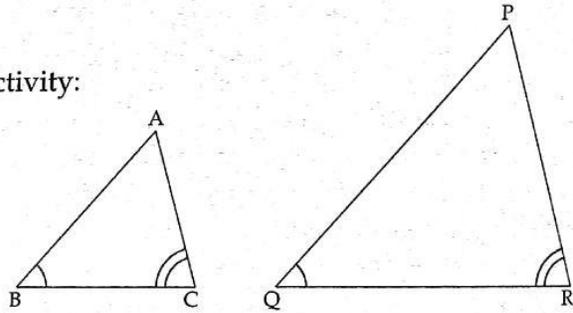
Now, we shall state some rules (or axioms or criterions) involving less number of elements of triangles for establishing similarity of two triangles. These are:

#### □ AA (Angle-Angle) rule of similarity

To learn this, we perform the following activity:

**Activity.** Draw two triangles ABC and PQR such that  $\angle B = \angle Q$  and  $\angle C = \angle R$ . Measure the lengths of the sides of these triangles. We find that

$$\frac{AB}{PQ} = \frac{BC}{QR} = \frac{CA}{RP}.$$



Also  $\angle A = \angle P$  because sum of angles of a triangle is always  $180^\circ$ .

It shows that  $\triangle ABC \sim \triangle PQR$ .

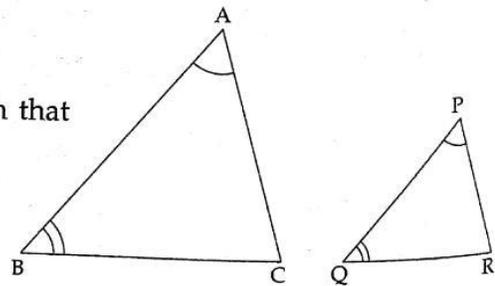
Repeat this activity by drawing different pairs of triangles such that two angles of one triangle are equal to two angles of the other triangle. We shall always find that the lengths of the corresponding sides are proportional. Also their third angles are obviously equal. Thus, the two triangles are similar. We record it as:

*If two angles of a triangle are equal to two angles of another triangle, then the two triangles are similar.*

In the adjoining figure,  $\triangle ABC$  and  $\triangle PQR$  are such that  $\angle A = \angle P$  and  $\angle B = \angle Q$ .

$$\therefore \triangle ABC \sim \triangle PQR.$$

This is known as **AA rule of similarity**.

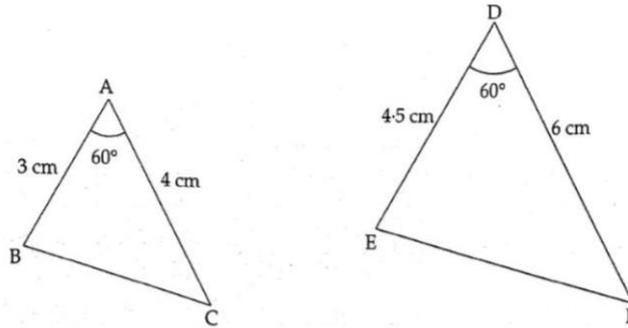


□ SAS (Side-Angle-Side) rule of similarity

To learn this, we perform the following activity:

Activity. Draw two triangles ABC and DEF such that AB = 3 cm,  $\angle A = 60^\circ$ , AC = 4 cm, DE = 4.5 cm,  $\angle D = 60^\circ$  and DF = 6 cm as shown in the figure given below:

Here, we note that  $\frac{AB}{DE} = \frac{3}{4.5} = \frac{2}{3}$  and  $\frac{AC}{DF} = \frac{4}{6} = \frac{2}{3} \Rightarrow \frac{AB}{DE} = \frac{AC}{DF}$ . Also  $\angle A = \angle D$



Measure  $\angle B$  and  $\angle E$ . We find that  $\angle B = \angle E$ . Therefore, by AA criterion of similarity,  $\triangle ABC \sim \triangle DEF$ .

