Chapter 6 Biology

Reproduction

Reproduction is important for all living things it can happen into two ways

Sexual reproduction- makes genetically different cells

- **Sexual reproduction is when genetic information from two parents ,one father and a mother, mix is together**
- **This makes a baby that is genetically different from the parents**
- **In sexual reproduction the mother and father make gametes by meiosis**
- **In animals these gametes are eggs cells and sperm cells**
- **In humans each gamete has 23 chromosomes which is half the number in a normal cell**
- **Normal cells have pairs of chromosomes but gametes have only one of each**
- **When the egg and sperm join together the new cell has the full number of chromosomes**
- **Half come from the mother and half come from the father**
- **Sexual reproduction involves fusion of male and female gametes**

- Because there are two parents the offspring gets the mixture of genes
- This is why the baby gets features from both parents
- The mixture of genetic information causes the variation in the offspring
- Flowering plants also reproduce sexually
- they have egg cells and their sperm is called pollen

Asexual reproduction

- In asexual reproduction there is only one parent
- the offspring is genetically identical to the parent
- Asexual reproduction It happens by Mitosis, Where one ordinary cells divide into two
- the new cell has the same genes as the parent
- it is called a clone

In asexual reproduction

- There is one parent
- no gametes
- no joining of cell
- no mixing of chromosomes
- no genetic differences between parent and offspring

- Bacteria, some plants and some animals reproduce asexual

Meiosis

- Gametes have half the number of chromosomes so when they join the normal number is restored
- To make cell divide by meiosis
- meiosis has two divisions

in humans meiosis happen only in reproductive organs

- Ovaries (Female)
- testes (Male)

before meiosis starts

- The cell copies its Genetics information
- each chromosome has now two arms and both arms are identical
- chromosomes line up in pairs

First division

- Chromosome pairs line up in the centre of the cell
- The pairs are pulled apart
- Each new cell gets one chromosome from each pair
- Some chromosomes come from the father and some from the mother

Second division

- **Chromosomes line up again**
- **the arms of each chromosome are pulled apart**

Result

- **Four gametes are formed**
- **Each gametes has one set of chromosomes**
- **Each gametes is genetically different because chromosomes are mixed and separated randomly**

After fertilisation

- **When two game eats join the new cell divides by mitosis to make a copy**
- **mitosis keeps happening to make many cells in the embryo**
- **as the embryo grows the cell differentiate into different specialized cells**