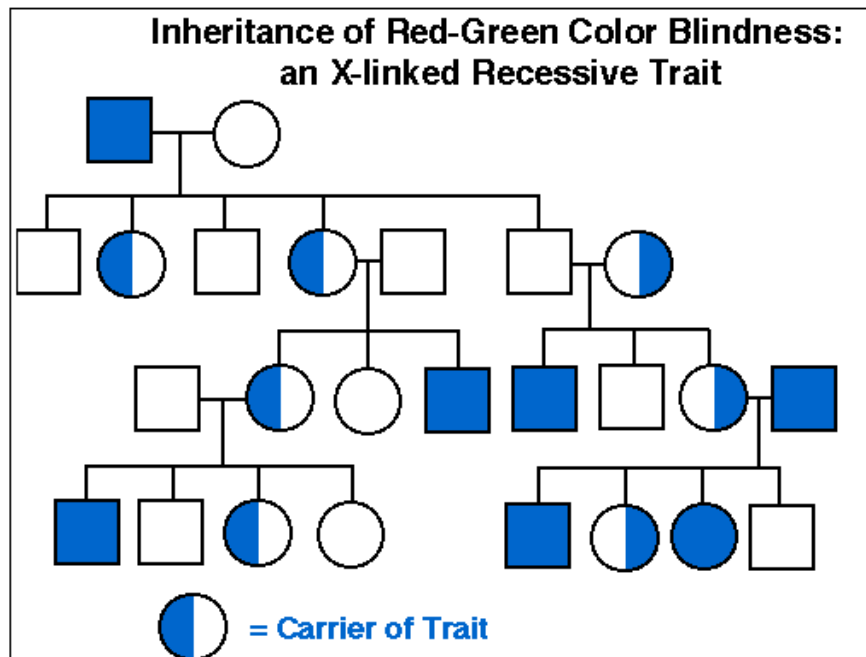


Pedigree Charts

Crosses in higher organisms are often done using a pedigree chart. Certain symbols are often used to denote the transmission of genes.

- A square or cube - male
- A coloured-in square or cube - affected male
- A circle or sphere - female
- A coloured-in circle- affected female
- A half-coloured square or cube - male that is heterozygous
- A half-coloured circle- female that is heterozygous

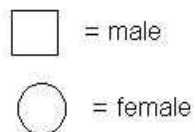
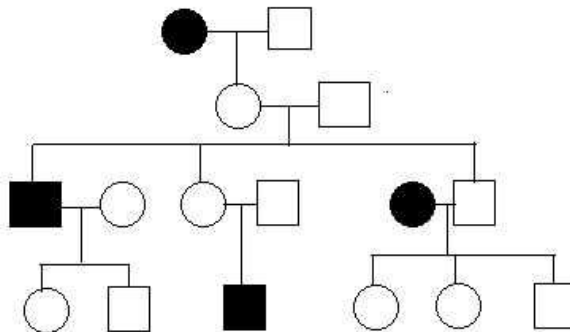
Keep in mind though, other charts may be slightly different, always consult the legend.



Test questions often ask whether the trait indicated on a pedigree chart is:

1. sex-linked dominant
2. sex-linked recessive
3. autosomal dominant
4. autosomal recessive

Below is a pedigree chart tracing a trait in a family. Try to figure which of the four possibilities listed above fit the pedigree chart.



One thing you might notice is that there are equal numbers of both males and females affected, so it is unlikely to be a sex-linked trait. It must be autosomal, not on the sex chromosomes, do you think it is dominant or recessive? It is recessive because there is an incidence of two unaffected individuals having a child that has the trait. In a dominant trait, one of the parents would have to show it, in order to pass it on. In this case, two parents without the trait have a child with the trait, then it must be recessive and they were both carriers (heterozygous).

Polygenic Inheritance

Many traits are controlled by more than one gene. The many genes work together to produce a continuous variation in a trait. Types of traits that follow this pattern of inheritance include:

- length of ear in corn
- height of humans
- skin colour in humans
- eye colour is often thought to be polygenic as well, with the two basic eye colours, brown and blue, being modified by genes close by that control the expression of the trait. It is the modifier genes that help produce the range of colours