Repeat this activity by drawing several pairs of such triangles with one angle of a triangle equal to one angle of another triangle and the lengths of the sides including these angles are proportional. We shall always find that the pairs of triangles are similar. We record it as:

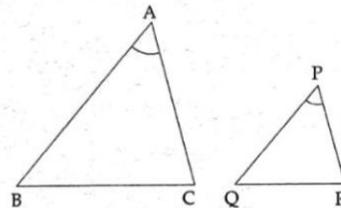
*If one angle of a triangle is equal to one angle of another triangle and the sides including these angles are proportional, then the two triangles are similar.*

In the adjoining figure,  $\triangle ABC$  and  $\triangle PQR$  are such that

$$\angle A = \angle P \text{ and } \frac{AB}{PQ} = \frac{AC}{PR},$$

$$\therefore \triangle ABC \sim \triangle PQR.$$

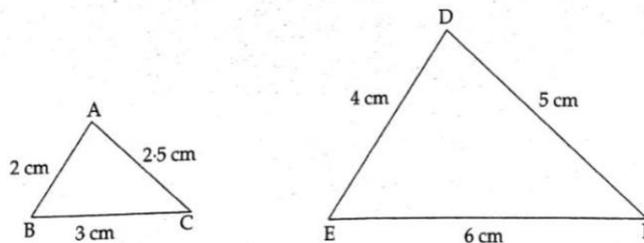
This is known as **SAS rule of similarity**.



□ SSS (Side-Side-Side) rule of similarity

To learn this, we perform the following activity:

Activity. Draw two triangles ABC and DEF such that AB = 2 cm, BC = 3 cm, CA = 2.5 cm, DE = 4 cm, EF = 6 cm and FD = 5 cm as shown in the figure given below:



Measure the angles of these two triangles. We find that  $\angle A = \angle D$ ,  $\angle B = \angle E$  and  $\angle C = \angle F$ . It shows that  $\triangle ABC \sim \triangle DEF$ .

Repeat this activity by drawing different pair of triangles such that the lengths of their corresponding sides are proportional. We shall always find that their corresponding angles are equal and thus the triangles are similar. We record it as:

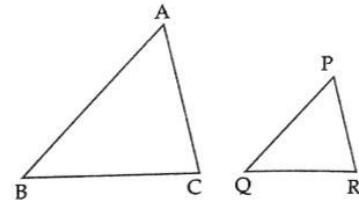
If the three sides of one triangle are proportional to the three sides of another triangle, then the two triangles are similar.

In the adjoining figure,  $\triangle ABC$  and  $\triangle PQR$  are such that

$$\frac{AB}{PQ} = \frac{BC}{QR} = \frac{CA}{RP},$$

$$\therefore \triangle ABC \sim \triangle PQR.$$

This is known as **SSS rule of similarity**.

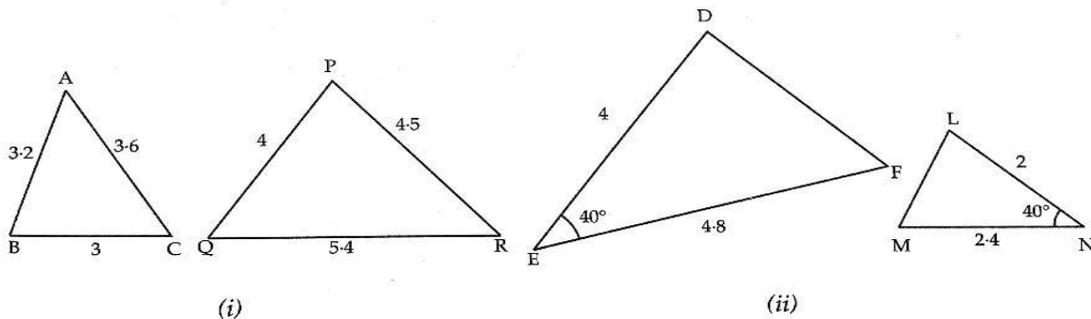


### Remarks

- If two angles of one triangle are respectively equal to the two angles of another triangle, then their third angles are necessarily equal, because the sum of three angles of a triangle is always  $180^\circ$ .
- Congruent triangles are necessarily similar but the similar triangles may not be congruent.
- If two triangles are similar to a third triangle, then they are similar to each other.

