

## **Class9 History( Tuesday class;date-5/5/20)**

### **Chapter - Fundamental Rights**

Right to equality is being guaranteed by the Constitution. It comprises of equality before law, prohibition of discrimination, equal opportunity in matters of public employment, abolition of untouchability & abolition of titles. Lets discuss them:

Equality before law-Equal protection of the laws within the territory of India.

Prohibition of discrimination-Constitution prohibits the State to discriminate the citizens on any ground.

Equal opportunity in case of public employment-In case of any appointment to any post under the State everybody will have equal chance.

Abolition of untouchability-untouchability is abolished & its practice in anyway is forbidden.

Abolition of titles-Except military & academic distinctions the State cannot confer any title.

### **Questions:(Long)**

State the importance of Right to Equality.

**(Tue) 5/5/20, C1 - IX**

**EVS, Ch-5 Topic ( Air Stripping)**

**Home Assignment....**

- 1) What is meant by air stripping?
- 2) How does a gas stripping work?
- 3) What is the difference between stripping and distillation?
- 4) What is the difference between absorption and stripping?
- 5) Is a scrubber and absorber?

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

**CHAPTER 5: SEED-STRUCTURE AND GERMINATION**

**Quick Review of the chapter**

- **What is Seed**

Seed is the ripened ovule. It contains embryo which develop into new plants. It also possess a protective coat or coats. Seed is the reproductive structure characteristic of all phanerogams. The structure of seeds may be studied in such common types of pea, gram, bean almond or sunflower.

- **What is grain**

It is found in maize,wheat,it is actually fruit in which fruit cover and seed cover is fused. And together form a protective covering.

- **Types of Seeds According to the Number of Cotyledons:**

Seeds are of two types according to the number of cotyledons.

**A. Monocotyledonous Seeds:**

These seeds contain only one cotyledon; for example, wheat, bajra, maize and rice. (Fig. 3.1)

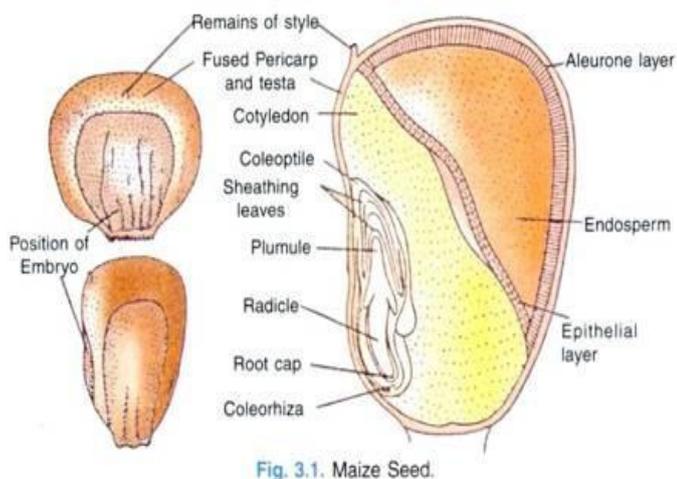


Fig. 3.1. Maize Seed.

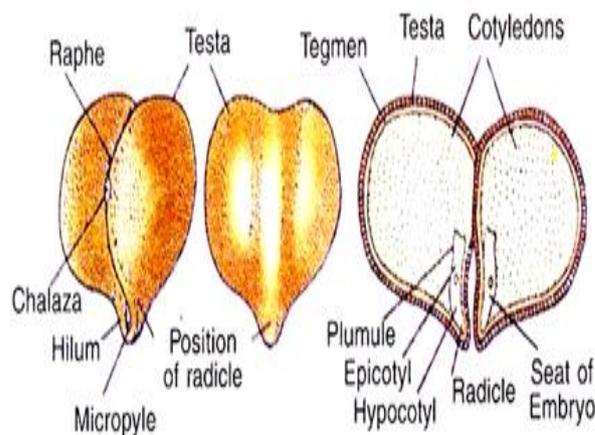


Fig. 3.2. Gram seed.

