

# BIOLOGY

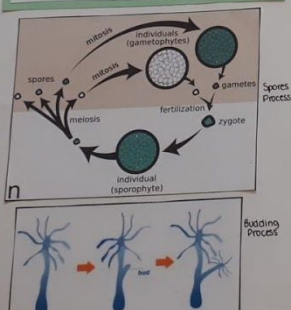
## How do cells multiply?

Cells multiply by dividing. A single cell divides to make 2 cells and then those 2 divide, creating 4 cells, and so on and so on. This process is called "cell division" and "cell reproduction". We call it this because when old cells divide, new cells are formed. The ability for the cells to be able to divide and multiply is actually unique for living organisms.



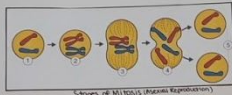
## Forms of asexual reproduction:

There are 5 main forms of asexual reproduction: budding, grafting, spores, fission, and cloning. Budding is when, as a result of cell division, a new organism develops from an outgrowth or bud. Grafting is a technique (horticultural) where tissues of plants are joined so they can continue their growth together. Spores are a type of asexual reproduction that can handle typically unwanted environmental conditions. They tend to form things like algae and fungi. Fission is the most common form of asexual reproduction. It is found in things such as bacteria. It happens when the fully grown parent splits into 2, creating 2 "pods". Finally, cloning is when a cell duplicates identically.



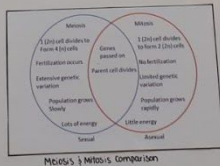
## Asexual Reproduction:

Asexual reproduction is a specific type of reproduction that does not involve a change in the number or chromosomes of the fusion of gametes. The offspring that are a result of asexual reproduction inherit the genes of their parent. Asexual reproduction is simply just mitosis. One cell becomes 2 identical ones.



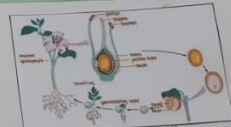
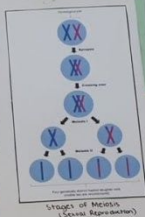
## What are the advantages and disadvantages of sexual and asexual reproduction?

Asexual reproduction is faster because it only requires one parent whereas sexual reproduction requires two who have to mate. Sexual reproduction can take as long as many months, but asexual reproduction happens very quickly. Needing only one parent uses less energy but needing two allows variation and is more protected. With asexual reproduction, if the singular parent has a genetic disease it is guaranteed that the offspring will too.



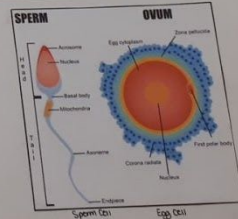
## Sexual Reproduction:

Sexual reproduction is when you combine genetic information from two individuals of different types to produce new living organisms. The process leading up to this is called Meiosis. Meiosis does not make body cells. It makes sperm and egg cells that are otherwise known as "gametes". In plants, sexual reproduction involves the fusion of gametes that ultimately result in an offspring that is genetically different from the parents.



## Sexual Reproduction in Humans:

Though it is very similar to sexual reproduction in plants, sexual reproduction in humans has some differences. For human reproduction to occur, the sperm cell and the egg cell have to come together. Most of human's body cells have 46 chromosomes. Though, some cells, such as sperm and egg cells, do not have 46 chromosomes; instead they have 23. When these 2 cells each consisting of 23 chromosomes combine, they allow for a newly formed fertilized egg. This fertilized egg can now develop into a human.



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