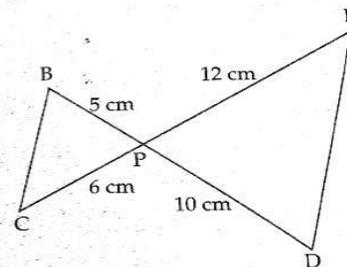
### Home Work:-

- 1 State which pairs of triangles in the figure given below are similar. Write the similarity rule used and also write the pairs of similar triangles in symbolic form (all lengths of sides are in cm):



- 2 It is given that  $\triangle DEF \sim \triangle RPQ$ . Is it true to say that  $\angle D = \angle R$  and  $\angle F = \angle P$ ? Why?  
 3 If in two right triangles, one of the acute angle of one triangle is equal to an acute angle of the other triangle, can you say that the two triangles are similar? Why?

- 4 In the adjoining figure, BD and CE intersect each other at the point P. Is  $\triangle PBC \sim \triangle PDE$ ? Give reasons for your answer.



## Class X

28.04.2020

## History

### The First War Of Independence (1857)

India got independence from the British rule on 15th August, 1947, but the fundamental struggle that led to freedom has been a long drawn process. The culmination of traditional opposition to the British rule came with the First War of Independence in 1857, in which millions of peasants, artisans and soldiers participated.

#### Causes of the Revolt :-

The Revolt of 1857 is an important landmark in the history of India, which occurred during the Governor-Generalship of Lord Canning. The Revolt of 1857 was a combination of political, economical, socio-religious, military and many other causes.

#### Political Causes

Some of the political causes of the revolt are as follows:

1. Lord Dalhousie's Policy of Annexation and the Doctrine of Lapse were the significant causes. As per the Doctrine of Lapse, heirs adopted without the consent of the company, could inherit only the private property of the deceased ruler and not his territory, which would come under the company's rule. They made the British administration very unpopular and the rulers of the different states as bitter enemies of the British.
2. The British refused to grant pension to Nana Sahib, as he was the adopted son of Peshwa Baji Rao II. Avadh was annexed in 1856, on charges of maladministration. Satara, Jhansi, Nagpur and Sambalpur were annexed owing to the Doctrine of Lapse.
3. In 1849, Lord Dalhousie announced that the successors of Bahadur Shah Zafar would not be permitted to use the Red Fort as their palace. They were required to shift to a place near the Qutab Minar.
4. After 7 years, in 1856, Lord Canning announced that after the death of Bahadur Shah Zafar, his successors would not be allowed to use the imperial titles with their names and would be known as mere princes. This decision of the British hurt the feelings of the Muslims, consequently Bahadur Shah began plotting against them.

#### Socio-Religious Causes

Some of the socio-religious causes of the revolt were as follows:

1. The British Government's attempt to interfere in the social and religious life of the Indians led to widespread fear among the masses.
2. The combined effect of British Expansionist Policies, Economic Exploitation and Administrative changes adversely affected the Indian society as a whole.
3. British social reforms such as Abolition of Sati (1829), Legalisation of Widow Remarriage, (1856) etc., hurt the sentiments of the orthodox and conservative people.
4. The orthodox Indians felt humiliated to note that in the railway compartments brahmins and people from the backward classes were made to sit side by side.

### **Economic Causes**

The most important reason for the popular discontent was the economic exploitation by the British. The economic exploitation took the following forms:

1. The East India Company made huge profits at the expenses of the people of India. The company purchased textiles, indigo, foodgrains and spices from India and sold them abroad at exorbitant prices.
2. By buying and exporting Indian goods, the company encouraged their production in India. But gradually, the Indian textiles began to compete with the textiles manufactured in England. The British put pressure on the East India Company to forbid the sale of Indian textiles in England. The British Government then put restrictions on the import of Indian textiles besides imposing heavy import duties on such goods.
3. People moved to cities to find employment, which was very difficult to get. Peasants were forced to pay tax in cash, which pushed them into the hands of the moneylenders, as tax was collected even during the famines.
4. Indigo, tea, jute, cotton and opium were crops, which the British wanted the Indians to grow. If the peasants planted anything else, their crops were destroyed and cattle were carried off as punishment.
5. The British Economic Policies also affected the upper and the middle classes of the society. The Inam Commission, appointed in 1852 in Bombay, confiscated as many as 20000 estates. This drove the landed aristocracy to poverty without benefitting the peasantry, which suffered due to the exorbitant land revenue. It was claimed by the merchants, moneylenders and the new owners of these estates.

### **Military Causes**

Military causes that led to the revolt were as follows:

1. Several factors contributed to a change in the attitude of the Indian soldiers towards the company. The distribution with Indian soldiers was one of the causes of the revolution.
2. The Indian and British soldiers were not treated equally. The salary of the Indian soldiers was too meager to support their families, while the duties of both the British and the Indian soldiers were more or less similar.
3. The British Parliament passes the General Service Enlistment Act in 1856, which decreed that the Indian soldiers could be sent overseas on duty. This act did not take into account the sentiment of the Indian soldiers. Indian soldiers dreaded sea voyage and considered it against their customs.

4. Indians were of the belief that, the British were invincible, but the British were beaten in the First Afghan War (1838-42). This convinced the Indian soldiers that the British could also be defeated. This gave courage to the Indian soldiers to wage a war against the British rule.

### **Home work**

1. What is Doctrine of Lapse?
2. What is General Service Enlistment Act?
3. Who was the Mughal Emperor at the time of this Revolt?
4. Explain any 2 socio religious causes of this Revolt?
5. What was Nana Sahib grievance against the British?
6. State any two Political causes responsible for the First War Of Independence.
7. Mention the Economic factors, which became the cause of the First War Of Independence, 1857.
8. Why was the war of 1857 hailed as the First War Of National Independence ?

## CHAPTER – TRANSPIRATION

### EXPLANATION –

- Transpiration is the evaporative loss of water from the aerial parts (stem & leaves) of the plant.

### DEMONSTRATION OF TRANSPIRATION

#### **1) Experiment to demonstrate the transpiration phenomenon with the bell jar method:**

##### **Requirements:**

Bell jar, well-watered potted plant, rubber sheet, glass plate, Vaseline.

##### **Method:**

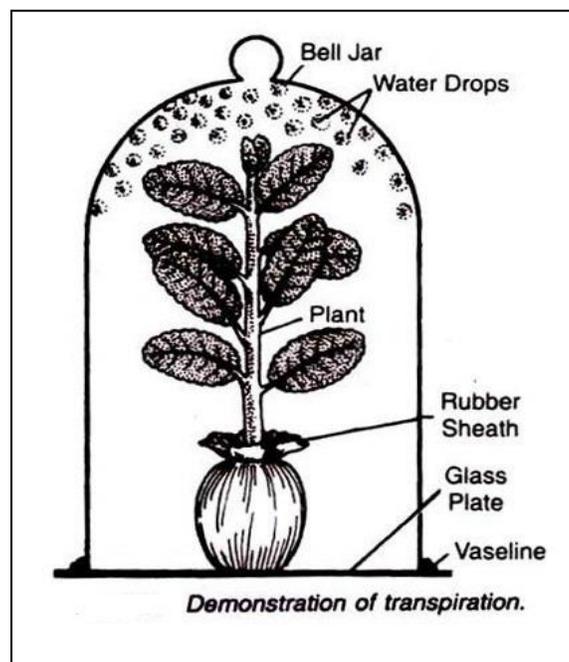
1. Take a well-watered, healthy potted plant and cover the pot with the help of rubber sheet. Only aerial parts of the plant should remain uncovered.
2. Keep the potted plant on a glass plate and cover it with a bell jar.
3. Apply vaseline at the base of the bell jar to prevent the outer air to pass in the bell jar.
4. Keep the whole apparatus in light and observe for some time.
5. Set another experiment exactly in the same way except that the pot should be without any plant.