**B. Dicotyledonous Seeds:**

These seeds contain two cotyledons; for example, mango, gram and pea. (Fig. 3.2)

- **Types of Seeds According to the Food Storage Tissue**

There are two types of seeds according to the food storage tissue.

**A. Endospermic Seeds (Albuminous):**

Endospermic seeds are those in which food is stored in endosperm, e.g., wheat, rice and bajra.

**B. Non-Endospermic Seeds (Exalbuminous):**

Non-endospermic seeds are those in which food is stored in cotyledons, e.g., pea and gram.

- **Difference between Albuminous and Non-albuminous Seed**

<b>Albuminous seed</b>	<b>Non-albuminous seed</b>
Endosperm is not completely used by the developing embryo, so a portion of it remains in the seed.	Endosperm is completely used by the developing embryo before the maturation of seed, so there is no endosperm left in the seed.
Examples coconut, castor and maize.	Examples pea, bean and mustard.

**Structure of Seed:**

**Structure of The Bean Seed (Dicotyledonous Seed)**

The various parts of a seed may be easily studied after it has been soaked in water for a day or so varying according to the nature of the seeds. Most of the bean seeds are different in shapes they can be Kidney shaped with convex or concave side.

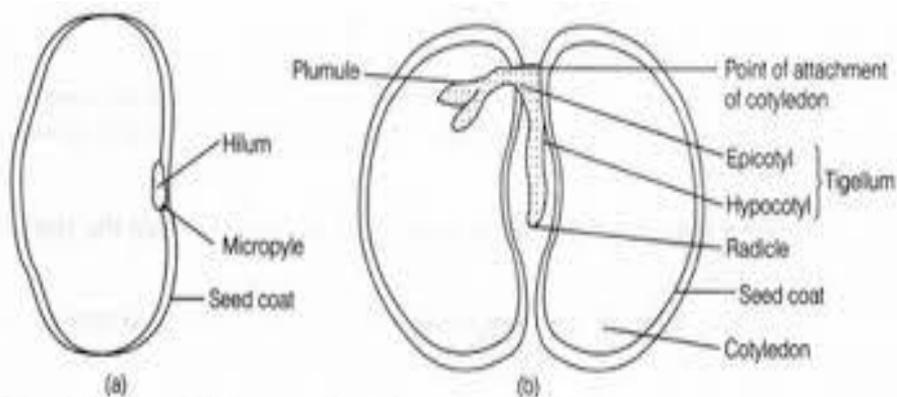
A seed is covered by a seed coat consists of two layers,-

1. outer most harder part testa with brown colour.It protects the inner part from bacterial or insect attack and any kind of injury.
2. The inner protective part called tegmen, is a thin inner layer lying next to the testa , it also helps in protection.

At maturity, on one side of the seed coat a narrow,an elongated whitish scar representing the point of attachment of seed to its stalk is distinctly seen, this is the **hilum**, that denotes attachment of ovule to ovary.

Close to the hilum situated at one end of it there is a minute pore, **micropyle**. During seed germination, water is absorbed mainly through this pore, and the radicle comes out through it. Also this helps in gaseous exchange.

A mature seed contains an embryonic plant. The embryo consists of two parts- plumule and radicle which later forms the shoot and the root.

