Fertilization takes place as the female egg, carrying 23 chromosomes, unites with the male sperm, also carrying 23 chromosomes.

A zygote - a single fertilized cell with 46 chromosomes (23 pairs) - is formed.

As Mitosis - production of somatic cells - takes place, that single fertilized egg becomes an individual made up of approximately 100,000 billion cells differentiated into approximately 200 distinct cell types that vary greatly in size, shape, and function.

And - barring any mistakes (e.g., mutations) - all of those somatic cells that contain chromosomes have exactly the same 23 pairs of chromosomes as the original zygote.

Protein synthesis - manufacture of proteins - takes place in each cell, directed by instructions (genes) encoded in the DNA of the chromosomes. Since the DNA directs the production of specific proteins, and since the specific proteins present determine the characteristics of each individual organism, the specific traits - as well as the specific type of organism present - is established by the DNA of the chromosomes.

At puberty Meiosis - production of gametes or cells - begins. Meiosis starts with a cell with 46 chromosomes (23 pairs), involves 2 cell divisions, and results in gametes with 23 chromosomes: 22 autosomes and 1 sex chromosome.