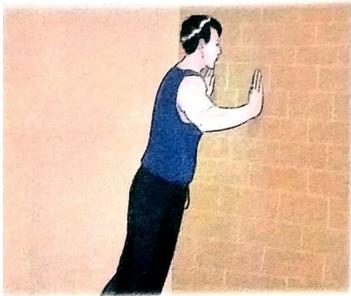


Class 8 Physics

Chapter 4 (Energy)

Date\_\_ 4.5.20

**WORK :** In every day life all of us do different types of work. We do work when we play, when we go to school, when we pedal a bicycle, when we lift a load and so on. In general we use the word work very casually, for example when we push a wall we say that we have done work, while reading a book we say that we have done work. But actually no work is done by us in these activities. In the language of physics work is said to be done only when a body changes its position or moves on applying a force on it. No work is said to be done if there is no motion produced on the body even when a force is applied on the body.



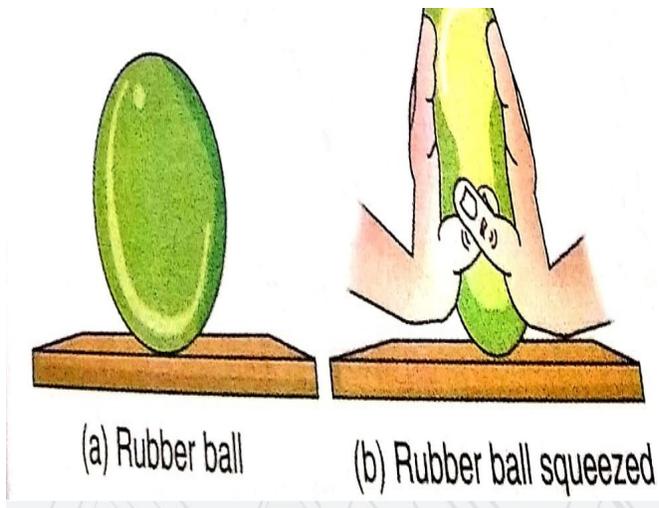
(a) No work is done in case of pushing a wall



(b) Reading is a kind of mental work; no work is done

**Work is said to be done if the force applied on a body moves it. If no motion takes place, no work is said to be done.**

For example, a cyclist pedalling a cycle does work, a horse pulling a cart does work, a boy getting upstairs does work, a boy lifting a book does work. Work is also done by a force if the force applied on a body changes its size or shape. For example, if a boy squeezes a toothpaste tube or a rubber ball, he does work in changing the shape of the tube or ball. Similarly a boy does work in stretching a rubber string in which the size of the string increases.



.in the above diagram it has been shown to you that work is said to be done if by the application of the force shape and size of the body changes

**A person does no work if there is no change in position or no motion even after application of force.** For example , a boy pushing a car or a heavy stone does no work if the car or stone does not move, even if he may get tired. Similarly a coolie does no work while standing with a heavy box on his head, as there is no motion. But the coolie does work when he raises the heavy box to his head.

Thus the following two conditions must be fulfilled for work to be done.

1. A force must act on the body.
2. The force must produce change in position i.e., motion or produce change in size or shape of the body.

### FACTORS AFFECTING THE AMOUNT OF WORK DONE

Experimentally it is found that the amount of work done depends upon two factors.

1. The magnitude of the force applied.
2. The distance moved by the body in the direction of force.

**Dependence of the amount of work done on the magnitude of the force applied on the body**—work done is more if the force applied to move the is more . As for example more work is done by us if we lift a heavy load from the ground floor to the first floor than if we lift a light weight to the same height. The reason is that we have to apply more force in the first case.

**Dependence of the amount of work done on the distance moved by the body in the direction of**

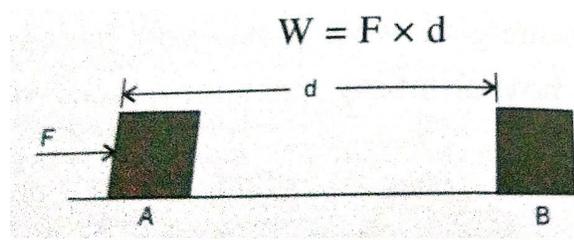
**force** work done is more if the distance moved by the body in the direction of force is more. As for example more work is done by us if we lift a heavy load from the ground floor to the second floor than if we lift the same load from the ground floor to the first floor.

### DEFINITION OF WORK.

We define work as follows.

The work done by a force on a body is equal to the product of the force applied and the distance moved by the body in the direction of force, i.e.

Work done = Force  $\times$  distance moved in the direction of force.

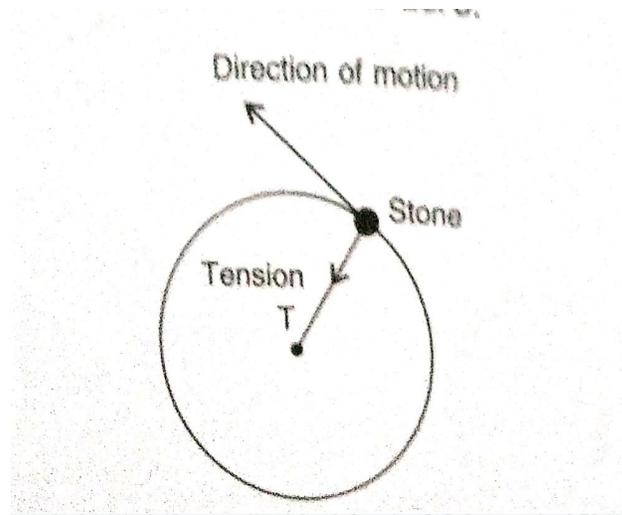


In the above diagram you can see that a force is applied on the body which moves it from the position A to the position B by a distance  $d$  in the direction of force, then the work done by the force on the body is  $W = F \times d$ .

If a force acts on a body but the body does not move, no displacement is there so  $d = 0$  and work done is also zero.

The work done is also zero if a body moves in a direction perpendicular to the direction of force. For example, when a stone tied at the end of a string is whirled in a horizontal circular path, the motion of stone is always normal to the force of tension in the string as shown in the fig., Therefore the work done by the force of tension on the string is zero.

Similarly, in motion of earth around the sun, the force of attraction on earth by the sun is always normal to the direction of motion of earth, so no work is done by the gravitational force of sun on the earth.



H.W

1. What do you mean by work?
2. When we say that no work is done? Explain giving an example.
3. What are the two conditions must be fulfilled for work to be done?
4. What are the factors affecting the amount of work done?
5. Define work

CLASS 8  
HISTORY

DATE: 04/05/20

**THE AGE OF REVOLUTIONS**

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Students, the 18<sup>th</sup> century which saw large changes in the field of technology, art and society also witnessed two political revolutions that had a powerful impact across the world. The American Revolution [1775 – 1778 ] and the French Revolution [1789 – 1795 ].

**THE AMERICAN REVOLUTION**

It was the first determined struggle against colonialism, which finally resulted in the formation of the United States of America. This revolution inspired the colonies all over the world to fight against colonial oppression.

Christopher Columbus and Amerigo Vespucci opened up routes from Europe to America. This encouraged people from Europe, to come and settle in the ‘new world’ which came to be known as America with a hope of better living and working conditions.

By the end of 18<sup>th</sup> century, Britain had 13 colonies in North America. The colonists had several grievances against the British as many trade restrictions were imposed on them. They were also not allowed to have their representative in the British Parliament.

The Boston Tea Party triggered of the American War of Independence in 1775, which came to an end with the Treaty of Paris,1783. In 1789, the United States of America adopted a republican constitution and George Washington was elected as the first President of the United States of America.

**THE FRENCH REVOLUTION**

This revolution took place in the latter part of the 18<sup>th</sup> century. It followed soon after the American Revolution and ended the monarchy and feudalism in France. This revolution was a reaction against the oppression of the common people by the nobles and royalty of France. The success of the revolution inspired people, all over the world to fight for freedom and equality.

The main objective of the common people was to put an end to the rigid social structure of the French society of the ancient time. There were three estates or classes in the French society, where the two highest classes enjoyed all privileges while the lowest estate suffered. Tired of high taxes and oppression, the Third Estate organised itself into the National Assembly. They vowed not to disband till a new constitution had been framed in France. The Bastille was attacked and the king and queen of France were executed. Thus, the monarchy and the system of feudalism were abolished and the principles of republicanism took deep roots in France.