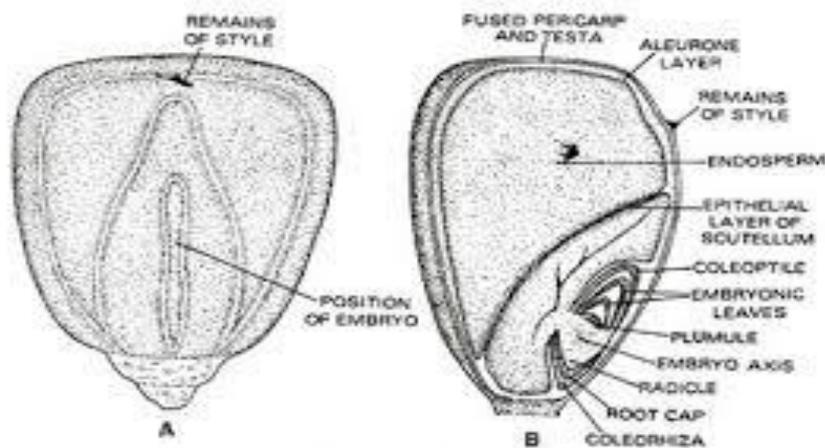


**Fig. 2** Bean seed (a) Lateral view of whole seed (b) A mature embryo with its parts

### Structure of the Maize-Grain (The Monotyledonous Seed)

- The maize grain is actually a one seeded fruit in which fruit wall and the seed coat are fused together to form a protective covering, so it is called grain.
- On one side of the grain a small, opaque, whitish, deltoid area is seen to be distinctly marked out from the region. The embryo lies embedded in this area.
- The grain remains divided into two unequal portions by a definite layer known as the epithelium. The bigger portion is the **endosperm**, and the smaller portion, the **embryo**. The endosperm, is the food storage tissue
- **Endosperm:**

Most of the grain is occupied by the endosperm and is filled with reserved food. A thin epithelial layer separates it from the embryo. The outermost layer of the endosperm which is continuous with the fused seed coat and fruit wall is rich in protein and is called aleurone layer. The inner starchy endosperm is made of starch cells and a few lipid cells.



**Fig. 5.104.** Caryopsis of Maize (Makki). A, external view; B, V.S. Grain.

### Embryo:

It is seen below the endosperm. It is made of single cotyledon called scutellum and embryo axis with plumule and radicle. It has special cells which secrete digestive enzymes to digest and absorb the nutrients

in the endosperm to provide nourishment for the developing embryo. Root cap protects the tip of the radicle. The radicle is surrounded by a protective sheath called coleorhiza. Plumule is also protected by a covered sheath known as coleoptile.

### **Assignment Questions-**

A. Define the following-

1. Ex-albuminous seed
2. Grain.
3. Scutellum

B. Name the Following-

1. A monocotyledonous endospermic seed.
2. The covering of plumule of plumule in monocot seed.

C. Mention the function of the following parts

1. Seed coat.
2. Micropyle.
3. Cotyledons.
4. Radicle.
5. Plumule.

D. Write difference between the following-

1. Albuminous seed and non-albuminous seed.(food storing part)
2. Coleorhiza and coleoptile.(location)
3. Bean seed and maize grain.(types of seed with definition)

Date – 05.05.2020

**GARDENING**

When you're new to gardening, it's hard to know how to get started. Even the most experienced gardeners need to have the right tools. Our list of essential gardening tools will set you on the right path to a beautiful garden. So, today I will be discussing 10 tools that can be used in the gardening work and I think it will be a huge help for your project.

1. Hand Towel
2. Gardening Gloves
3. Long Boots
4. Spade
5. Fork
6. Shovel
7. Rake
8. Saw
9. Wheel Barrow
10. Outdoor Brush

## Chemistry Class 9

Complete the assignment based on the audio provided which explains the whole chapter "**Water**". You can take help from the previous pdf given.