##### **Observations:**

Water drops appear inside the wall of the bell jar containing a potted plant while there is no drop in the another bell jar which is without any plant.

##### **Results:**

Because water drops appear only in the bell jar in which pot is having a plant with its only aerial parts exposed, so it can be concluded that these drops appeared due to the process of transpiration from the aerial parts of the plant. The same can also be concluded by the observations of the control apparatus, in which no water drop appears due to the absence of plant in the pot.



## 2) Experiment to demonstration of Transpiration by Cobalt-Chloride Paper:

### Requirement :

Potted plant, bell jar, cobalt chloride paper, support

### Method:

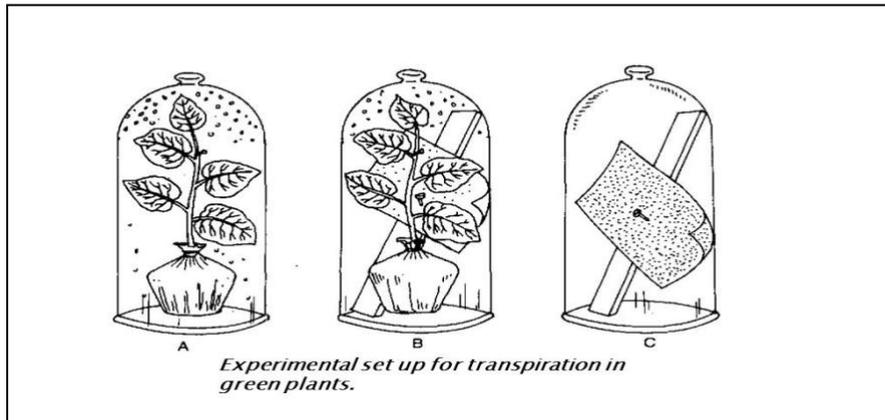
1. A potted plant was taken and the pot was covered by a polythene bag. This prevent the escape of water vapour from the pot.
2. Cover the entire plant under a bell jar. This is set up A.
3. Arrange similar plant & cover it with a bell jar exactly in the same manner except that here you also keep a piece of dry cobalt chloride paper. The paper is pinned to a wooden stick. This is set up B.
4. Take a third bell jar without a plant but still containing a similar piece of cobalt chloride paper. This is set up C.
5. Now keep all the set ups under sun.

### Observation:

1. The first bell jar (A) would show water vapour condensing on its inner wall.
2. The second bell jar (B) would show a similar condensation & at the same time , the initially blue cobalt chloride paper turns pink.
3. The blue colour of the cobalt chloride paper in the third bell jar (C) does not change at all as there are no water drops on the inner wall.

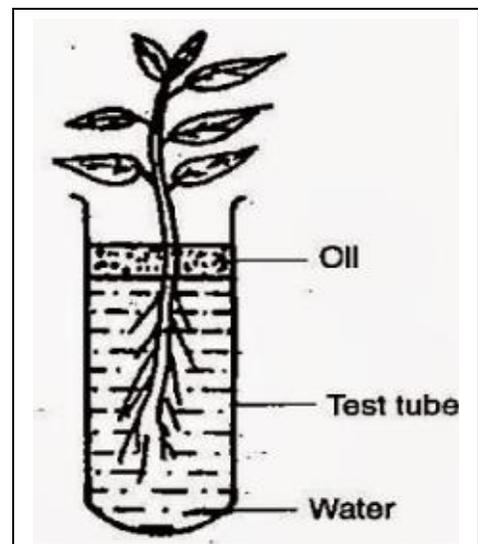
### Result:

By taking the three bell jars as described above there is double visual proof of transpiration – condensation of water vapour into droplets & change of colour in cobalt chloride paper.



### MEASUREMENT OF TRANSPIRATION

- A test tube is filled with water & a leafy shoot is inserted. Some oil is poured on the surface to prevent loss of water by evaporation.
- Place the test tube in a small beaker & weigh them together.
- Remove the intact test tube & keep it straight in the test tube stand for few hours.
- Weigh it again by keeping in the same beaker.
- Any difference in the weight will indicate loss of water by transpiration.



