

long threads called **chromosomes**. Each gene is a set of instructions for the cell. The gene tells the cell how to make a particular substance.

For example, one gene contains the information for making brown hair. As we grow, our cells divide to make more and more cells. Each time a cell divides, a complete set of chromosomes and genes is passed on to the new cell. But how does the first cell come into being? The first cell was zygote, it was formed when the female gamete from the mother's egg fuses with male gamete in the father's sperm cell. The egg cell contained genes from the mother and the sperm cell contained genes from the father, hence exactly half of the chromosomes and genes come from each of the parents. Every cell in a human body has 46 chromosomes, 23 from male parents and 23 from female parents. So the genes are a mixture of those from our mother and father.

- **What is Selective Breeding?**

In selective breeding people choose organisms from a population of organisms that shows variations. They choose the organisms with characteristics that they themselves want, they let those individuals breed and hence the individuals pass on their genes and characteristics to their offspring forming an organism with the required characteristics and features.

- **What is Natural Selection?**

In natural breeding, there are variations among the individuals belonging to the population of organisms. Individuals that have characteristics that provide the best adaptations to their habitat are more likely to survive. Only the individuals with best adaptations survive to breed. These individuals pass on their unique features and characteristics to their offspring.

- **Natural Selection in real life.**

It often happens that we are recommended antibiotics to cure diseases caused by bacteria. Have you ever noticed that when antibiotics are taken for a long time, the bacteria becomes resistant towards the antibiotics. This is because the bacteria develop features and characteristics to adapt to its environment, which is the presence of antibiotics. When the bacteria becomes resistant, antibiotics are unable to cure the disease.