Though these two revolutions taught to fight against colonial oppression and to fight for freedom and equality, it also laid basis for another powerful movement- Nationalism. Nationalism means the desire felt by the people who shared the same culture, language and history for a separate and independent nation of their own. So these two revolutions were also known as the earliest nationalist movements in history.

# The Age of Revolutions



## Milestones

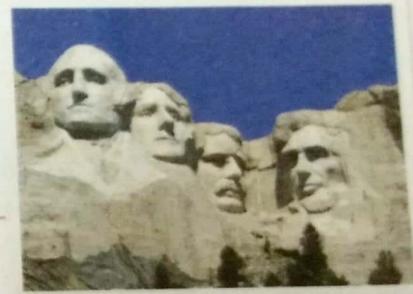
In this chapter, you will learn about:

- the changes in the eighteenth century spanning continents, causes, course and significance of the American War of Independence.
- causes, course and significance of the French Revolution.
- role of philosophers in both the American and French revolutions.

Identify the structure.

Where is it located?

Name the presidents who are depicted on this structure.



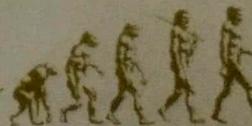
The eighteenth century saw **tumultuous** changes in America and Europe. Apart from rapid changes in the field of technology, art and society at large, there were **two great political revolutions** which had the effect not only in America and Europe but the history of the world. The **American Revolution** (1775–1783) and the **French Revolution** (1789–1795) led to immense changes in the social structure, politics and economy of America and Europe in the last quarter of the eighteenth century.

## Background: Settlers in the New World

Christopher Columbus discovered America in 1492. Amerigo Vespucci made four voyages to America and gave a vivid description of the



▲ An artwork showing discovery of the new world by Christopher Columbus.



land. After these voyages, there was a substantial migration of people from Britain and France to this **new world** (which came to be known as America).

### American Revolution

By the end of the eighteenth century, **thirteen English colonies** had been established in North America along the Atlantic coast. These <sup>American</sup> colonies enjoyed autonomy through their own local form of government but they were still under control of the British Parliament which had the right to levy tax on them. Later, disputes between the thirteen American colonies and the British emerged because of unfair taxation. The colonists protested with the slogan 'No taxation without representation' bringing forth their grievances that the British Parliament had no right to impose taxes on a no American colony had representatives in the Parliament. These colonies fought a war of independence to free themselves from the British control. This is known as the **American Revolution** or the American War of Independence. There were various factors behind the American War of Independence. ] A 15

### Economic exploitation → Primary Cause

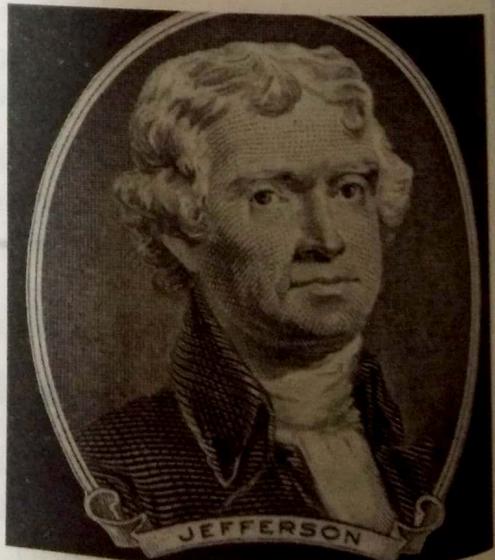
The colonial policy of England in economic matters was the primary cause of **resentment** in the American colonies.

- Each colony had a local assembly to frame laws regarding local matters. However, the British government imposed laws which went against the economic interest of the colonies.
- America was looked upon as a market and a source of raw materials. It was laid down that sugar, tobacco, cotton, indigo and some other commodities could only be exported to England.
- Heavy duties were imposed on the import of goods in the colonies from other places.

A) The colonists were also forbidden to start certain industries such as iron works, woollen goods and textile so that the same industries in Britain did not face any competition.

### Political system in colonies

- Each colony had an assembly whose members were elected by the people of the colonies. However, these assemblies were headed by a governor who was appointed by the British government.
- The governor was not responsible to the people of the colony. He worked to look after the interest of England. This was greatly resented by the people of the colonies.



▲ Thomas Jefferson



## Separate identities of the colonies

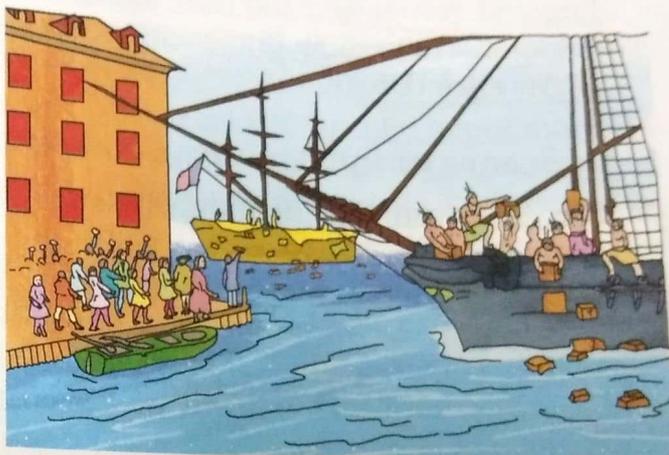
- The American colonies had developed a distinct social and cultural lifestyle. They believed in simple and liberal thoughts, which was quite different from their motherland.
- Over the years, these colonies developed a distinct identity of their own. This inspired them to fight for their freedom.

## Philosophical basis of the revolution

The American revolutionaries were also inspired by the ideas of the philosophers such as **Locke**, **Thomas Jefferson**, **Voltaire** and **Rousseau**. They believed that human beings had certain fundamental rights which no government had the authority to disobey.

## The events leading to a revolt

Few events and circumstances led to an open revolt which marked the beginning of the **American War of Independence**.

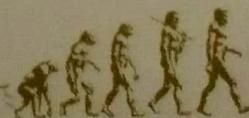


▲ Boston Tea Party

- The British Parliament passed the **Stamp Act in 1765**, which imposed stamp taxes on all business transactions in America. This added to the grievances of the colonists. Revenue stamps up to twenty shillings were to be affixed to all legal documents. The Americans protested violently and **boycotted** British goods.
- The Americans forced the British Parliament to withdraw the stamp tax, although tax on tea continued to be levied. There was widespread opposition to this taxation on tea. The incident of **Boston Tea Party** signified the anger of the people. On **17 December 1773**, the American nationalists, protesting against the exorbitant taxation by the British, destroyed many boxes of tea of the British ships anchored at the **Boston harbour**. This incident, henceforth known as the **Boston Tea Party**, triggered the American War of Independence.
- In 1774, the representatives of the thirteen colonies called the meeting of the **First Continental Congress** at **Philadelphia** (called the Philadelphia Congress). The Congress passed the 'Declaration of Rights and Grievances' and appealed to **King George III** (king of England) for the removal of restriction on trade.

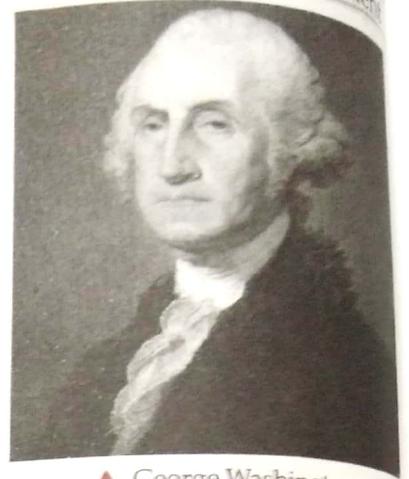


▲ King George III



The declaration drawn by the representatives asserted that the British Parliament had no right to tax the colonies without their consent. But the British Parliament termed it as an act of rebellion. Britain sent troops to restrain the rebellion. *Wax*

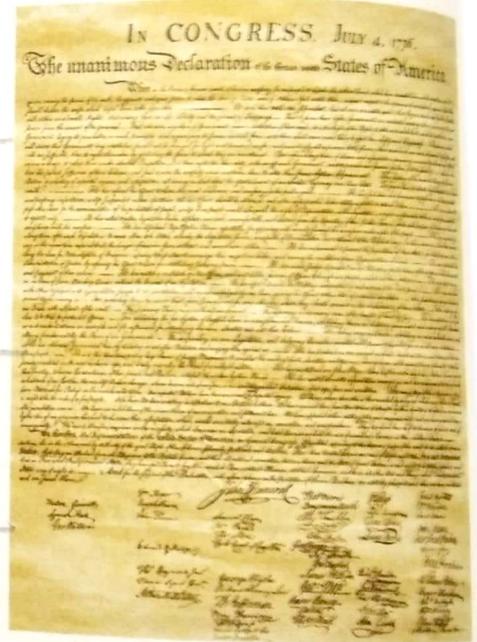
At the **Second Continental Congress** in 1775, the representatives of the colonists passed a resolution for the formation of an army under the leadership of **George Washington** and decided to fight for their independence. On **4 July 1776**, the colonists announced the **Declaration of Independence**. In 1781, English commander **Cornwallis** surrendered before **George Washington**. By the **Treaty of Paris in 1783**, England recognised the independence of its thirteen colonies. Thus, came into existence the **United States of America (USA)**.



