

# **REPRODUCTION IN ANIMALS**

- Introduction
- Asexual Reproduction

# REPRODUCTION

Reproduction is the **Ability** of the living organisms to **Produce Young Ones Similar To Themselves.**



# REPRODUCTION

It is one of the **Most Important** characteristic of life.



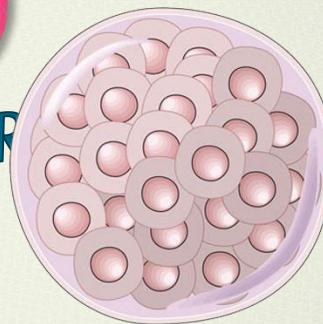
All **PLANTS**, **ANIMALS** and **OTHER LIVING ORGANISMS** are the result of reproduction.

**All living things reproduce.**



# **TYPES OF REPRODUCTION**

**ASEXUAL REPRODUCTION**      **SEXUAL REPRODUCTION**



**Let us first study about  
ASEXUAL REPRODUCTION**

# REPRODUCI

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Y

IMPRESA

Y

EDICIONES

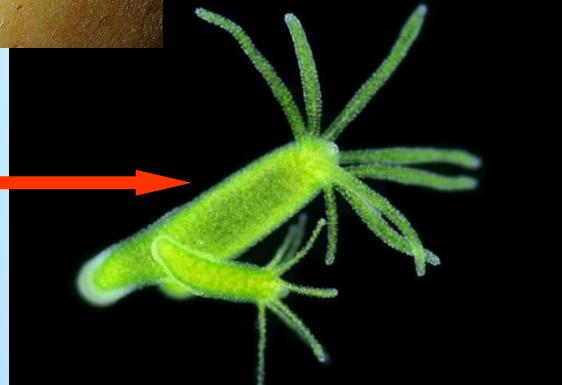
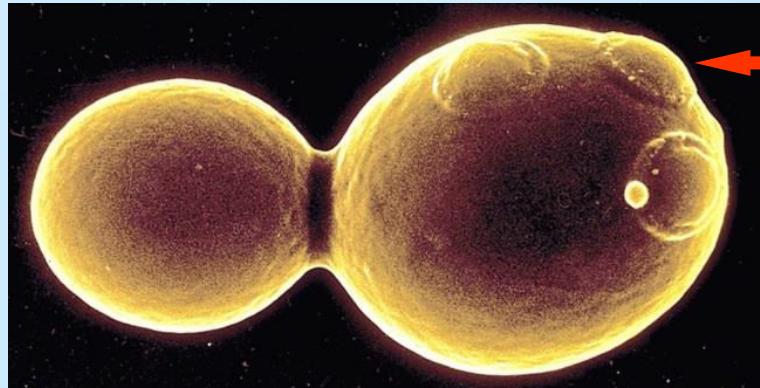
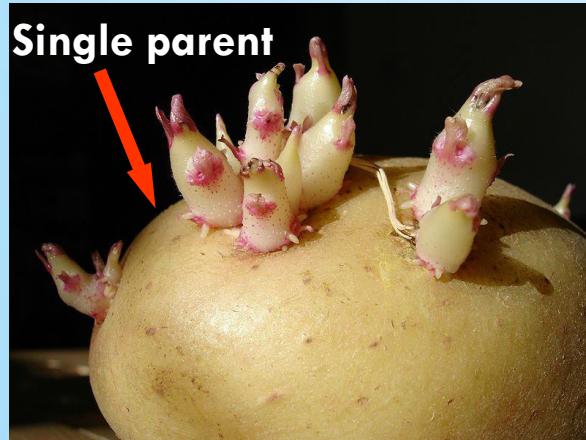
Y

DISTRIBUCIÓN

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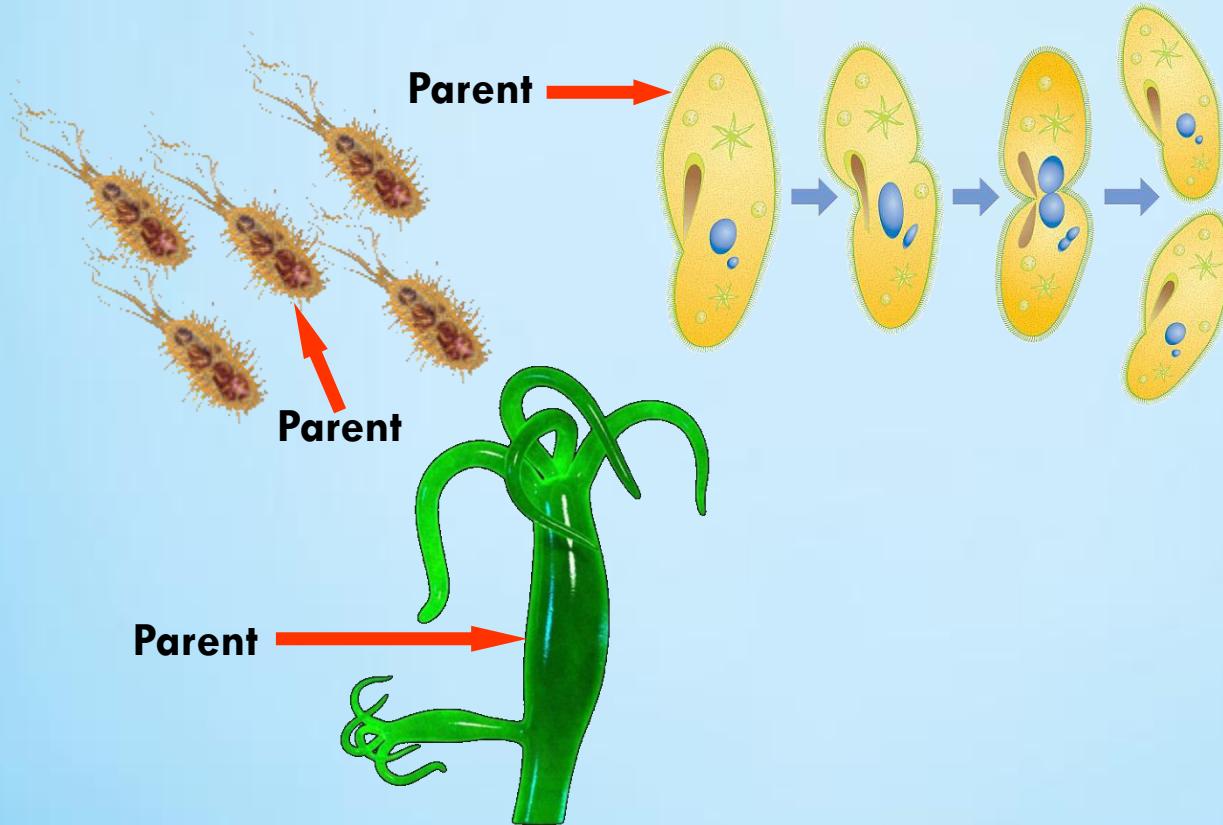
# **ASEXUAL REPRODUCTION**

The production of young ones by a single parent without the formation and fusion of gametes is called **Asexual Reproduction**.