## GANONG'S POTOMETER ( TO MEASURE RATE OF TRANSPIRATION)

**Potometer** is a device used to measure the amount of water uptake the shoot during transpiration. It is sometimes also known as transpirometer.

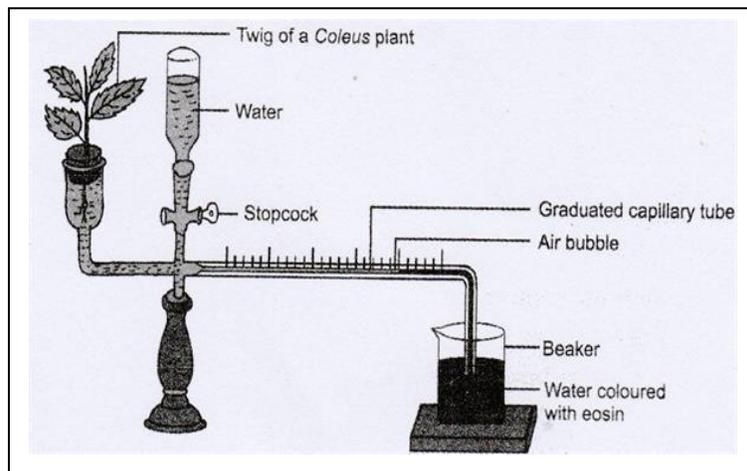
**The Ganong's potometer** is used to measure the transpiration rate in a cut twig in a laboratory.

1. The Ganong's potometer comprises of a glass tube bent twice with a glass cylinder have a wide mouth.
2. A capillary tube was inserted in a horizontal glass bar attached to a reservoir.
3. A wide-mouthed glass cylinder is present towards the front end of the apparatus.
4. A rubber cork with a hole is fitted on the mouth of the glass cylinder.
5. A freshly cut twig is placed in this hole.
6. The horizontal bar has graduated readings marked over it. It has a bent end with a nozzle opening.
7. A beaker containing coloured water is placed below this horizontal bar with the bent end inserted into it. A reservoir is connected to the horizontal bar to store water.
8. The entire set up is placed on a flat surface.

### Procedure

- A few drops of eosin oil are added to water to make it coloured.
- A freshly cut twig is placed on the mouth of the glass cylinder.
- A single air bubble has to be arranged at the zero reading of the horizontal bar. Lift the bent end which allows the air bubbles to enter and get trapped in the horizontal bar.
- When the experiment begins, it is observed that the air bubble at the zero reading starts to move.

As the transpiration takes place, a **transpirational pull** is created by the shoot to make up for the loss. Due to this, the horizontal bubble starts moving in the direction of the twig. The transpiration rate is calculated by taking the distance covered by the air bubble in a certain time period. Several readings were noted by repeatedly adjusting the air bubble to zero. The average of this reading gives the transpiration rate.



### Limitations Of Ganong's Potometer

- The potometer does not measure the **transpiration** rate accurately because not all the water taken up by the plant is used for transpiration. It usually measures the rate of water uptake.
- The twig placed on the glass cylinder might not stay alive for a longer time.
- The introduction of an air bubble in the horizontal bar is very difficult and time-consuming.
- A slight change in the atmospheric temperature might affect the position of the air bubble.

## TYPES OF TRANSPIRATION:

Most of the transpiration occurs through foliar surface or surface of the leaves. It is known as foliar transpiration. Foliar transpiration accounts for over 90% of the total transpiration. Young stems, flowers, fruits, etc. also transpire a lot.

Mature stems transpire very little. Transpiration from stems is called cauline transpiration. Depending upon the plant surface transpiration is of the following four types:

### **1. Stomatal Transpiration:**

It is the most important type of transpiration. Stomatal transpiration constitutes about 50-97% of the total transpiration.

It occurs through the stomata. The stomata are found mostly on the leaves. A few of them occur on the young stems, flowers and fruits. The stomata expose the wet interior of the plant to the atmosphere.

