

- Found in the nucleus of a cell, in the chromosomes
- Except for identical twins, each person's DNA is unique. This is why people can be identified using DNA fingerprinting.

- **Gene**

- A small section of DNA that determines a particular feature.
- Genes determine features by instructing cells to produce particular proteins which then lead to the development of the feature
- Also be described as a section of DNA that codes for a particular protein

- **Gene mutations-** a mutation is the change in the DNA of a cell. It can happen in individual genes or in whole chromosomes.

- **Alleles**

- A single gene controls some characteristics, such as eye colour and the shape of the earlobe. These genes may have different forms.
- Different forms of the same gene are called alleles (pronounced al-eels).
- *Alleles are dominant or recessive:*
- The characteristic controlled by a dominant allele develops if the allele is present on one or both chromosomes in a pair
- The characteristic controlled by a recessive allele develops only if the allele is present on both chromosomes in a pair

- **Continuous Variation**

- Human height is an example of continuous variation.
- Height ranges from that of the shortest person in the world to that of the tallest person. Any height is possible between these values. So this is continuous variation.
- For any species a characteristic that changes gradually over a range of values shows continuous variation. Examples of such characteristics are height, weight and foot length.

- **Discontinuous Variation**

- Human blood group is an example of discontinuous variation.
- There are only four types of blood group.
- There are no other possibilities and there are no values in between. So this is discontinuous variation.
- A characteristic of any species with only a limited number of possible values shows discontinuous variation.
- Here are some examples of discontinuous variation:
Gender (male or female)
Blood group (A, B, AB or O)
Eye color.

- **8 life processes which are common to most living things. Organisms:**

1. *Require nutrition* – either they make their own food, as in plants, or eat other organisms as animals do
2. *Excrete* – get rid of toxic waste products
3. *Move* – by the action of muscles in animals and slow growth movements in plants
4. *Grow and develop* – increase in size and mass, using materials from their food
5. *Respire* – get energy from their food