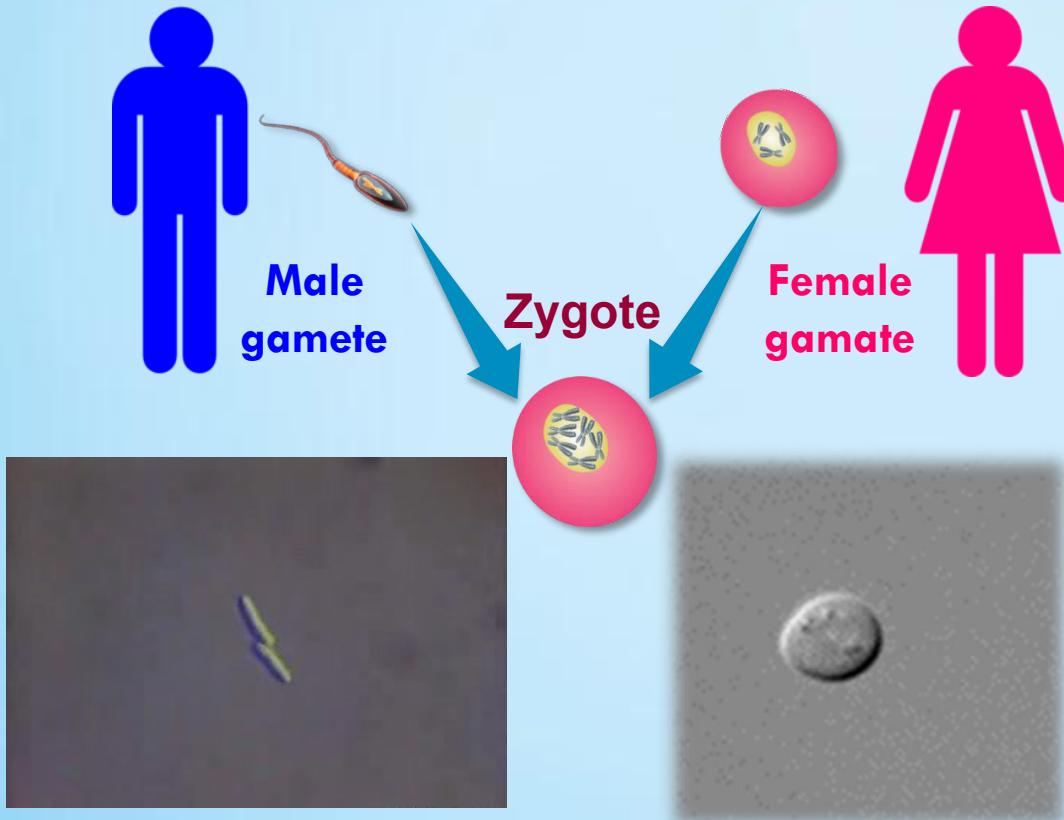
# ASEXUAL REPRODUCTION

New **Individuals** so formed are genetically identical to the **Parent**.



# ASEXUAL REPRODUCTION

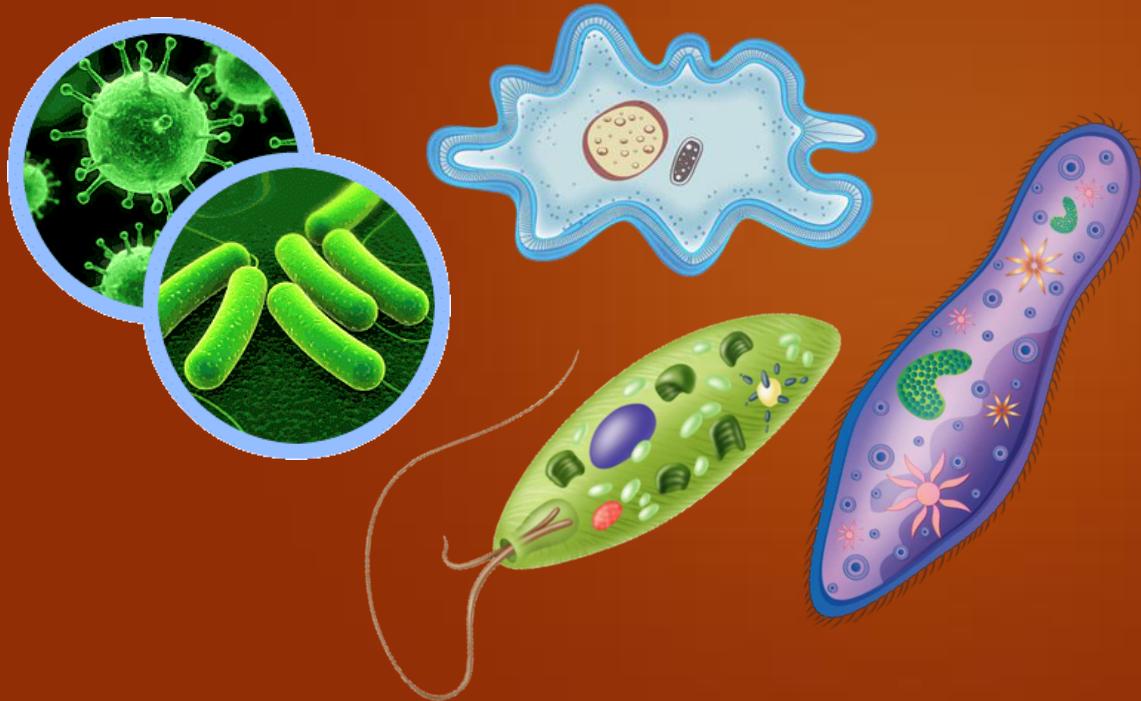
It is **A Primitive** and **A Simpler Method** of reproduction than sexual reproduction.



# **ASEXUAL REPRODUCTION**

## **BINARY FISSION**

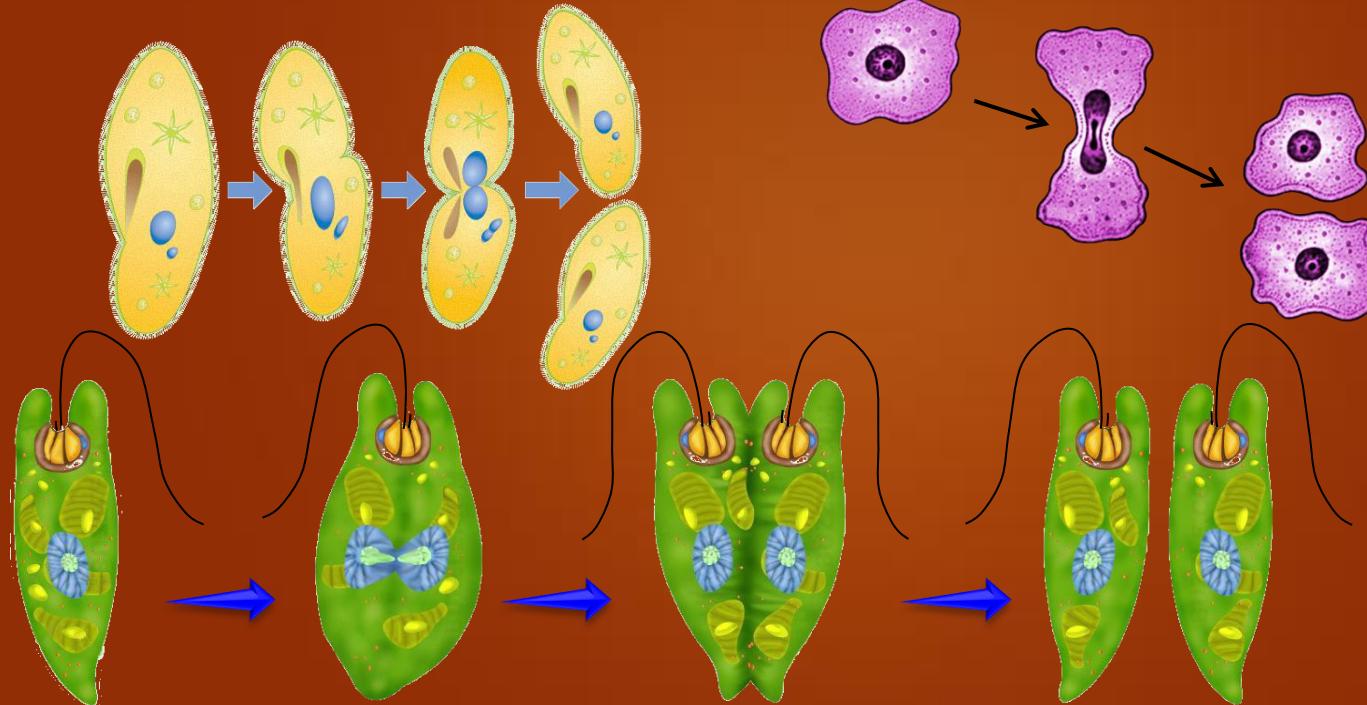
It is usually observed in unicellular organisms, commonly in organisms like *Bacteria*, *Amoeba*, *Paramecium*, *Euglena*.



# **ASEXUAL REPRODUCTION**

## **BINARY FISSION**

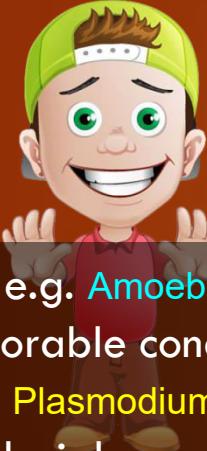
**A parent cell divides into two daughter cells** and each cell thus, formed grows to form an individual.