### Chapter at a glance

- Water is the most important resource. It exists in three states: solid(ice), liquid(water), and gas(water vapour).
- Boiling point increases with dissolved impurities. Even it increases with pressure.
- Freezing point decreases with presence of dissolved impurities. It increases with decreases in pressure.
- Water shows anomalous expansion of water because of which marine organisms can survive. The top layer remains frozen but the bottom layers sustain marine life
- Water is a universal solvent because of high dielectric constant. As it can dissolve many substances it is difficult to find pure water. If it is kept in glass bottles it leaves etchings on the surface of glass.
- Water contains dissolved salts which give taste to water. The minerals present supply the essential minerals to our body. Certain minerals are essential for the growth and development of plants.
- Water contains dissolved gases which provide oxygen for respiration of fishes. It provides carbon dioxide for photosynthesis of aquatic plants.
- A solution is a homogeneous mixture of two or more components whose composition may be gradually changed.
- Concentration of a solution is the amount of solute dissolved in a given quantity of the solution. It can be calculated as mass or volume percent
- The solubility of a solute is equivalent to the maximum no. of grams of the solute necessary to saturate 100gm of that solvent at that temperature.
- Solubility can be affected by the size of the solute particles, stirring and temperature.
- Solubility can be plotted in a curve. It is a line graph that plots changes in solubility of a solute in a solvent against changing temperature.
- There are certain salts which show anomalous solubility.
- Water of crystallization is the loosely bound water molecules which are lost when heated. These salts are hydrated salts.

- Salts which do not contain water is crystallization is known as anhydrous salt.
- Salts shows certain properties like efflorescence( a phenomenon where a compound loses its water of crystallization on exposure to dry air), deliquescence( phenomenon absorb moisture from the atmosphere to form solution) and hygroscopy( phenomenon which absorb moisture from atmosphere without dissolving in it)
- Drying agent removes moisture from substances but dehydrating agent removes water in the form of 2 atoms of hydrogen and 1 atom of oxygen.

### **ASSIGNMENT**

1. Explain why hot saturated solution of  $\text{KNO}_3$  forms crystal as it cools
2. Solubility of  $\text{NaCl}$  is 36.5g.What do you understand by this statement
3. State the term:a substance which contain water of crystallization
4. Explain why lakes do not freeze suddenly in winters
5. Give the structures of crystals
6. What is water of crystallization
7. Find the solubility of  $\text{KNO}_3$  when 150g of salt is dissolved in 500gm of water.
8. Define solubility curve
9. What is anomalous solubility
10. What are the factors affecting solubility
11. Define concentration of a solution
12. What do one observe when water is kept in bottles
13. Give 2 uses of dissolved salts in water
14. Which property of water enables it to modify the climate.
15. How is boiling point depended on pressure.

## Question 1

Prove that ,  $\sqrt{5}$  is an irrational number.

## Answer 1

**Ans.** Let  $\sqrt{5}$  is a rational number

Let  $\sqrt{5} = \frac{p}{q}$  where  $p$  and  $q$  are integer

and  $q > 0$ ,  $p$  and  $q$  have no common factor except 1

squaring both sides

$$5 = \frac{p^2}{q^2}$$

$$\Rightarrow p^2 = 5q^2$$

$\therefore 5q^2$  is divisible by 5

$\therefore p^2$  is also divisible by 5

$\Rightarrow p$  is divisible by 5

Let  $p = 5k$  where  $k$  is an integer

squaring both sides

$$p^2 = 25k^2$$

$$\Rightarrow 5q^2 = 25k^2$$

$$\Rightarrow q^2 = 5k^2$$

$\Rightarrow p$  is divisible by 5

Let  $p = 5k$  where  $k$  is an integer

squaring both sides

$$p^2 = 25k^2$$

$$\Rightarrow 5q^2 = 25k^2$$

$$\Rightarrow q^2 = 5k^2$$

$\therefore 5k^2$  is divisible by 5

$\therefore q^2$  is also divisible by 5

$\Rightarrow q$  is divisible by 5

$\therefore p$  and  $q$  are both divisible by 5

our supposition is wrong as  $p$  and  $q$  have  
common factor

$\therefore \sqrt{5}$  is an irrational number

Now in  $\frac{2}{3}\sqrt{5}$ ,  $\frac{2}{3}$  is a rational number

$\sqrt{5}$  is an irrational number.

Hence proved.

Prove that  $\sqrt{7}$  is an irrational number.