The internal air, therefore, becomes saturated with water vapours. The outside air is seldom saturated with water except just after rains. Water vapours, therefore, pass outwardly through stomata by diffusion. More water evaporates from the internal cells to replace the outgoing water vapours. **The stomatal transpiration continues till the stomata are kept open.**

### **2. Cuticular Transpiration:**

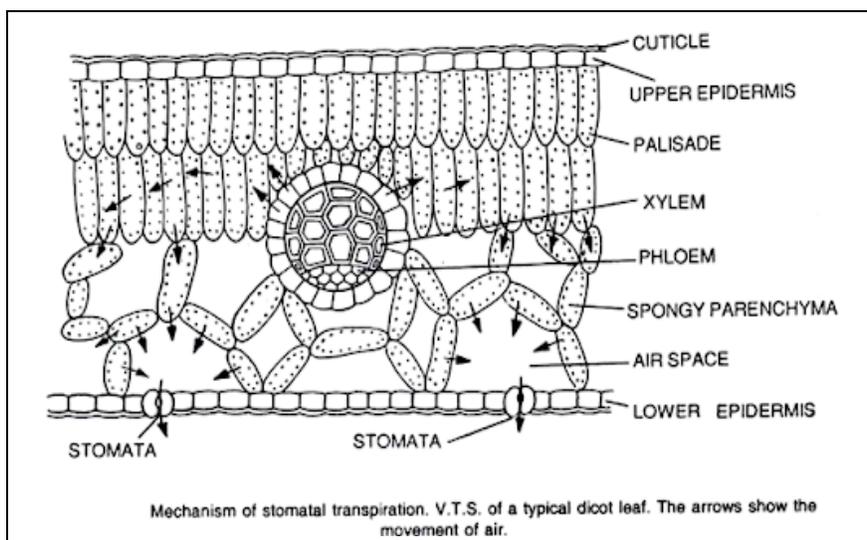
It occurs through the cuticle or epidermal cells of the leaves and other exposed parts of the plant. In common land plants cuticular transpiration is only **3-10%** of the total transpiration. In herbaceous shade loving plants where the cuticle is very thin, the cuticular transpiration may be upto 50% of the total. Cuticular transpiration continues throughout day and night.

### **3. Lenticular or Lenticellate Transpiration:**

It is found only in the woody branches of the trees where lenticels occur. **The lenticular transpiration is only 0.1% of the total transpiration. It, however, continues day and night because lenticels have no mechanism of closure.** The lenticels connect the atmospheric air with the cortical tissue of the stem through the intercellular spaces present amongst the complementary cells.

## MECHANISM OF STOMATAL TRANSPIRATION

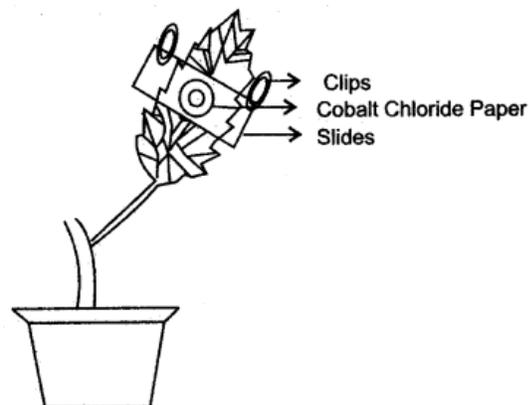
- Water absorbed by roots rises up through the stem and reaches the tissues of leaves.
- The cell sap in each cell exerts a turgor pressure outward on the cell wall. This pressure forces some water out of the cell wall into the air space between the cells, i.e. intercellular space.
- The surfaces of spongy mesophyll cells in leaf are exposed to the intercellular spaces.
- These cells give out a thin film of water. Water from this film evaporates.
- Water vapour formed saturates the air in the intercellular spaces, diffuses into connecting intercellular spaces and reaches the sub-stomatal space.
- From the sub-stomatal space it finally goes out by diffusion through stomata.



