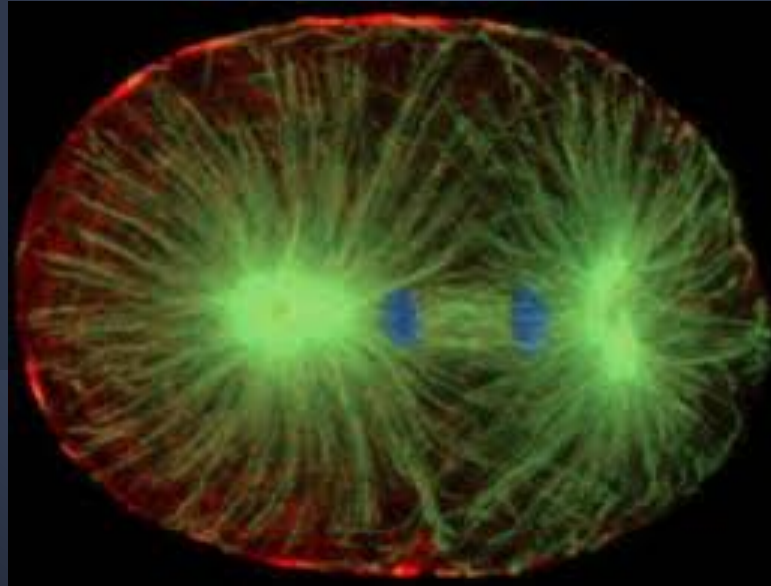


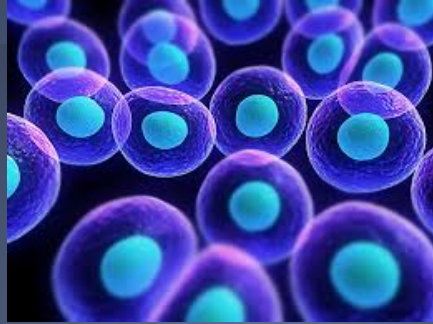
# Cell Division and Mitosis



# What do they have in common?



They are all made of cells, trillions of cells.



Where did all those cells come from?



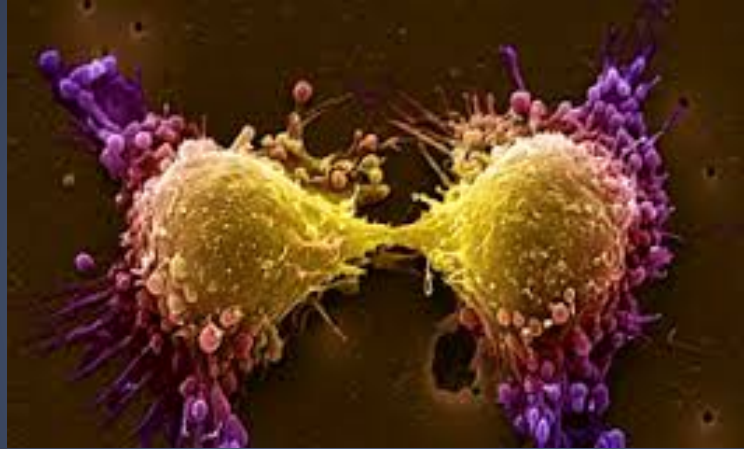
Many - celled organisms, including you, grow because cell division increases the total number of cells in an organism.



Even after growth stops, cell division is still important. For example, your body replacing red blood cells is a result of bone marrow cell division.