▲ George Washington

### Significance of the American Revolution

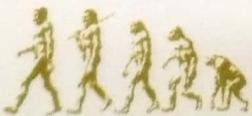
- The American War of Independence brought the colonial British rule to an end.
- A constitutional convention was called in Philadelphia to frame a new constitution for the thirteen colonies which came into effect in 1789. With it, a **republican** form of government was established in America.
- In 1789, **George Washington** was elected as the first **President of the United States of America**. A federal and democratic form of government was introduced for the first time in the world.
- The constitution framed by the Americans served as a landmark for many countries trying to get independence from colonial rule.
- The political development in America established the right to protest against injustice and the right to fight for freedom and independence. It was an event that deeply affected the world in the centuries to come. *Right against exploitation*



▲ The Declaration of Independence

### The French Revolution 1789-1799

The French Revolution is regarded as one of the greatest landmarks of European history. The revolution began in 1789 and lasted till 1799. It began as an attempt to create a constitutional monarchy but soon became a movement aimed at overthrowing the monarchy and establishing a republic in France. The main objective of the common people was to end the rigid social structure of the French society of the **Ancien**



**Regime**—the feudal structure of France at that time.

The French Revolution propounded three great ideals that had an everlasting impact on human civilisation. These were the ideas of

• Liberty,

• Equality,

• Fraternity] A2

### Causes

The causes behind the French Revolution were diverse.

Ancien Regime  
↓  
Rigid Social Structure

### Social cause

For centuries, the French society was divided into three estates or orders.

- The **First Estate** consisted of the <sup>Priest</sup> **clergy**, occupying the highest position not 6.
- The **Second Estate** consisted of the **nobility**, placed below the clergy.
- The **Third Estate** comprised of the **commoners**. It included businessmen, merchants, court officials, lawyers, peasants, landless labourers and servants.

The first two estates together comprised only ten per cent of the total population. The Third Estate, which comprised about ninety per cent of the population, was placed lowest in the order of the estates. The society was based on the old French **maxim** 'the nobles fight, the clergy pray and the people pay'. This was reflected in the existing inequalities which were sanctioned by the law.

The first two estates, though few in number, enjoyed several privileges by birth.

- They owned landed property. About sixty per cent of the land belonged to the nobility, church and the richer members of the Third Estate.
- In addition, the nobility and the clergy were **exempted** from the payment of taxes.

The Third Estate had to face a number of discrimination and oppression.

- They had to bear the burden of taxation levied by the king and the two estates.
- The peasants were forced to work for free for their lords.
- The workers were not allowed to leave their jobs without the consent of their employers.
- The professionals did not have any position in the society.



▲ King Louis XVI

### Political cause

The **Bourbon Dynasty** had ruled over France since the late fifteenth century. The kings of the dynasty were absolute monarchs who believed in the **divine right theory**. They

*Only answerable to God and not answerable to any one.*  
thought that they were answerable to God alone for their actions. Consulting common people, therefore, was not required at all. This caused discontent among the commoners.

- At the time of the French Revolution, people were fed up with the autocratic rule of **Louis XVI**, who was a weak ruler. Under him, the administration had become corrupt and inefficient.
- The king also used his power for his own selfish ends and did not do much for the welfare of the people.

### Economic cause

- The French Government was heavily under **debt**, but the king used to spend freely from the state treasury to lead a luxurious life.
- To add to the burden, Louis XVI got himself involved in the American War of Independence and brought the country to the brink of bankruptcy.
- The policy of exempting the rich from taxation never allowed the state treasury to be filled.

### Role of philosophers

10] The intellectual base for the revolution was provided by philosophers like **Voltaire**, **Locke**, **Montesquieu** and **Rousseau**. People were greatly stimulated by their writings which exposed the evils of the French society. People were also inspired by the revolutionary ideas of liberty, equality, fraternity and popular sovereignty. ✓

### American War of Independence

The French people were also inspired by the American War of Independence. Many French soldiers and generals participated in the War. They came back and inspired people to fight against the despotic and unjust government.

### Course of the Revolution

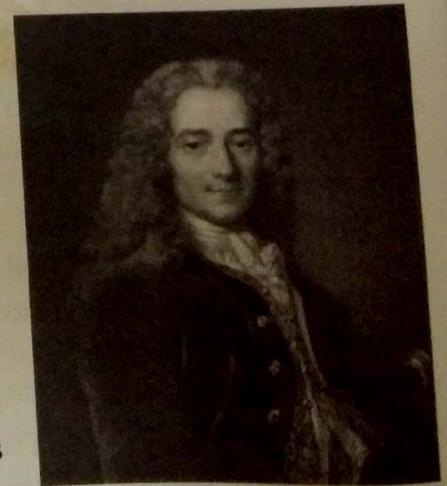
- In May 1789, Louis XVI's need for money compelled him to convene a meeting of the **Estates General** (the old feudal assembly) to obtain consent for new loans and taxes. All the three Estates were represented in

## Now You Know

Marie-Antoinette was the bride of France's King Louis XVI. It is believed that somewhere around 1789, when she was told that her French subjects had no bread to eat, she supposedly sniffed and said 'Let them eat cake.' With that callous remark, the queen became a hated symbol of the decadent monarchy.



▲ Statue of Queen Marie Antoinette

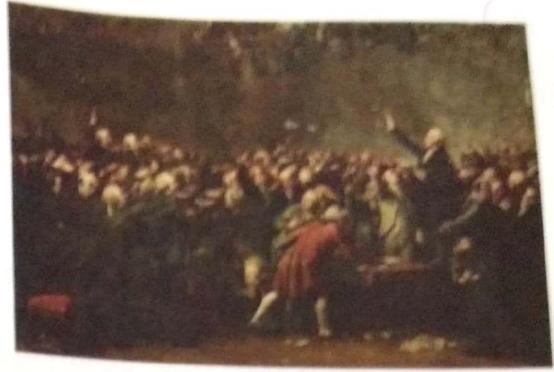


▲ Voltaire



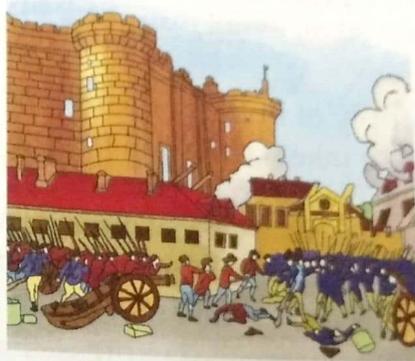
the meeting. The Third Estate demanded equality in taxation and the abolition of privileges. Upon denial of their proposal, the Third Estate walked out in protest.

- On 17 June 1789, the representatives of the Third Estate formed a **National Assembly**. They assembled in the royal indoor tennis court at **Versailles** and took the oath that they would not disband or return home until a new constitution was drafted. This pledge came to be known as the **Tennis Court Pledge**. The new constitution was aimed at limiting the powers of the king.



▲ People taking the Tennis Court Pledge

- Louis XVI ordered the movement of troops into Paris. The action led the mob in Paris to openly revolt against the king. On **14 July 1789**, they stormed into the prison of **Bastille**. They believed that the fortress was a sign of despotism and housed **ammunition**. The mob released the prisoners in the fortress and seized ammunition. This was the beginning of the revolution. Till today, France celebrates this day as the **Bastille Day**.