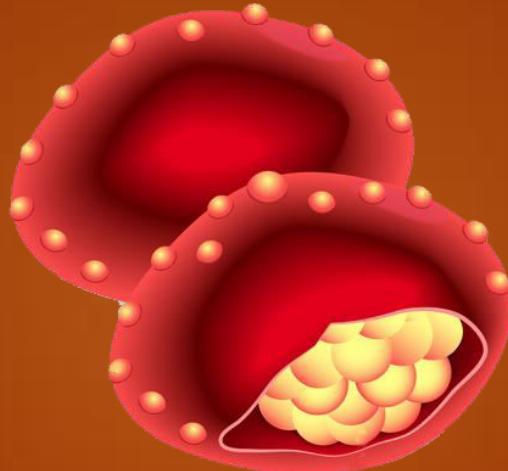
# ASEXUAL REPRODUCTION

## MULTIPLE FISSION

It is the **Repeated Division** of a parent cell into a number of small individuals.



e.g. Amoeba  
(unfavorable conditions),  
Plasmodium  
(malarial parasite).

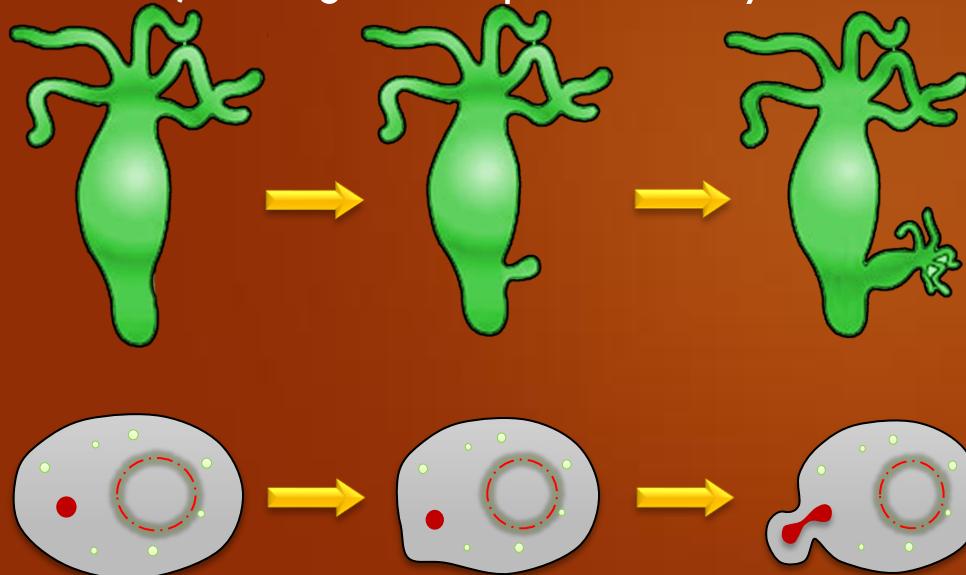


# ASEXUAL REPRODUCTION

## BUDDING

It is seen in **Hydra** and **Yeast**.

The formation of a new individual from a small **Protuberance**,  
the bud, arising on the parent body is called **Budding**.

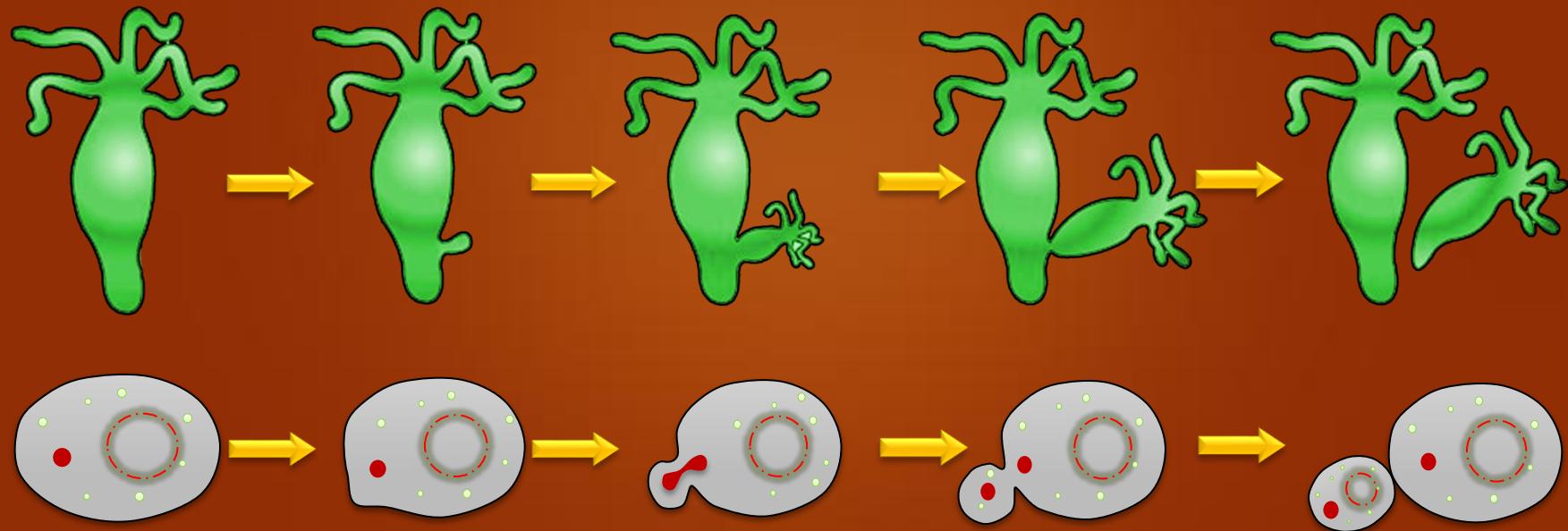


# ASEXUAL REPRODUCTION

## BUDDING

The offspring remains attached to the parent during its growth.

It separates eventually to live as an Independent Organism.



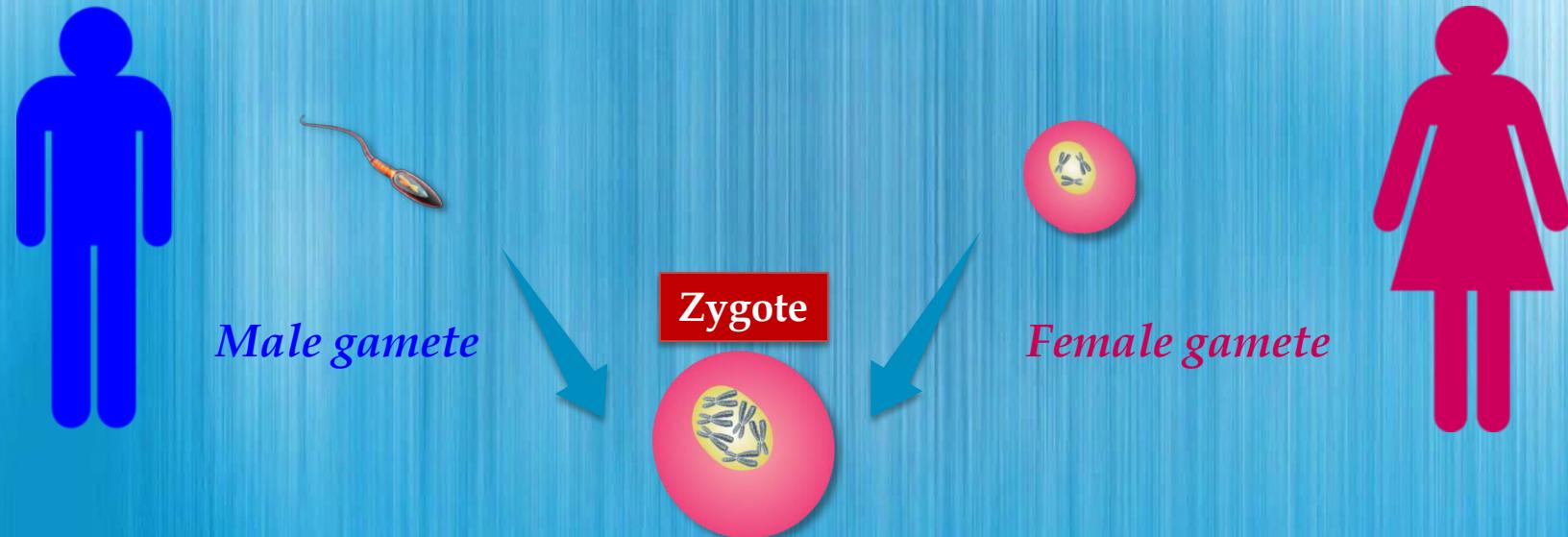
# **REPRODUCTION IN ANIMALS**

- Sexual Reproduction

# REPRODUCTION

# **SEXUAL REPRODUCTION**

Production of young ones by the **Formation** and **Fusion** of special cells called **Gametes**, contributed generally by two parents, male and female is termed as **Sexual Reproduction**.



