*This is the **Foundation Combined** version — Higher Tier and Separate-only content removed.*

Variation between individuals arises from genetic differences and environmental influences. Mutations are changes to the DNA sequence.

- Continuous variation: range of values (e.g. height) — many genes + environment → normal distribution
- Discontinuous variation: distinct categories (e.g. ABO blood type) — usually one gene
- Mutation: change in DNA base sequence. Caused by radiation, chemicals or replication errors
- Most mutations: neutral (no change in protein). Some harmful. Rare beneficial (source of new alleles)
- Only mutations in gametes are heritable — body cell mutations die with the individual

Key Terms

Mutation	Change in DNA base sequence — source of all new alleles
Continuous variation	Range of values — many genes + environment — normal distribution
Discontinuous variation	Distinct categories — usually one gene

■ **Exam Tip:** Mutations in body cells → NOT inherited. Mutations in gametes → CAN be inherited. This distinction is often tested.