▲ Storming of the Bastille



▲ King Louis XVI being executed

- At the end of August, the National Assembly framed the **Declaration of the Rights of Man and Citizen** as a prologue to the constitution. It listed the basic rights such as the right to life, freedom of speech, equality before law and right to property. The draft of the constitution was completed by 1791. In 1793, the king and the queen were tried and executed. The monarchy in France was abolished and the country was declared a democratic republic.

## Significance of the French Revolution

The French Revolution had a profound impact not only on the subsequent history of France but also that of the world.

- In France, it brought an end to absolute monarchy and the system of feudalism. The principles of republicanism took deep roots in France.
- It popularised the principles of **freedom, equality and fraternity**, which continue to inspire the functioning of governments in various parts of the world.





- The principle of sovereignty enshrined in it became the basis of all modern governments.
- It also served as an inspiration to oppressed and exploited people all over the world. The Indian nationalists were greatly inspired by it.

CHAPTER-5 (PLAYING WITH NUMBERS)

In this chapter, we shall understand 2-digit and 3-digit numbers in generalized form.

For this chapter **we must keep in our mind** that,

- 1) The number 'ab' does not mean  $a \times b$ .
- 2) The number 'abc' does not mean  $a \times b \times c$ .

**NUMBERS IN GENERAL FORM**

Let us consider a 2 digit number 35.

It can be written as

$$35 = 30 + 5 = 10 \times 3 + 5.$$

Similarly, 49 can be written as

$$49 = 40 + 9 = 10 \times 4 + 9.$$

In general, a 2-digit number  $ab$  can be written as

$$ab = 10 \times a + b = 10a + b.$$

Similarly,

$$ba = 10 \times b + a = 10b + a.$$

Let us now consider a 3-digit number 257.

It can be written as  $257 = 200 + 50 + 7 = 100 \times 2 + 10 \times 5 + 7$ .

Similarly, 945 can be written as

$$945 = 900 + 40 + 5 = 100 \times 9 + 10 \times 4 + 5.$$

In general, a 3-digit number  $abc$  can be written as

$$abc = 100 \times a + 10 \times b + c = 100a + 10b + c.$$

Similarly,

$$bca = 100 \times b + 10 \times c + a = 100b + 10c + a$$

and

$$cab = 100 \times c + 10 \times a + b = 100c + 10a + b.$$

**GAMES WITH NUMBERS**

**Reversing the digits of a 2 digit number**

(i) Let us consider a two digit number 86.

Reverse the digits of 86 to get a new number 68.

Adding this new number to the original number, we get

$$86 + 68 = 154$$

Thus, we get the sum as  $154 = 11 \times 14$  which is divisible by 11 and also divisible by 14 (sum of the digits *i.e.*  $8 + 6 = 14$ ).

You can repeat this with any two digit number  $ab$  and every time you will find that sum is divisible by 11 and  $(a + b)$ .

Let us check it.

Consider any two digit number  $ab$  *i.e.*  $10a + b$

Reverse the digits of  $ab$  to get a new number  $ba$  *i.e.*  $10b + a$

On adding these numbers, we get

$$(10a + b) + (10b + a) = 11a + 11b = 11(a + b)$$

which is always divisible by 11 and  $(a + b)$ .

When it is divided by 11, quotient is  $(a + b)$  and when it is divided by  $(a + b)$ , quotient is 11.

(ii) Consider another 2-digit number 83.

Reversing the digits of 83 to get a new number 38.

Subtracting the smaller number (*i.e.* 38) from the larger number (*i.e.* 83)

we have,  $83 - 38 = 45$ .

Thus, we get the difference as  $45 = 9 \times 5$ , which is divisible by 9 and also divisible by 5 (difference of digits *i.e.*  $8 - 3 = 5$ ).

You can repeat this with any two digit number  $ab$  ( $a > b$ ) and every time you will find that difference is divisible by 9 and  $(a - b)$ .

Let us check it.

Consider any 2-digit number  $ab$  ( $a > b$ ) *i.e.*  $10a + b$

Reverse the digits of  $ab$  to get a new number  $ba$  *i.e.*  $10b + a$

On subtracting smaller number from larger number, we get

$$(10a + b) - (10b + a) = 9a - 9b = 9(a - b)$$

which is always divisible by 9 and  $(a - b)$ .

When it is divided by 9, quotient is  $(a - b)$  and when it is divided by  $(a - b)$ , quotient is 9.

## Reversing the digits of a 3 digit number

(i) Let us consider a 3-digit number 975.

Reversing the digits of 975, we get a new number 579.

Subtracting the smaller number from the larger number, we get

$$975 - 579 = 396$$

Thus, we get the difference as  $396 = 99 \times 4$ , which is divisible by 99 and also divisible by the difference of unit digit and hundred's digit i.e.  $(9 - 5 = 4)$ .

You can repeat this process with any 3 digit number  $abc$  ( $a > c$ ) and every time you will find that difference is divisible by 99 and  $(a - c)$ .

Let us check it.

Consider any 3-digit number  $abc = 100a + 10b + c$

Now obtain a new number by reversing the digits i.e.  $cba = 100c + 10b + a$

On subtracting three cases arise:

**Case I.** If  $a > c$ , then the difference between numbers is

$$\begin{aligned}(100a + 10b + c) - (100c + 10b + a) &= 100a + 10b + c - 100c - 10b - a \\ &= 99a - 99c = 99(a - c)\end{aligned}$$

**Case II.** If  $c > a$ , then the difference between numbers is

$$\begin{aligned}(100c + 10b + a) - (100a + 10b + c) &= 100c + 10b + a - 100a - 10b - c \\ &= 99c - 99a = 99(c - a)\end{aligned}$$

$\therefore$  In both cases I and II, the difference is divisible by 99 and  $(a - c)$  or  $(c - a)$ .

When the difference is divided by 99, quotient is  $(a - c)$  or  $(c - a)$  and when it is divided by  $(a - c)$  or  $(c - a)$ , quotient is 99.

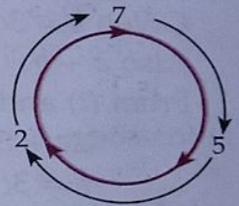
**Case III.** If  $c = a$ , then the difference is zero.

(ii) Let us consider another 3 digit number 752.

Changing the order of digits cyclically, we get new numbers 527, 275.

On adding these numbers, we get

$$\begin{aligned}752 + 527 + 275 &= 1554 \\ &= 111 \times 14 \\ &= 3 \times 37 \times 14.\end{aligned}$$



You can see that the sum is divisible by 111, 14 (sum of digits), 37 and 3.

Let us check it.

Consider any 3-digit number  $abc = 100a + 10b + c$

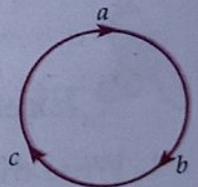
Now obtain new numbers by changing the order of digits cyclically

i.e.  $bca = 100b + 10c + a$

and  $cab = 100c + 10a + b$

On adding numbers, we get

$$\begin{aligned}abc + bca + cab &= (100a + 10b + c) + (100b + 10c + a) + (100c + 10a + b) \\ &= 111a + 111b + 111c = 111(a + b + c) \\ &= 3 \times 37 \times (a + b + c),\end{aligned}$$



which is always divisible by 111,  $(a + b + c)$ , 37 and 3.  
When sum is divided by 111, quotient is  $(a + b + c)$ ;  
when it is divided by  $(a + b + c)$ , quotient is 111;  
when it is divided by 37, quotient is  $3(a + b + c)$   
and when it is divided by 3, quotient is  $37(a + b + c)$ .

**Example 1.** Write the following numbers in generalized form:

(i) 25

(ii) 83

(iii) 229

(iv) 302.

**Solution.** (i)  $25 = 10 \times 2 + 5$

(ii)  $83 = 10 \times 8 + 3$

(iii)  $229 = 100 \times 2 + 10 \times 2 + 9$

(iv)  $302 = 100 \times 3 + 10 \times 0 + 2$

**Example 2.** Write the following numbers in usual form:

(i)  $10 \times 5 + 6$

(ii)  $100 \times 9 + 10 \times 1 + 4$

**Solution.** (i)  $10 \times 5 + 6 = 50 + 6 = 56$

(ii)  $100 \times 9 + 10 \times 1 + 4 = 900 + 10 + 4 = 914.$

**Example 3.** In a 2-digit number, ten's digit is twice the unit digit. If the sum of the digits is 9, find the number.

**Solution.** Let 2-digit number be  $ab$  i.e.  $10a + b$  where unit digit is  $b$  and ten's digit is  $a$ .

Given  $a = 2b$

...(i)

and  $a + b = 9$

...(ii)

From (i) and (ii), we have

$$2b + b = 9 \Rightarrow 3b = 9 \Rightarrow b = 3$$

$$\therefore a = 2 \times 3 = 6$$

$$\therefore \text{2-digit number} = 10 \times 6 + 3 = 60 + 3 = 63.$$

Hence, the required 2-digit number is 63.