# SEXUAL REPRODUCTION



OT

# **SEXUAL REPRODUCTION**



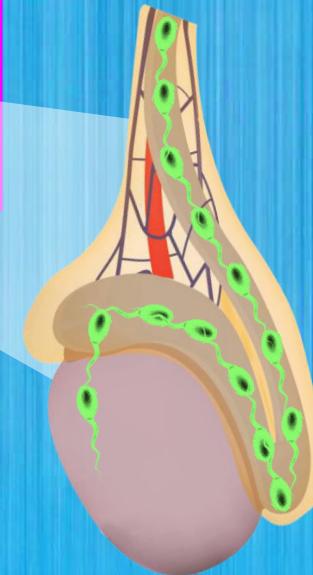
In multicellular organisms, the gametes are produced by the **Reproductive Organs**.



## MALE REPRODUCTIVE



**Male gametes** called **Sperms** are produced in male reproductive organ.



## FEMALE REPRODUCTIVE



**Female gametes** called the **eggs** or **ova** are produced by female reproductive organ.



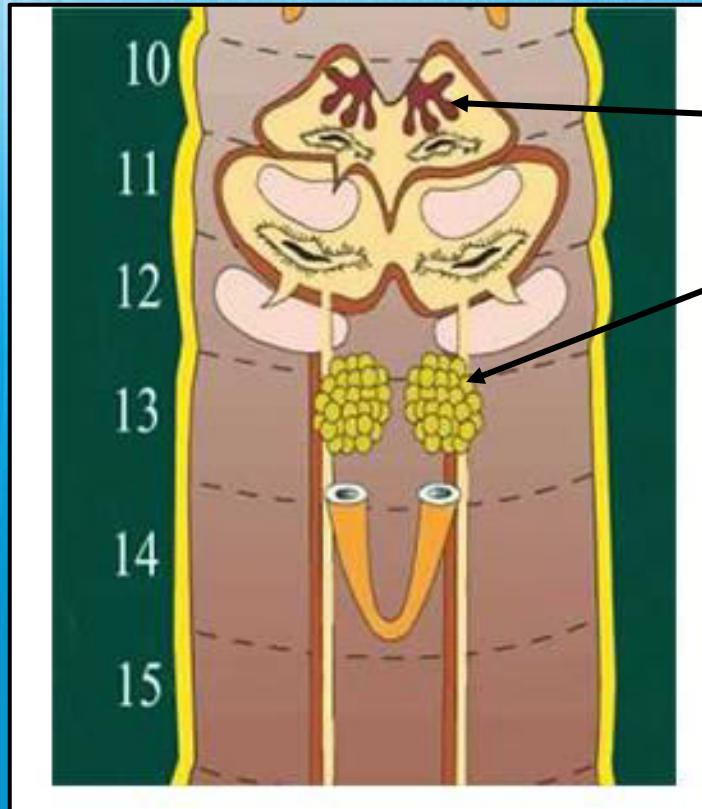
**Sperm** and **Ovum** unite to form

A single cell called the '**Fertilized egg**' or '**Zygote**'

**Zygote** then develops into an **Offspring**.



In some cases, like that of **EARTHWORM**,  
It is called as '**HERMAPHRODITE**'  
Same individual produces **BOTH** types of **GAMETES**.



• **Male Reproductive Organ**

• **Female Reproductive Organ**



# DO YOU KNOW?

**Parthenogenesis** is a form of asexual reproduction in which females produce **Eggs** that develop **Without Fertilization**.

And in many plants like  
**Pineapple, Grapes, Banana**





In many social insects, such as the honeybee and the ant

Male



Queen



The **Fertilized Eggs** to the female **Workers** and **Queen**



# DO YOU KNOW?

A Rabbit can produce 10-30 offsprings per year and  
Fruit Fly can produce 900 offsprings per year.

Animals with **Few Offsprings** can devote more **Resources** to  
the **Nurturing** and **Protection** of each individual offspring.



# **REPRODUCTION IN ANIMALS**

- Reproductive Patterns

# **REPRODUCTIVE PATTERNS**

The animals are of **3 types** on the basis  
of the sites of their  
**Fertilization and Development.**

**1**  
**External Fertilization  
and  
External Development**

**2**  
**Internal Fertilization  
and  
External Development**

**3**  
**Internal Fertilization  
and  
Internal Development**



Where Fertilization Occurs  
Zygotes Develop Into Offspring

Tadpole



External Fertilization  
and  
External Development



Male and Female must **Shed Their  
Gametes at the Same Time and Place**  
and in **Large Numbers**.



**External Fertilization  
and  
External Development**

# **REPRODUCTIVE PATTERNS**

The animals are of **3 types** on the basis  
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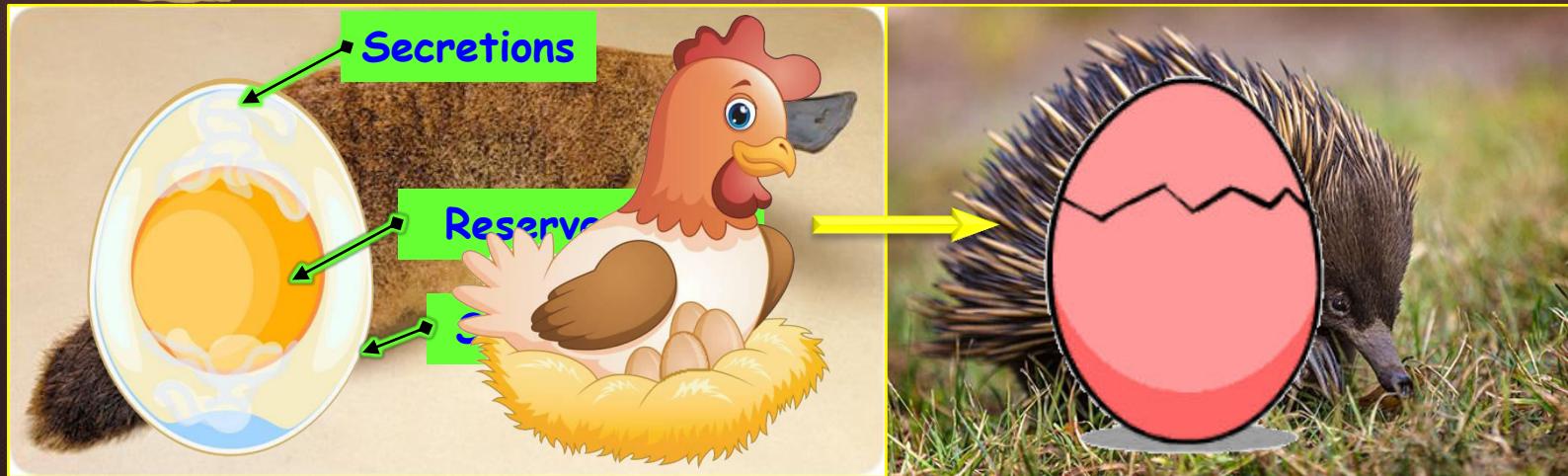
**1**  
**External Fertilization  
and  
External Development**

**2**  
**Internal Fertilization  
and  
External Development**

**3**  
**Internal Fertilization  
and  
Internal Development**



The **Zygote**, after its formation, is surrounded by some **Secretions**, **Reserve Food** and even a **Shell** for the development of the chick, takes place a **development** and **Protection** of the growing **Embryo**.



# **REPRODUCTIVE PATTERNS**

The animals are of **3 types** on the basis  
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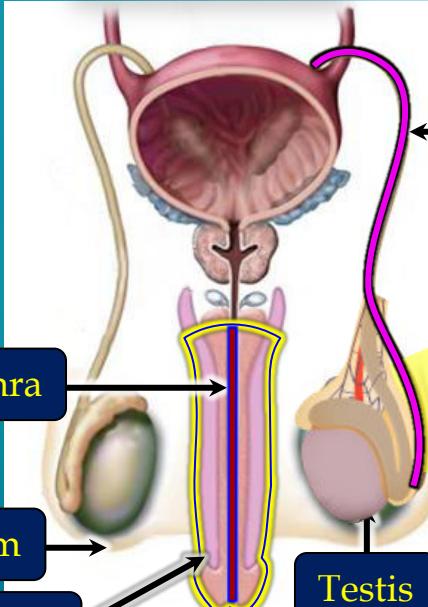


# **REPRODUCTION IN ANIMALS**

- Reproductive System

# **R**Male Reproductive System**M**

## **It includes**



The Penis conducts Urine as well as Semen, ethra,  
Let us now study

# Which is more productive? Outsourcing

**But the two cannot pass through it at the same time.**

## **Fluid which contains SPERMS**



## **Sperms develop in testis**

## Structure of Sperm

Sperm Cell has Three Parts.