### Answer 2

Sol. Let  $\sqrt{7}$  is a rational number.

$$\text{Let } \sqrt{7} = \frac{p}{q}$$

Where  $p$  and  $q$  are integers,  $q \neq 0$  and  $p$  and  $q$  have no common factor

Squaring both sides,

$$7 = \frac{p^2}{q^2}$$

$$\Rightarrow p^2 = 7q^2$$

$\therefore p^2$  is a multiple of 7

$\Rightarrow p$  is multiple of 7

$$\text{Let } p = 7m$$

Where  $m$  is an integer

$$\therefore \text{Then } (7m)^2 = 7q^2 \Rightarrow 49m^2 = 7q^2$$

$$\Rightarrow q^2 = 7m^2$$

$\therefore q^2$  is multiple of 7

$\Rightarrow q$  is multiple of 7

$p$  and  $q$  both are multiple of 7

Which is not possible

Hence  $\sqrt{7}$  is not a rational number

$\sqrt{7}$  is an irrational number

### Question 3

Prove that  $\sqrt{6}$  is an irrational number.

### Answer 3

**Sol.** Let  $\sqrt{6}$  is a rational number

and  $\sqrt{6} = \frac{p}{q}$  where  $p$  and  $q$  are integers

and  $q \neq 0$  and have no common factor

$$6 = \frac{p^2}{q^2} = p^2 = 6q^2 \quad \dots(i)$$

$\therefore p^2$  is divisible by 2 which is a prime  
 $p$  is also divisible by 2

Let  $p = 2k$  where  $k$  is an integer

$\therefore$  Substituting the value of  $p$  in (i)

$$(2k)^2 = 6q^2 \Rightarrow 4k^2 = 6q^2$$

$$\Rightarrow 2k^2 = 3q^2$$

$\therefore q^2$  is divisible by 2

$\Rightarrow q$  is divisible

$p$  and  $q$  both are divisible by 2

Which is not possible as  $p$  and  $q$  both have no common factor

Hence  $\sqrt{6}$  is an irrational number

## Question 4

Prove that  $1/\sqrt{11}$  is an irrational number.

## Answer 4

Sol. Let  $\frac{1}{\sqrt{11}}$  is a rational number

Let  $\frac{1}{\sqrt{11}} = \frac{p}{q}$  where  $p$  and  $q$  are integers

and  $q \neq 0$  and have no common factor

Squaring both sides

$$\frac{1}{11} = \frac{p^2}{q^2} \Rightarrow q^2 = 11p^2 \quad \dots(i)$$

$\therefore q^2$  is divisible by 11

$\Rightarrow q$  is divisible by 11

Let  $q = 11k$  where  $k$  is an integer squaring

$$q^2 = 121k^2$$

Substituting the value of  $q$  in (i)

$$\therefore 121k^2 = 11p^2$$

$$\Rightarrow 11k^2 = p^2$$

$\therefore p^2$  is divisible by 11

$\Rightarrow p$  is divisible by 11

$\therefore p$  and  $q$  both are divisible by 11

But it is not possible

$\therefore \frac{1}{\sqrt{11}}$  is an irrational number

Home Work- Q1.

Prove that  $\sqrt{5}$  is an irrational number. Hence, show that  $-3 + 2\sqrt{5}$  is an irrational number.

Q2.

Prove that the following numbers are irrational:

(i)  $5 + \sqrt{2}$

(ii)  $3 - 5\sqrt{3}$

(iii)  $2\sqrt{3} - 7$

(iv)  $\sqrt{2} + \sqrt{5}$

Q3.

Write the denominator of the rational number  $\frac{257}{5000}$  in the form  $2^m \times 5^n$  where  $m, n$  are non-negative integers. Hence, write its decimal expansion on without actual division

Q4.

Write the decimal expansion of  $1/7$ .  
Hence, write the decimal expansion  
of ?  $2/7$ ,  $3/7$ ,  $4/7$ ,  $5/7$  and  $6/7$ .