**Example 4.** Write the quotient when the sum of a 2-digit number 49 and number obtained by reversing the digits is divided by

(i) 11

(ii) sum of digits

**Solution.** Given number is 49

Number obtained by reversing the digits is 94

$$\text{Sum} = 49 + 94 = 143 = 11 \times 13$$

(i) When sum is divided by 11, quotient is 13.

(ii)  $\therefore$  Sum of digits =  $4 + 9 = 13$

$\therefore$  When sum 143 is divided by 14, quotient is 11.

**Example 5.** Write the quotient when the difference of a 3 digit number 571 and number obtained by reversing the digits is divided by

(i) 99

(ii) 4

(iii) 3

(iv) 33

**Solution.** Given number is 571

Number obtained by reversing the digits is 175

$$\therefore \text{Difference} = 571 - 175 = 396 = 99 \times 4.$$

(i) When difference is divided by 99, quotient is 4.

(ii) When difference is divided by 4, quotient is 99.

$$\text{(iii) Difference} = 396 = 99 \times 4 = 3 \times 33 \times 4,$$

$\therefore$  when difference is divided by 3, quotient is  $33 \times 4$  i.e. 132

(iv) When difference is divided by 33, quotient is  $3 \times 4$  i.e. 12.

**Example 6.** In a 3-digit number, the ten's digit is thrice the unit digit and hundred's digit is twice the unit's digit. If the sum of its all three digits is 12. Find the number.

**Solution.** Let the number be  $abc$  i.e.  $100a + 10b + c$

where unit digit =  $c$ , ten's digit =  $b$  and hundred's digit =  $a$ .

Given  $b = 3c$  and  $a = 2c$

Also  $a + b + c = 12$

From (i) and (ii), we have

$$2c + 3c + c = 12 \Rightarrow 6c = 12 \Rightarrow c = 2$$

$$\therefore b = 3c = 3 \times 2 = 6 \text{ and } a = 2c = 2 \times 2 = 4$$

$$\therefore \text{The number} = 100 \times 4 + 10 \times 6 + 2 = 400 + 60 + 2 = 462$$

Hence, the required 3-digit number is 462.

### SOLVE YOURSELVES

#### **EX.-5.1**

- Write the following numbers in generalized form:
  - 89
  - 207
- Write the quotient, when the sum of a 2-digit number 34 and number obtained by reversing the digits is divided by
  - 11
  - sum of digits
- Write the quotient, when the difference of a 2-digit number 73 and number obtained by reversing the digits is divided by
  - 9
  - difference of digits
- Write the quotient, when the difference of a 3-digit number 843 and number obtained by reversing the digits is divided by
  - 99
  - 5
- The sum of digits of a 2-digit number is 11. If the number obtained by reversing the digits is 9 less than the original number, find the number.
- If the difference of two digit number and the number obtained by reversing the digits is 36, find the difference between the digits of the 2-digit number.
- If the sum of two digit number and the number obtained by reversing the digits is 55, find the sum of the digits of 2-digit number.
- In a 3-digit number, unit's digit, ten's digit and hundred's digit are in the ratio 1:2:3. If the difference of original number and the number obtained by reversing the digits is 594, find the number.
- In a 3-digit number, unit's digit is one more than the hundred's digit and ten's digit is one less than the hundred's digit. If the sum of the original 3-digit number and numbers obtained by changing the order of digits cyclically is 2664, find the number.

**8TH HOME ASSIGNMENT – 2020-2021**

**CLASS –VIII SUBJECT – ENGLISH LANGUAGE**

**DATE – 04.05.20.**

**(SOLUTIONS TO THE EXERCISES OF CHAPTER- 4 DETERMINERS DATE- 02.05.20 .)**

**HOME ASSIGNMENT**

**Fill in the blanks using some, much, many, any, little, few, less, a few, a little, both, fewer, all, the few, the little**

1. ' Do you have any strawberries ? Yes I have many .
2. I still have a little money left in the bank to be able to clear the bills .
3. Do you have any fruits ? Would you give me some for my child ?
4. There is less sugar in my tea than in yours .
5. There isn't any paper for me to write on . Don't forget to get some when you go to the market in the evening .
6. You have very little chance of being elected President of the organisation .
7. I wonder how much money she has spent on doing up the interior of the house .
8. There weren't many women and children in the bus .
9. Only few days are left for my friend's wedding .
10. This tree has less cherries than that one .
11. Many players attended his farewell party .
12. Lalit spread a little marmalade on the toast .
13. I have got few enemy .
14. Few people believe in ghosts these days .
15. A little knowledge is a dangerous thing .
16. There were excellent performances from both dancers .
17. She has little appreciation of classical music .
18. It took him some years to find out the truth .
19. We were some twenty miles by sea from the nearest town .
20. You can take a break any time you like .

**CHAPTER – 4 DETERMINERS ( CONTINUED )**

**DISTRIBUTIVES**

Distributives are the kind of determiners that indicate that the persons or things named are to be taken separately . Either, neither, each and every are distributive determiners .

Either is used when there is a choice between two things . Either is used for **positive sentences** . e.g. Either side may win .

**Neither** is used when there is a choice between two things . Neither is used for **negative sentences** . e.g. Neither place is safe .

**Each** refers to **one of two or more things or persons, the emphasis being on the individual and not on the group** . e.g. Each child brings his own lunch box .

**Every** refers to **all of a group of more than two considered singly** .

e.g. Every child was given a packet of biscuits .

**Note :-Distributives are normally placed before singular nouns . Each, either and neither can be used with plural nouns but must be followed by 'of ' .**

**The words NO and ONE can also be used as determiners .**

### INTERROGATIVES

Interrogatives are determiners that are used to gather information about the noun in question. What, how, which, when,whose, why,where are some interrogative determiners .

We usually use how + noun when we wish to know about someone's age or height or the length of something .e.g. How old are you ?

We usually use what + noun when we wish to know about the colour, shape or size of something . e.g. What colour is yourn car ?

We usually use which+ noun when there is a choice to make .e.g. Which city do you like best ?

### OMISSION OF THE ARTICLE

The Articles are omitted :-

1. Before most proper nouns
2. Before uncountable nouns
3. Before a common noun in the singular used in a general sense .
4. Before plural countable nouns used in a general sense
5. Before names of meals used in a general sense
6. Before names of languages
6. Before names of streets
7. Before titles and names
8. Before words like school, college, university, church, bed, hospital, prison except when they refer to as a definite place, building or object rather than to the normal activity that goes on there .

### HOME ASSIGNMENT

#### EXERCISE 1.

Fill in the blanks with suitable determiners :-

1. I was unable to start the car for \_\_\_\_\_ time .
2. I usually do \_\_\_\_\_ chores for mummy .
3. There wasn't \_\_\_\_\_ room to store the boxes .

4. \_\_\_\_\_ farmers are still using old methods to water their fields .
5. Three officials were arrested and \_\_\_\_\_ were transferred .
6. \_\_\_\_\_ mattress is the most comfortable .
7. She can draw with \_\_\_\_\_ hand .
8. \_\_\_\_\_ rumours are people spreading about you ?
9. \_\_\_\_\_ allegation has been proved .
10. People stood on \_\_\_\_\_ side of the road to welcome their leader .

**EXERCISE 2.**

**Rewrite the sentences after correcting the errors :-**

1. We leave the school at two o' clock .
2. I never saw a so tall woman .
3. They have planted quite number of flowers .
4. She has hundred rupees .
5. She was elected the Director of Silver Point school .
6. My aunt is still in the hospital .
7. What time do you have the lunch ?
8. The beauty lies in the eyes of the beholder .
9. The child is the father of the man .
10. Breakfast we had at your place last Sunday was delicious .