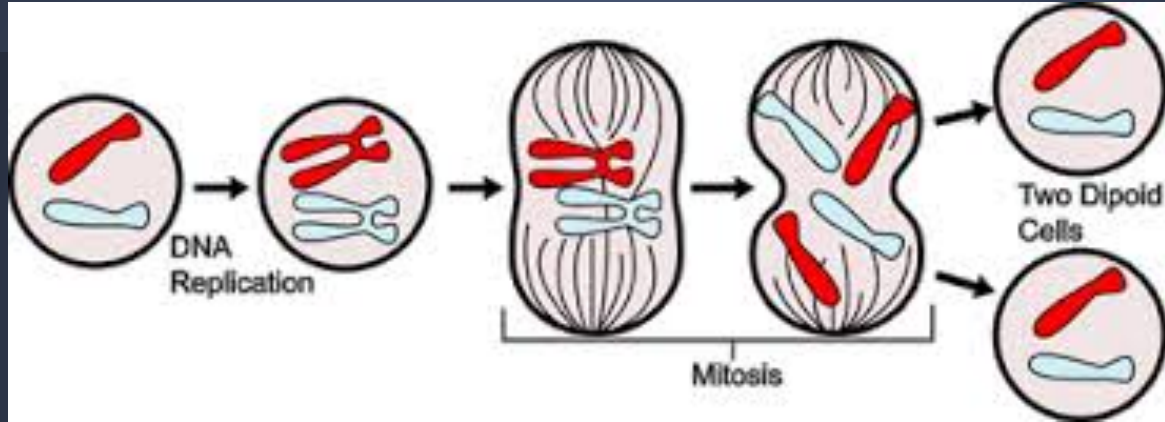
Cell division isn't as simple as just cutting the cell in half, so how do cells divide?



If a cell undergoes cell division every 5 minutes, how many cells will there be after 1 hour?

60 min divided by 5 min = 12 cell divisions;  $2^{12} = 4,096$  cells

# Mitosis:



Things to remember:

1. Is the division of a nucleus.
2. Produces two new nuclei that are identical to each other and the original nucleus.

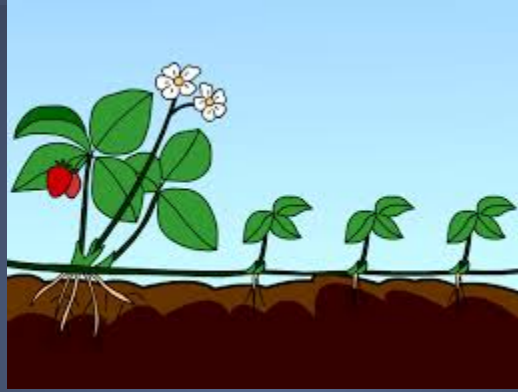
Overall, cell division and mitosis are important because it allows cell growth and replaces worn out or damaged cells.

Another way some organisms use cell division is to produce new organisms.

## Asexual Reproduction



# Asexual Reproduction



Things to remember:

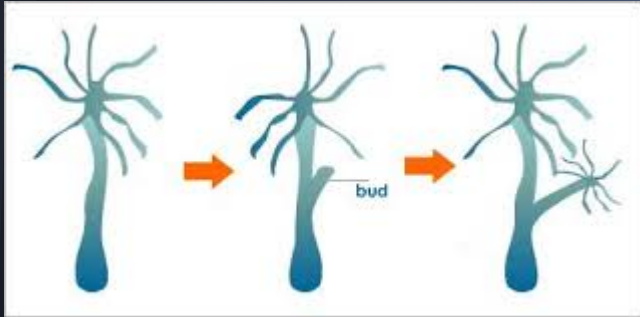
1. A new organism is produced from one organism.
2. The new organism will have hereditary material identical to the hereditary material of the parent.

Advantages

Disadvantages

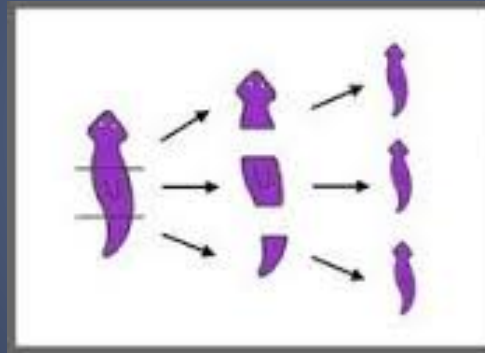
Some organisms use cell division for budding and regeneration.

## Budding



# Regeneration

Is the process that uses cell division to regrow body parts.



If these organisms break into pieces, a whole new organisms will grow from each piece.

# Homework

1. What is Cloning?
2. Give an example of an organism scientist have been able to successfully clone.
3. Do you think cloning is ethically right? Explain your answer.