The tip of the head produces ENZYMES.

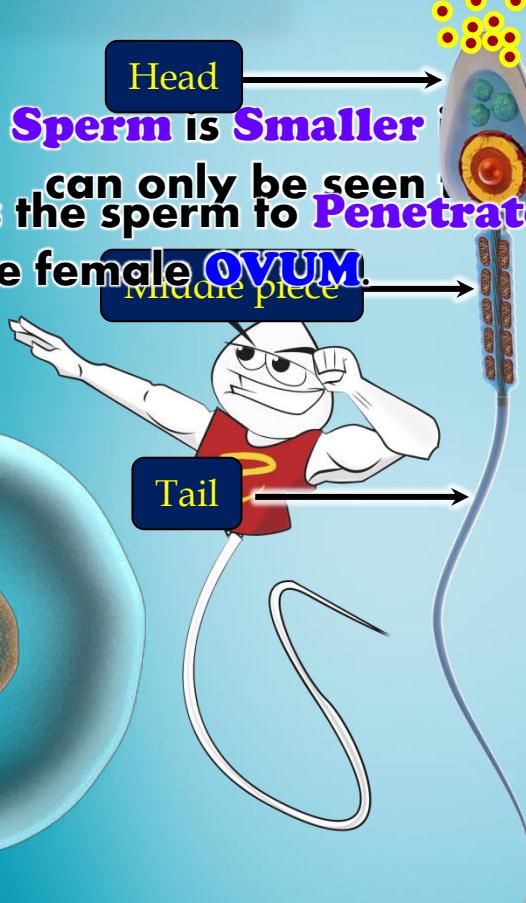
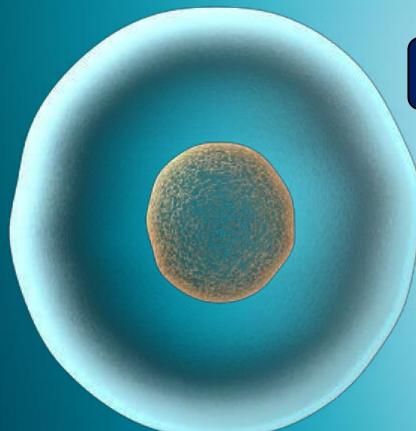
size than the Ovum and Enzymes

A Sperm is Smaller  
can only be seen  
That helps the sperm to Penetrate  
the female OVUM.

