

Incomplete Dominance:

1. For a particular plant, a cross between a purebred variety with blue flowers and purebred variety with white flowers results in a plant with light-blue flowers. The cross is written as:



- a) What kind of dominance is suggested by this result? Explain why.
- b) Draw a Punnett square for a cross between two plants with light-blue flowers.
- c) If 120 plants are produced from crossing two plants with light blue flowers,
 - i. Predict how many will have the genotypes:
 - BB
 - Bb
 - Bb
 - ii. Predict how many will have the phenotypes:
 - blue
 - light blue
 - white

Codominance:

2. Draw a Punnett square showing a cross between a father with genotype Ao and a mother with genotype AB.

- a) What is the probability that the child will have blood Type O?
- b) What is the probability that the child will be homozygous Type O?

3. A mother has Type A blood and her daughter has Type B blood. What are the possible blood types of the father? Is it possible that the father has Type O blood? Explain your answer.

Sex Linkage:

4. The inheritance of eye colour in fruit flies is sex linked.

♀ = female ♂ = male

X^R = red eye (dominant)

X^r = white eye (recessive)

- a) Use the symbols above to draw a Punnett square showing the outcome of a mating of a female with one allele for red eyes and one allele for white eyes with a white-eyed male.

- b) What percentage of the offspring will have
 - White eyes?
 - Red eyes?

- c) Are the red-eyed male offspring able to pass the white-eyed trait on to the next generation?

- d) Are the red-eyed female offspring able to pass the white-eyed trait on to the next generation?