#### **ASSIGNMENT 4 ( DRAW THE DIAGRAMS FOR DIAGRAM BASED QUESTIONS)**

- 1) Give reason-
  - a) Transplanting seedling to flower bed in the evening is better than doing so in the morning.
  - b) Forest bring in the rain and transpiration is the cause.
- 2) What is lenticular transpiration?
- 3) Name the following-
  - a) Waxy protective covering present on the leaf epidermis meant to reduce transpiration rate.
  - b) Openings found on the undersurface of a dorsi-ventral leaf.
  - c) The kidney shaped cells present on stomata.
- 4) Differentiate between –
  - a) Transpiration & evaporation (speed of the process)
  - b) Transpiration & translocation ( definition)

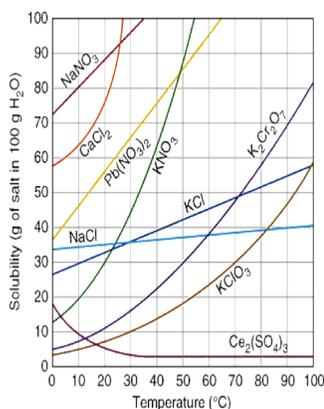
- 5) Study the diagram and answer the following questions-
  - a) What is the colour of dry cobalt chloride paper?
  - b) Is the experimental leaf a monocot or dicot?  
Justify your answer.
  - c) Why are glass slides placed over the dry cobalt chloride paper?
  - d) After about half an hour what change, if any, would you expect to find in the cobalt chloride paper placed on dorsal & ventral side. Justify.
  - e) Define the term transpiration.



## Chemistry Class 10

### Chapter 3: Acid bases and salts(salt and their lab preparation)

- **Salt** is a compound formed by the partial or total replacement of the ionizable hydrogen atoms of an acid by a metallic ion or ammonium ion.
- There are various types of salts: Normal salts are salts formed by complete replacement of the ionizable hydrogen atoms of an acid by a metallic ion or ammonium ion. Eg: NaCl. Acid salts are salts formed by partial replacement of ionizable hydrogen atom of a poly basic acid by a metal or ammonium ion. Eg: NaHSO<sub>4</sub>. Basic salts are salts formed by partial replacement of the hydroxyl group of a di or tri acidic base by an acid radical. Eg: Pb(OH)Cl.
- **General properties of salts:** Salts are electrical compounds. Most of the salts are soluble in water. The degree of solubility varies with temperature which can be plotted in a solubility curve.



- **Solubilities of salts:** All compounds of ammonium, sodium, potassium are soluble in water. All nitrates and nitrites are soluble. All chlorides, bromides and iodides are soluble except for mercuric, silver and lead chlorides. All sulphates are soluble except calcium, lead and barium sulphate. All carbonates, sulphides and sulphite, phosphate are insoluble except ammonium, Na and K salts.
- **Hydrolysis of salts:** The phenomenon due to which salt formed from a weak acid and strong base or by a strong acid and weak base reacts with water to give acidic or alkaline solution is known as hydrolysis.
- Salts formed from strong base and weak acid hydrolyse to give alkaline solution. Eg: sodium carbonate, potassium acetate
- Salts of strong acid and weak base give acidic solution. Eg: ferric chloride, copper sulphate

- Salts formed from strong acid and strong base give neutral solution. e.g. Sodium chloride, potassium nitrate
- Salts formed from weak base like ammonium hydroxide and weak acids like acetic acid gives maybe acidic, neutral or basic depending upon the dissociate and undissociated molecules. e.g. ammonium acetate, ammonium carbonate.

## ASSIGNMENT

1. Define salt
2. Differentiate between acid and basic salt
3. Name the following:
  - i) a chloride insoluble in cold water but soluble in hot water.
  - ii) a basic salt.
  - iii) two insoluble sulphates.
  - iv) salt whose solubility increases with temperature.
  - v) salt whose solubility decreases with temperature
4. Define hydrolysis.
5. Mention the solution is acidic, basic or neutral on hydrolysis
  - i) salt form from NaOH and  $\text{H}_2\text{CO}_3$ .
  - ii) sodium sulphate.
  - iii) ferric chloride.