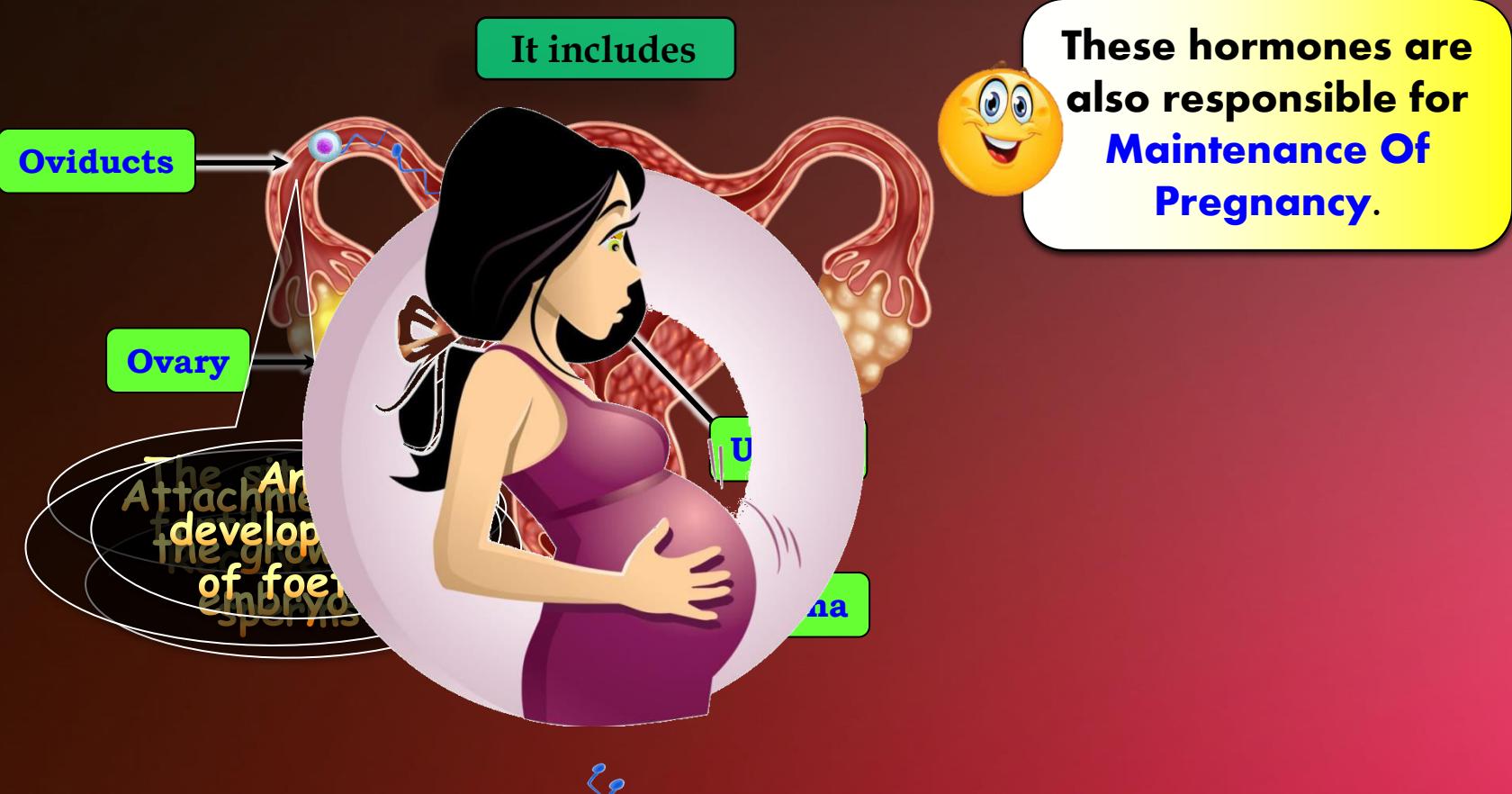
Head

Middle piece

Tail



# Female Reproductive System

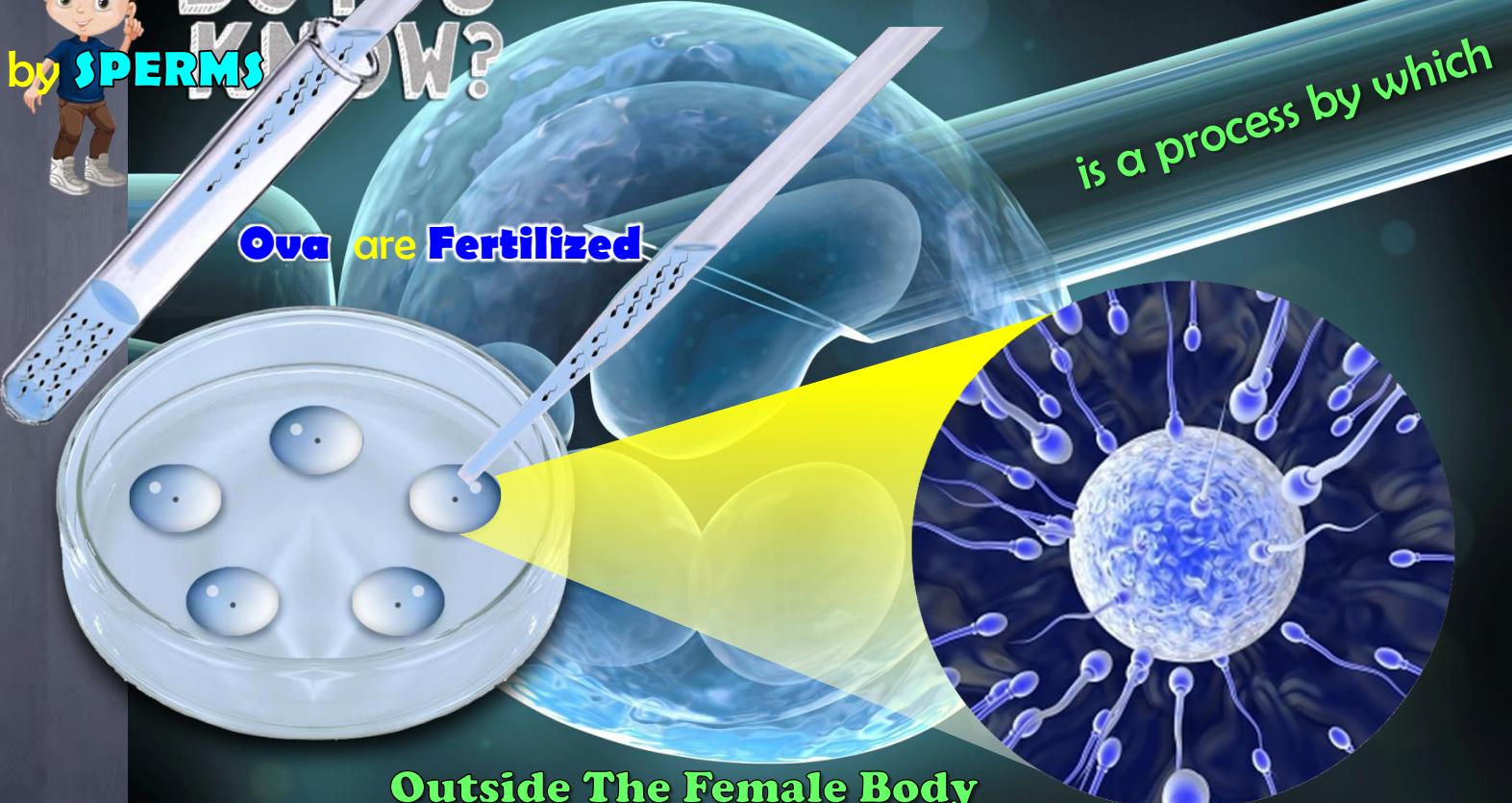




DO YOU  
KNOW?

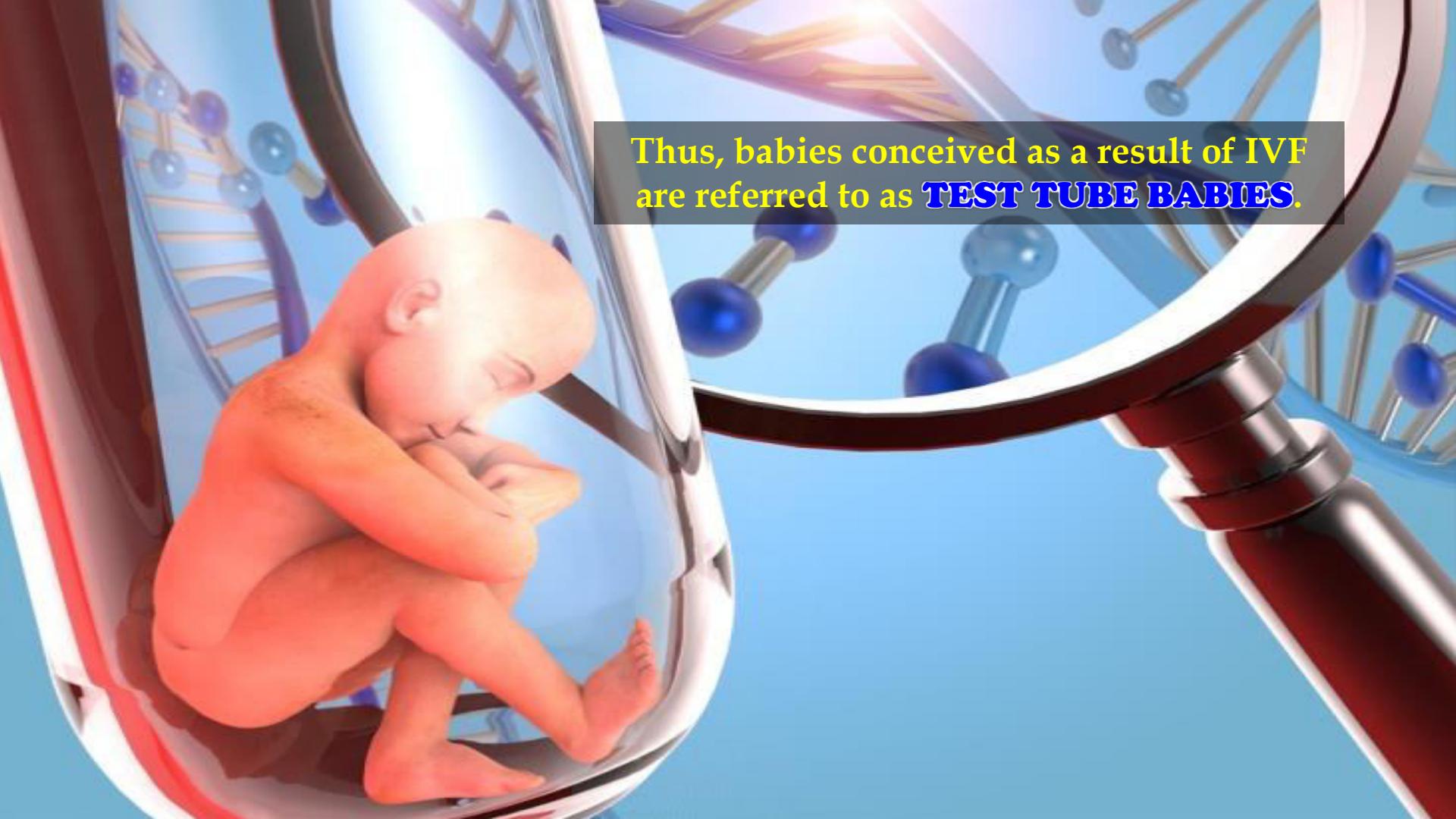
by SPERMS

## Invitro Fertilization (IVF)





With an intent to establish  
a **SUCCESSFUL PREGNANCY.**



Thus, babies conceived as a result of IVF  
are referred to as **TEST TUBE BABIES**.

# **REPRODUCTION IN ANIMALS**

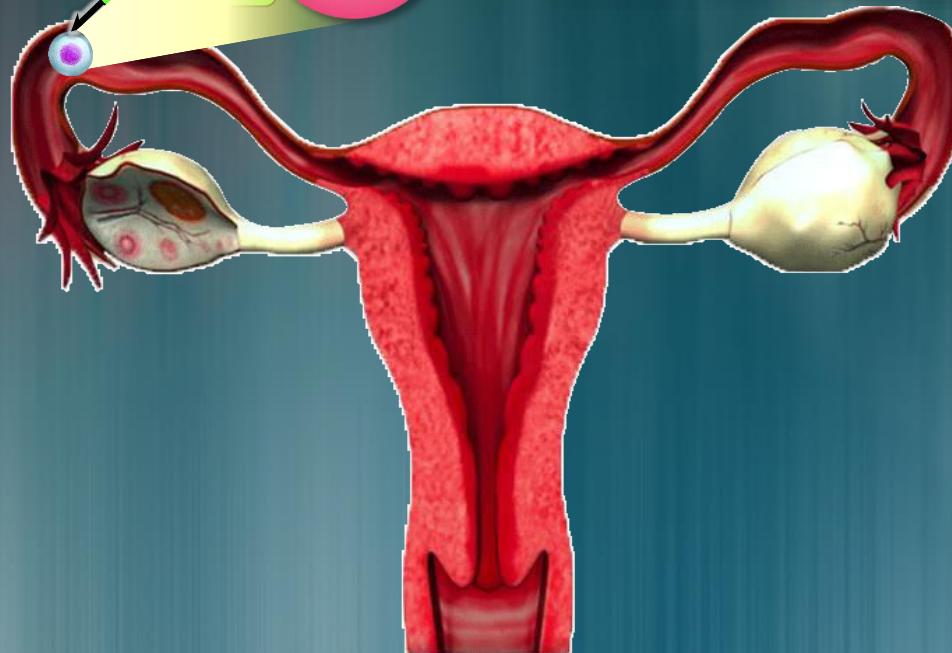
- How Does Fertilization Take Place ?
- Development Of The Embryo

# How does Fertilization take place ?



Fert

And hence, **The Child Has Characteristics Of Both Father And Mother.**



# DEVELOPMENT OF THE EMBRYO



This embryo, makes it's way to the **Uterus (Womb)** and plants itself in the lining of the uterus and **continues**   
**Dividing Into Many New Cells** so on.