**Date: 04.05.2020**

**COMPUTER (HOME ASSIGNMENT – 5)  
CLASS – 8**

**Home work:**

1. Write any three advantages and disadvantages of CUI and GUI.
2. Differentiate between CUI and GUI.

**CHAPTER: 1 (OPERATING SYSTEM & GUI)**

**STUDY MATERIAL NO. – 1.5**

We have already discussed earlier about operating system and how it works. O/S is a collection of programs that enables the computer hardware to communicate and operate with the computer software. It is responsible for the management and control of all resources (Processors, Memory, Drives, Output unit [Monitor, printer], Input unit [Keyboard, mouse, Scanner] etc.) that are shared amongst the different application programs that may be running simultaneously.

There are mainly four types of operating System.

- ❖ Single user, single task
- ❖ Single-user, multitasking
- ❖ Multiuser
- ❖ Real-time OS

**1. Single user, single task:-**

A single-user operating system is a type of operating system (OS) that is developed and projected for use on a computer or similar machine that will only have a single user at any given time. This is the most common type of OS used on a home computer, as well as on computers in offices and other work environments. A single task operating system can only run one program or application at a time, and so it is not as useful for a computer or other device intended to run multiple programs at once. Palm OS for Palm handheld computers is an example for a single user, single task operating system.

**2. Single-user, multitasking:-**

A single-user multitasking operating system is an operating system that allows a single user to simultaneously run multiple applications on a computer. This type of operating system is found in personal desktop and laptop computers. The most popular single-user multitasking operating systems include Microsoft Windows and Macintosh.

### 3. Multi- user:-

A multi-user operating system is a computer operating system (OS) that allows multiple users on different computers or terminals to access a single system with one OS on it. This type of system is often used on mainframes and similar machines, and if the system fails it can affect dozens or even hundreds of people. Example: Linux, UNIX, Windows 2000, Mac OS etc.

#### Difference between Single user and Multi user System:-

<b>Single user Operating System</b>	<b>Multi-user Operating System</b>
It is an operating system in which the user can manage one thing at a time effectively.	It is an operating system in which multiple users can manage multiple resources at a time
<b>Example:</b> MS DOS	<b>Example:</b> Linux, Unix, windows 2000, windows 2003 etc.
Single user Operating System has two types: Single user Single task Operating System and Single user Multi task Operating System.	It is of three types: time-sharing operating system, distributed operating system and multiprocessor system.
It is simple.	It is complex.
It provides a platform for one user at a time.	It provides controlled access for the number of users.
If another user wants to access the computer resources, then he/she has to wait until the current process completes.	There is no need to wait for accessing the computer resources.
This type of operating system is used for single user.	This type of operating system is used for multiple users.
It supports standalone systems.	It doesn't support standalone systems.
It is the operating system which maximum people use on their personal computers or laptops.	It is the operating system which is most of the time used in mainframe computers.
In this, there is no need to take care of balance between users.	In this, we have to take care of balance between users so that if one problem arises with one user does not affect other users also.

CLASS – VIII  
STUDY MATERIAL & HOME ASSIGNMENT [V]  
SUBJECT-BIOLOGY  
CHAPTER-2 ( REPRODUCTION IN PLANTS )

DT-04/05/2020

**EXPLANATION OF THE REST PART OF CHAPTER 2**

➤ **Sexual Reproduction in Plants**

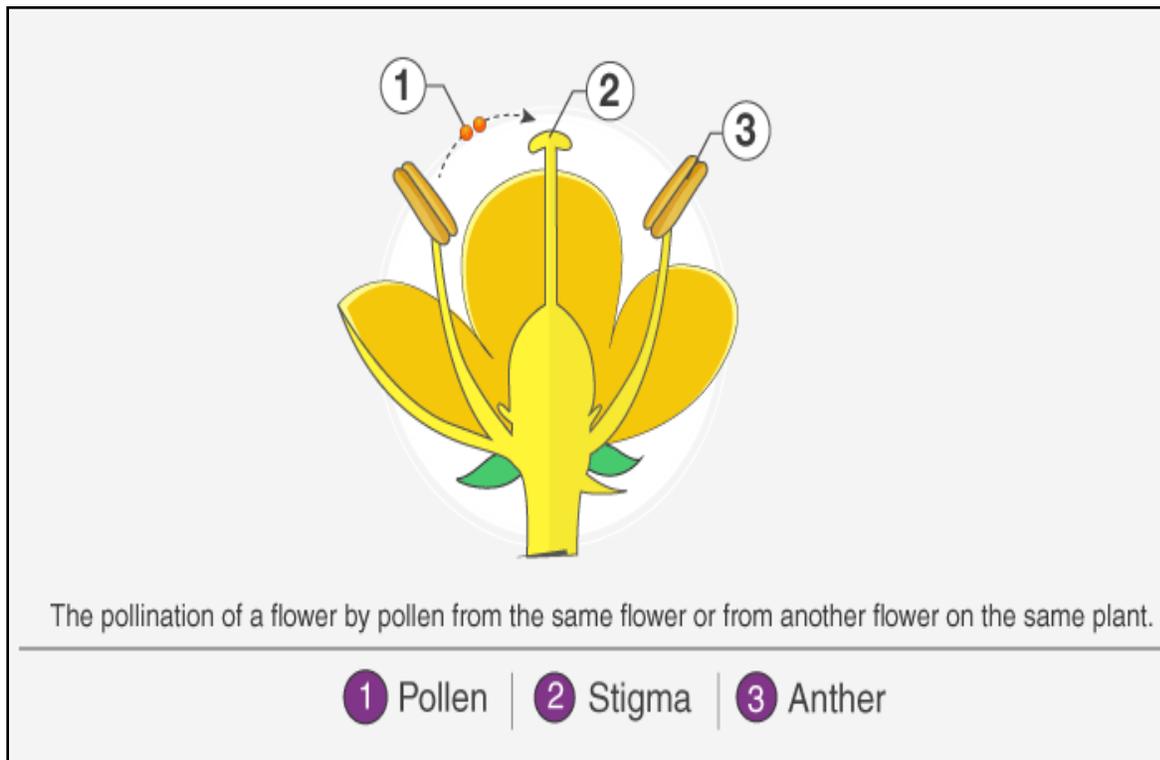
**Sexual reproduction** produces offspring by the fusion of gametes, resulting in offspring genetically different from the parent or parents. Flower is the reproductive part of the plant.

• **Pollination**

Pollination is an ecological process carried out by all flowering plants. In this process, the matured pollen grains are transferred from the anther to the stigma for the purpose of **sexual reproduction** in flowering plants.

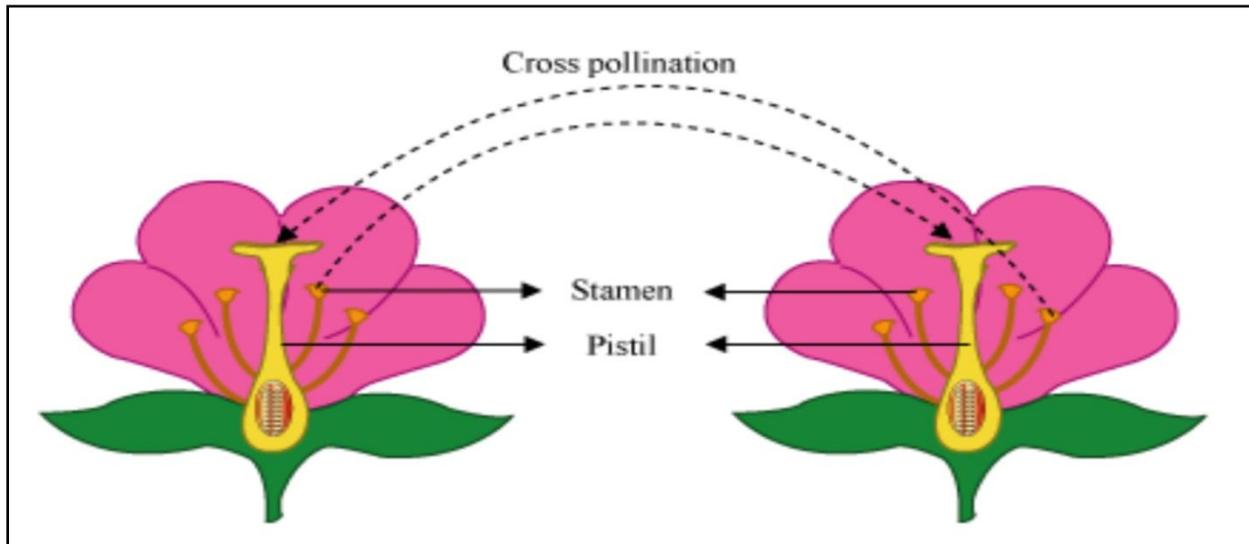
There are two types of pollination:

**Self-Pollination:** This process occurs when the pollen grains from the anther is deposited on the stigma of the same flower, or another flower on the same plant.



