

This is the **Higher Combined** version — includes Higher Tier content. Some Separate-only details are omitted.

Characteristics are inherited from parents through the passing on of alleles in gametes.

- Punnett squares predict offspring genotype/phenotype ratios
- Cystic fibrosis: recessive (ff) — thick mucus in lungs. Both parents must carry allele (Ff = carrier)
- Polydactyly: dominant (D) — extra digits. One copy sufficient
- ★ HT Sickle cell anaemia: recessive — abnormal haemoglobin. Heterozygotes resistant to malaria
- Sex: females XX, males XY. 50:50 probability each pregnancy
- ★ HT Sex-linked traits: genes on X chromosome — more common in males

Key Terms

Carrier	Heterozygous individual with recessive allele but no symptoms
Cystic fibrosis	Recessive disorder — thick mucus — both alleles must be faulty
Polydactyly	Dominant disorder — extra digits — one allele sufficient

■ **Exam Tip:** Cystic fibrosis: RECESSIVE (need ff). Polydactyly: DOMINANT (need only D). This is the most commonly confused pair in GCSE genetics.