# DEVELOPMENT OF THE EMBRYO



This embryo gradually develops body parts,  
A **FOETUS**.

The foetus when born  
is called an **INFANT**.





They can be both **Brothers** or **Sisters**

**OR**

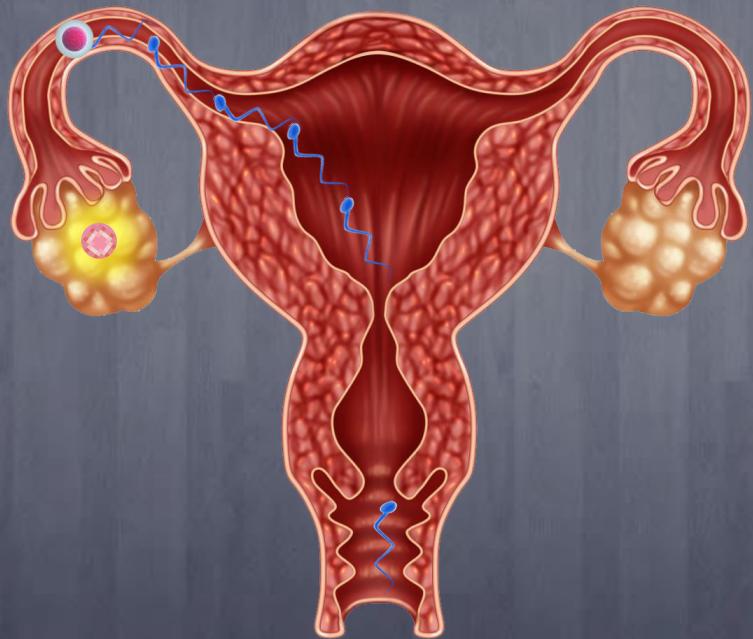
**Brother** and **Sister**.

it the  
lized.





# DO YOU KNOW?



**One Sperm Can Fertilize  
Only One Ovum**



Because they have same  
set of **GENES**.

Structures in  
**Nucleus** responsible  
for **Characteristics**.

# **REPRODUCTION IN ANIMALS**

- How Do Hens Lay Eggs?
- Viviparous And Oviparous Animals

If the shell is made of **CALCITE** protective layers and it is deposited around the egg in the lower

Part Of The Ovid Crystalline form of it is laid.  
Calcium Carbonate



# HOW DO HENS LAY EGGS?

Then the egg shell is broken temperature that is  
and the chick comes outting On These



20 Days

# **VIVIPAROUS AND OVIPAROUS ANIMALS**



**Now you already know about external  
and internal development of the young  
ones in different animals.**

# VIVIPAROUS AND OVIPLACENT ANIMALS

**Viviparous animals** (vivus = alive)

Are those animals whose females give birth to young ones. This is a characteristic that distinguishes mammals from other groups.



# VIVIPAROUS AND OVIPLACENT ANIMALS

## Oviparous animals (ova = egg)

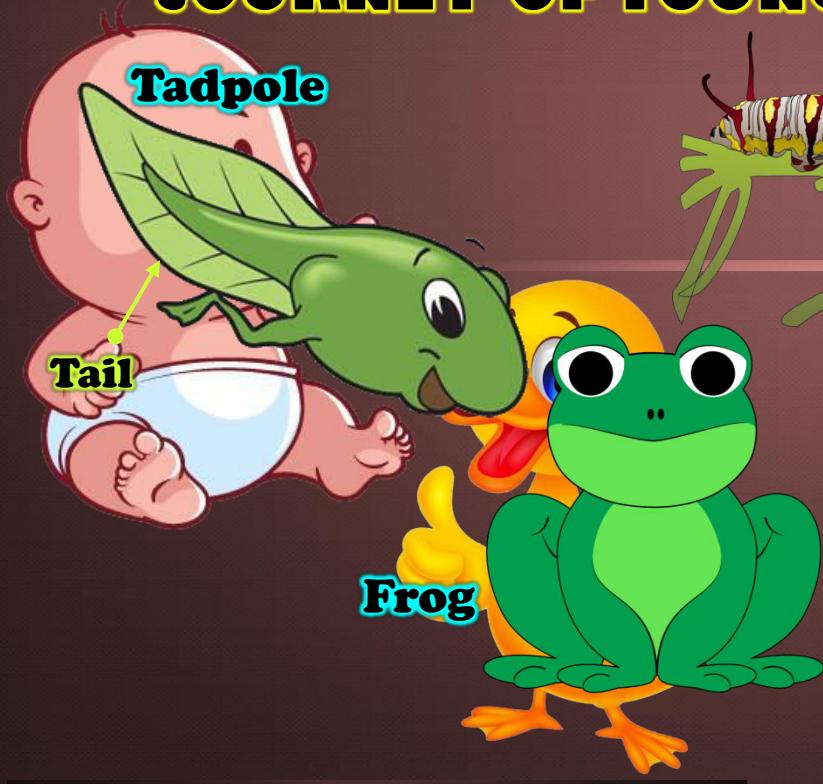
Are animals that lay eggs, with little or no other embryonic development within the mother. This is seen in most fish, amphibians, reptiles, birds and insects.



# **REPRODUCTION IN ANIMALS**

- Journey Of Young Ones To Adults
- Story Of Dolly, The Clone

# JOURNEY OF YOUNG ONES TO ADULTS



There are a number of features in the adults that are not present in the tadpole or at larval stage.