**FIG : SELF POLLINATION**

**Cross-Pollination:** This process occurs when the pollen grains are transferred from the anther of one flower into the stigma of another flower of different plants of the same species.



**FIG : CROSS POLLINATION**

- **Agents of Pollination:**

Seeds must be dispersed or spread away from each other and from the parent plant. Below are the most common agents of pollination.

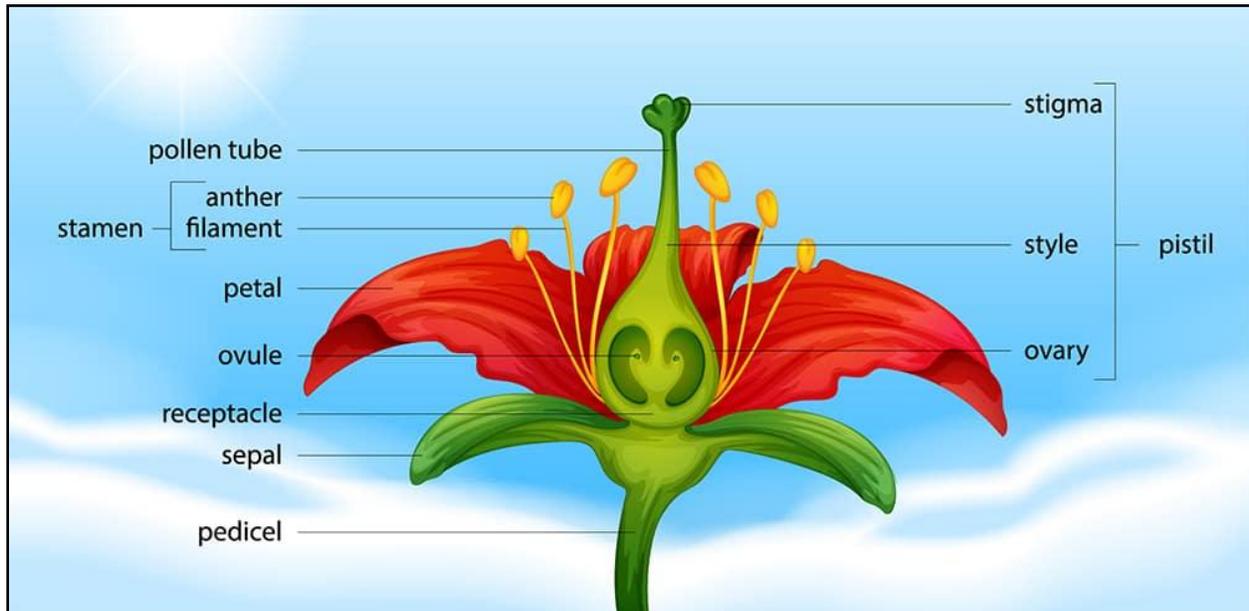
1. **Insects:** Insects like bees, butterflies, moths visit flowers to collect nectar. When they alight on a flower, their bodies get dusted with pollen. When the insect visits another flower, this pollen gets transferred to the stigma. Insect-pollinated flowers are usually coloured, showy and scented with sticky pollen grains and large amounts of nectar.
2. **Wind:** Some plants produce light, dry pollen which gets carried by the wind. When they happen to fall on the stigma of a flower of the same kind, pollination occurs. Example: Maize, wheat, pine. These produce a large amount of pollen because of a high incidence of wastage. Wind-pollinated flowers are usually small, dull coloured but with long feathery anthers to enable pollen to be blown off easily.
3. **Water:** Male flowers get detached from the parent plant and are carried by water to other places. When they come in contact with a female flower, pollination occurs. Example: Vallisneria.
4. **Animals:** Brightly coloured and tasty fruits contain seeds with indigestible coats so that the seeds pass through the animal's digestive system undamaged. Examples: Tomato, plum, raspberry, grape.

- **Structure of flower**

Flower is generally made up of 4 whorls- sepals, petals, stamens (male parts) and carpels or pistils (female parts) [complete flower]. Some plant species may have flowers which are staminate (sepals, petals, stamens only) or pistillate (sepals, petals and carpels only) [incomplete flower].

**Calyx:** It is the outermost whorl of a flower. It comprises units called sepals. In the bud stage calyx, encloses the rest of the flower. They usually exhibit green colouration in some cases they may be a colour like petals. This condition of Calyx is termed as petaloid. Calyx can either be prominent or absent.

**Corolla:** It consists of many numbers of petals and it is the second whorl of the flower. These petals are sometimes fragrant. They are coloured, thin and soft that would help in the process of pollination as they would attract animals and insects.



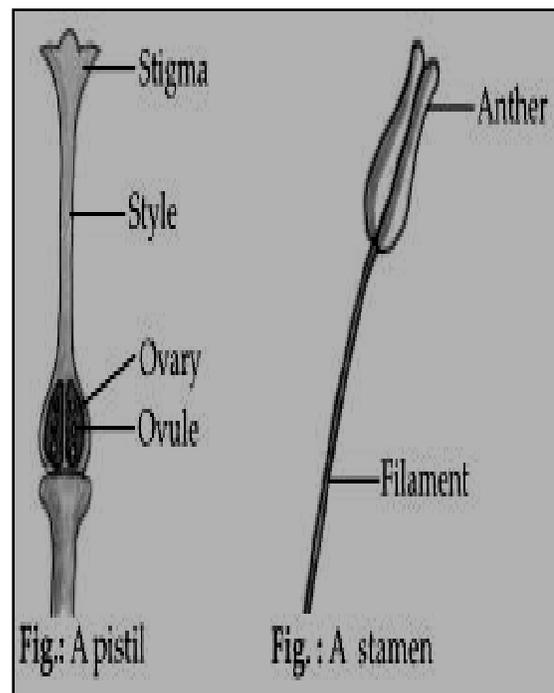
**FIG : PARTS OF FLOWER**

**Androecium:** It is the male reproductive part of a flower, consisting of stamens and it is the third whorl. Each stamen comprises two parts, namely, anther and filament. The tip of the anther is supported by the filament. Here pollens are produced by meiosis and disappear eventually.

- **Anther:** This is a four-lobed sac-like structure responsible for pollen formation.
- **Filaments:** These thread-like structures are attached to the anther and they keep the anther in place.

The transverse section of an anther is microsporangia that further forms a pollen sac. The pollen sac contains pollen grains.

**Gynoecium:** It is the female reproductive organ and the last whorl of the flower. It is composed of pistil or carpel and occupies the central position of the thalamus. The stigma, style, and ovary are the



components of the pistil. The ovary produces ovules internally. Ovules produce megaspores which in turn develops into female gametophytes. As a result egg cells are produced.

