Complex Inheritance

Incomplete Dominance

- Normally, only the dominant allele will show for normal dominance
- In incomplete dominance, the phenotype will be a mix of both the recessive and dominant alleles
  - Ex: red (dominant) flowers + white (recessive) ⇒ pink (heterozygous) flowers

Codominance

- In codominance, both the alleles are shown, unmixed
  - Ex: red flowers + white flowers ⇒ red middle with white ringed flowers

Multiple Alleles

- It is possible for a particular allele to have more than two types
- Instead of just having L and l, you could have l_a and a_b on top of the other two allele types.
- Normally there will be an order of dominance for these alleles, like L being the most dominant, next being l_a then l_b then l
- Blood types are an example

Sex-linked traits

- Some genes may be carried on the sex chromosome instead of an autosome, this leads to that gene being sex-related
- Females are XX while males are XY
- If there is an X-linked gene, then for the male, there will be no competing allele, so whatever is on the X gene will become the phenotype.
- Females *will* have two competing alleles, which makes them more resistant to recessive disorders

Polygenic traits

- Certain traits may be a combination of more than one gene and/or allele
- Ex
  - Height
  - Skin color
  - Eye color
  - Fingerprint

Effect of environment

- You adapt to the environment around you
- Without sunlight, a plant will become white
- Temperature can effect certain traits
- Is one reason why identical twins will begin to look different after a while