# JOURNEY OF YOUNG ONES TO ADULTS

Tadpole



Tail



Caterpillar

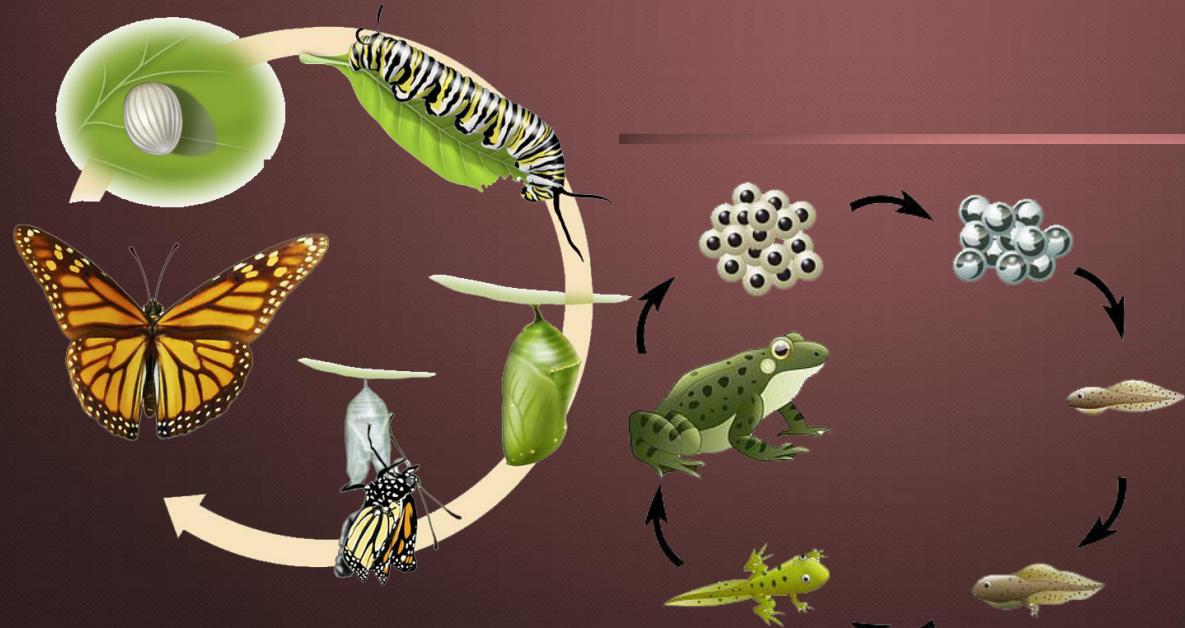


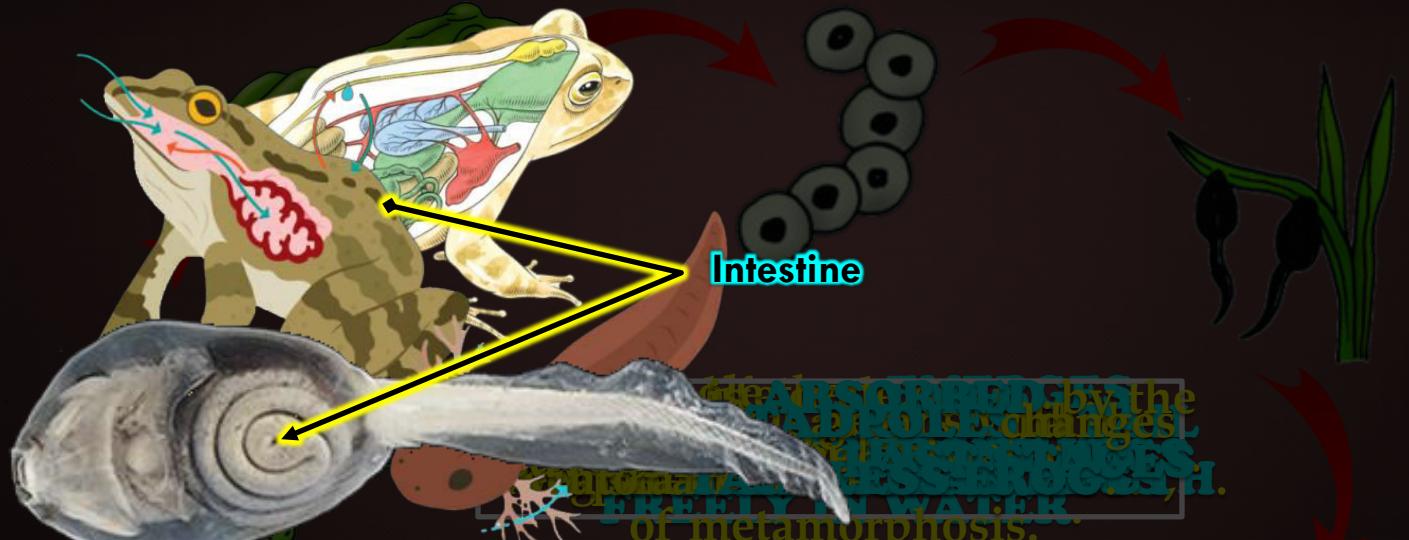
Butterfly

There are a number of features in the adults that are not present in the tadpole or at larval stage.



# JOURNEY OF YOUNG ONES TO ADULTS

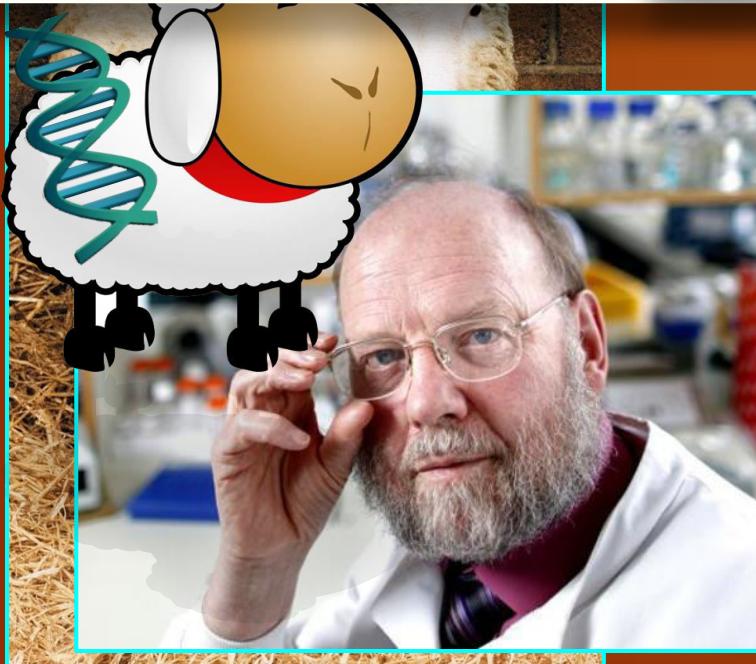




The lungs develop, tens the tadpole begins to swim to the carnivorous diet water to breathe.

**Ian Wilmut** and his colleagues successfully performed cloning for the first time in 1996 at the Roslin Institute in Edinburgh, Scotland.

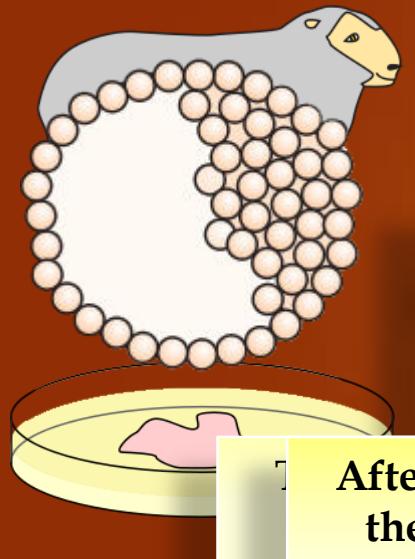
**Dolly** the cloned sheep was born on **5th July, 1996** and was the **First Mammal** to be cloned.



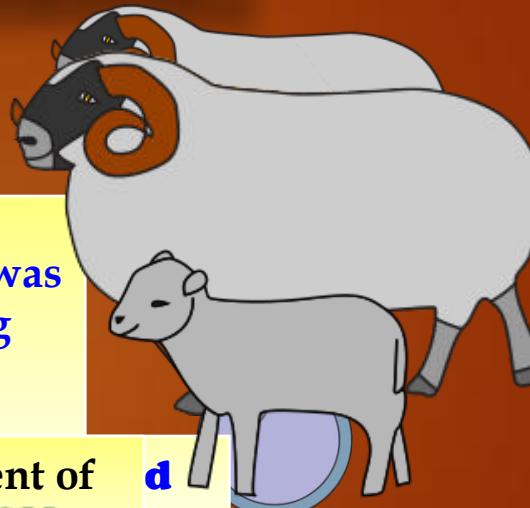
## DOLLY, THE CLONE

# STORY OF DOLLY, THE CLONE

## Process of cloning Dolly



The Nucleus  
Mammary Gland cell was inserted into the egg whose nucleus was removed.



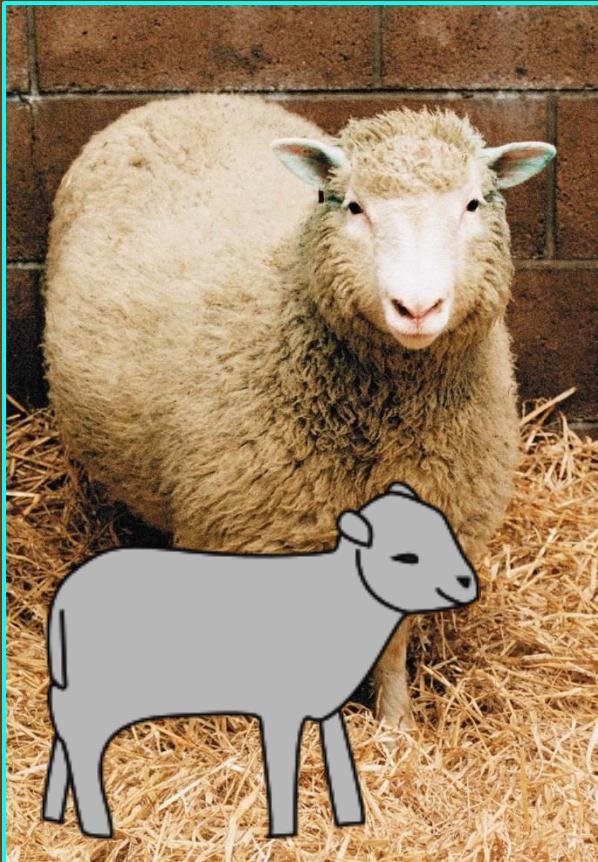
After the normal development of the egg, **DOLLY WAS BORN.**

**Cell** was collected from the of female **Finn Dorsett** She



has obtained from a **Scottish blackface** Nucleus of Mammary Gland from which **Nucleus Was Removed.**

# STORY OF DOLLY, THE CLONE



Though **Dolly** was given **Birth** by the **Scottish Blackface Ewe**, it was found to be absolutely **Identical** to the **Finn Dorsett** Sheep from which the nucleus was taken.

**Dolly** was a **Healthy Clone** of the **Finn Dorsett** sheep.

Unfortunately, Dolly **Died** on **14th February 2003** due to a certain **Lung Disease**.

# Thank You