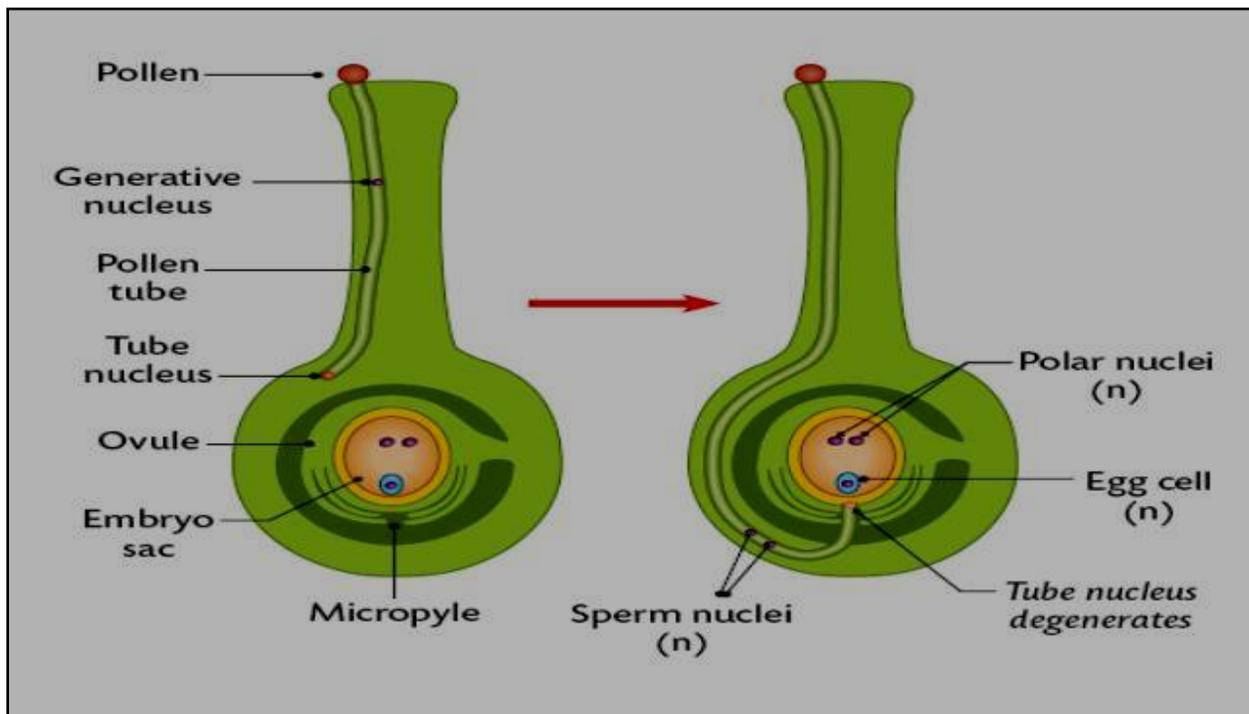
Pistil- Each pistil has three parts:

- **Ovary:** The ovary is a chamber where ovules (eggs) are stored, waiting for fertilization.
- **Stigma:** It is attached to the top of the carpel, where the pollen from other flowers lands.
- **Style:** It is a tubular structure that connects the ovary and the stigma. It is responsible for the transportation of pollen from the stigma to the ovary and holding the stigma in place.

### ➤ Functions of a Flower

- The main primary function of the flower is the reproduction of the individual and the species.
- They are the modifications of a shoot. In Angiosperms ( flowering plant) the flowers are shaped variously to help diverse modes of pollination.
- Flowers provide base germination of pollen, development of pollen tube, the formation of gametes and fertilization. The ovary part of the carpel gets transformed into fruit. The ovules are transformed into seeds after fertilization. The gametophytes also develop inside the spores in a case of heterosporous plants.
- The flowers lack one or the other reproductive organ and called unisexually or imperfect. The various modifications in ovaries help in the dispersal of fruits and seeds in some floral parts like a calyx.

### ➤ Fertilization in Plants



**FIG : FERTILIZATION**

After pollination, the pollens are transferred to the ovary through the pollen tube. **Tube nucleus**, one of the two nuclei produced when the haploid nucleus (n) of a pollen grain divides ( another is generative nucleus). The tube nucleus is thought to control growth of the pollen tube. After fertilization this tube nucleus disintegrates. **Generative nucleus** is one of the two nuclei in a pollen grain (compare tube nucleus). It is divided to produce two **male gamete nuclei**. After reaching the ovary, one of the male gametes mates with the **ovule**, or the female gamete (fertilization) and the other joins with the **polar nuclei** ( formed from female gamete). The male gamete fusing with the egg or ovule produces a **zygote**, which eventually grows to be an **embryo**. The **second male gamete** which fuses with the **polar nuclei** leads to the formation of **endosperm nucleus**, which looks after the nourishment of the embryo. In the end, the fertilized ovules turn into seeds and the ovary itself turns into fruit.

1. The ovule with the fertilised cell develops into a seed. The ovary turns into the fruit while the ovule covering becomes the seed coat. The other parts of the flower now drop off.
2. A ripened ovary is called a fruit
  - Fleshy fruits: The wall of the ovary may be fleshy Examples: Papaya, tomato.
  - Dry fruits: the wall of the ovary may be thin and dry Examples: Maize, peas
  - False fruits: The base of the fruit (thalamus) becomes the edible fleshy part while the ovary remains a small central portion containing seeds. Examples: Apple, pear.
3. The seeds formed from ovules develop into new plants.
4. Dispersal of seeds: The scattering of seeds away from the parent plant by different agents like animals, birds, wind or water is called dispersal. It prevents overcrowding near the parent plant and allows more plants to survive.
5. A zygote is formed as a result of the fusion of gametes which later develops into the embryo. Fruits and seeds are formed post-fertilization. Ripened ovary goes on to become a fruit. Ovules give rise to seeds which contain the embryo in a protective covering.
6. Double fertilization is a process of fertilization characterized by the fusion of a female gametophyte with two male gametes. In this mechanism, one sperm cell fuses with the egg-producing zygote, and the other fuses with the two polar nuclei to make the endosperm. All angiosperm plants undergo double fertilization process.

### ➤ Advantages Of Sexual Reproduction

1. There is diversity in the genetic makeup of the individuals produced by sexual reproduction.
2. Offsprings produced as a result of sexual reproduction are genetically diverse, due to the fusion of male and female gametes (involvement of two parents for the formation of zygote). This genetic diversity generates greater variations in the population. This is not observed in asexual reproduction, as only one parent is involved in producing the offspring.
3. Variations are more successful in sexual mode than in asexual one.
4. The species produced by sexual reproduction survive more than those produced by asexual reproduction. This is because genetic variations help them to adapt to different environments.
5. Sexual reproduction leads to the formation of new species
6. Evolution is possible because of sexual reproduction

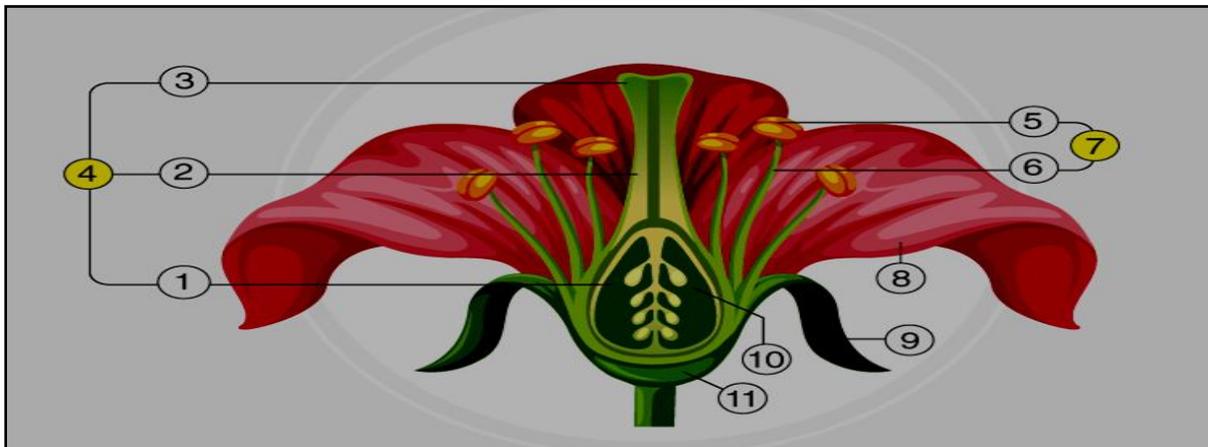
### ➤ Advantages of asexual reproduction

- It requires less energy.
- It can occur in different environments.

- The reproduction process does not require a longer time.
- It requires only a single individual.

### HOMEWORK QUESTIONS :

1. Give location of the following.
  - a) Sepal
  - b) Pollen
  - c) Ovule
  - d) Stamen
  - e) pistil
2. State whether the statements are true or false. Correct the false statements.
  - a) The ovule develops into a fruit.
  - b) Filament is the thread like structure present in pistil.
  - c) Self-Pollination occurs when the pollen grains from the anther is deposited on the stigma of the same flower, or another flower on the same plant.
  - d) The second male gamete fuses with ovule and forms the endosperm.
  - e) Style is a tubular structure that connects the ovary and the pollen tube.
3. The androecium consists of \_\_A\_\_ and the gynoecium consists of \_\_B\_\_. Draw A and B and label different parts.
4. What are the fate of the following parts after fertilization.
  - a) Ovary
  - b) Ovule
  - c) pollen tube
5. Different parts of a flower are shown in the following diagram. Identify 1-11.



- a) Explain Two types of pollination.
- b) Name two non living agents of pollination and explain how do they carry out the same process by example of each.