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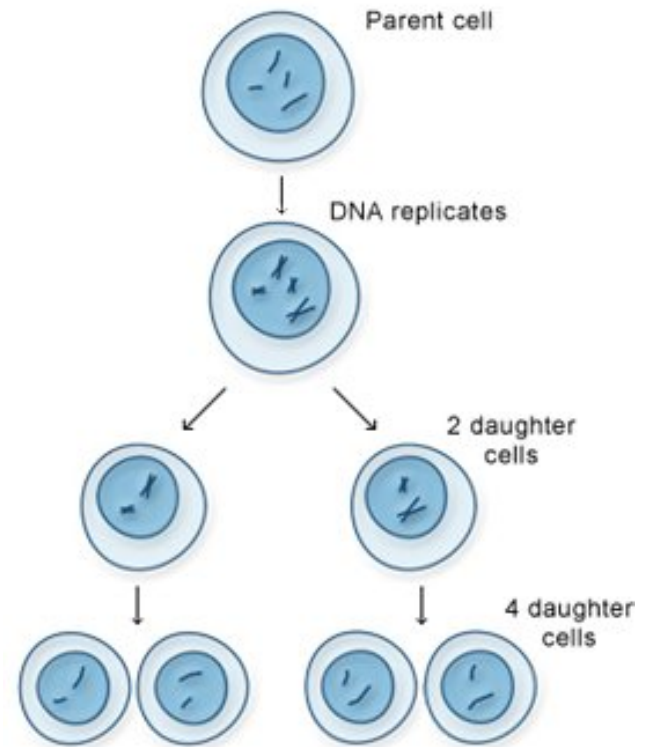
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"You're the mother and those are your children? — I'd like to see a DNA test."

Genes and predicting
inherited traits

Meiosis

- a special type of cell division that produces gametes that are used to produce offspring.



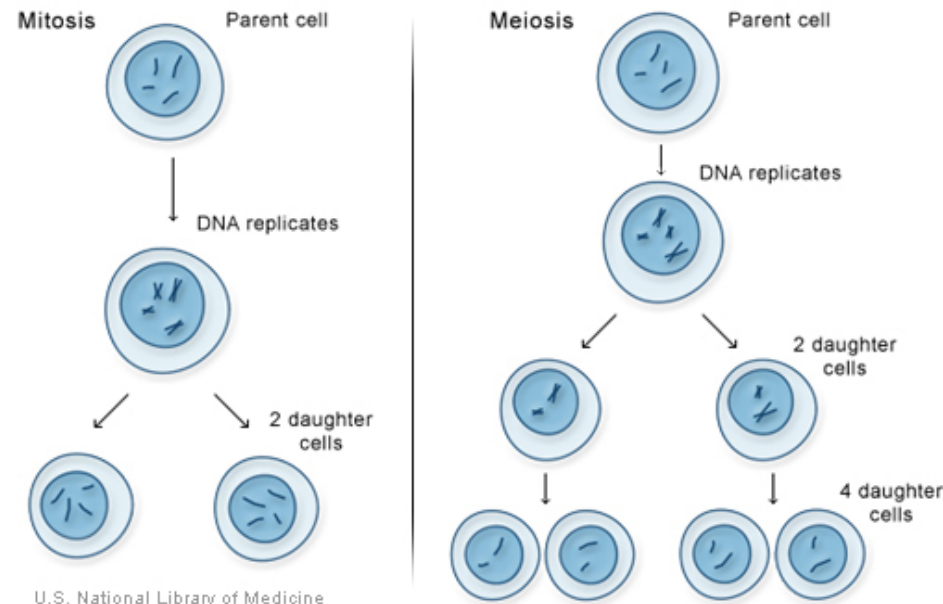
Mitosis vs. Meiosis

- Mitosis is used to replicate cells for living organisms to function (asexual reproduction)
- Meiosis is used to replicate cells for creating new organisms (sexual reproduction)



Mitosis vs. Meiosis

- Mitosis results in two identical cells
- Meiosis results in four genetically different cells



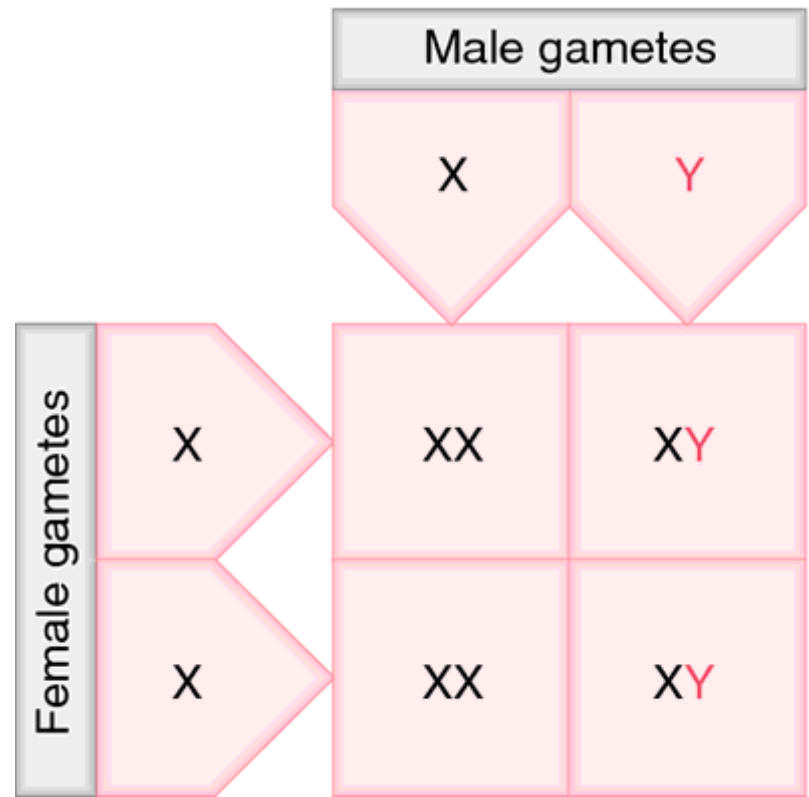
Males and Females

- Males have an X and a Y chromosome (XY)
- Females have 2 X chromosomes (XX)



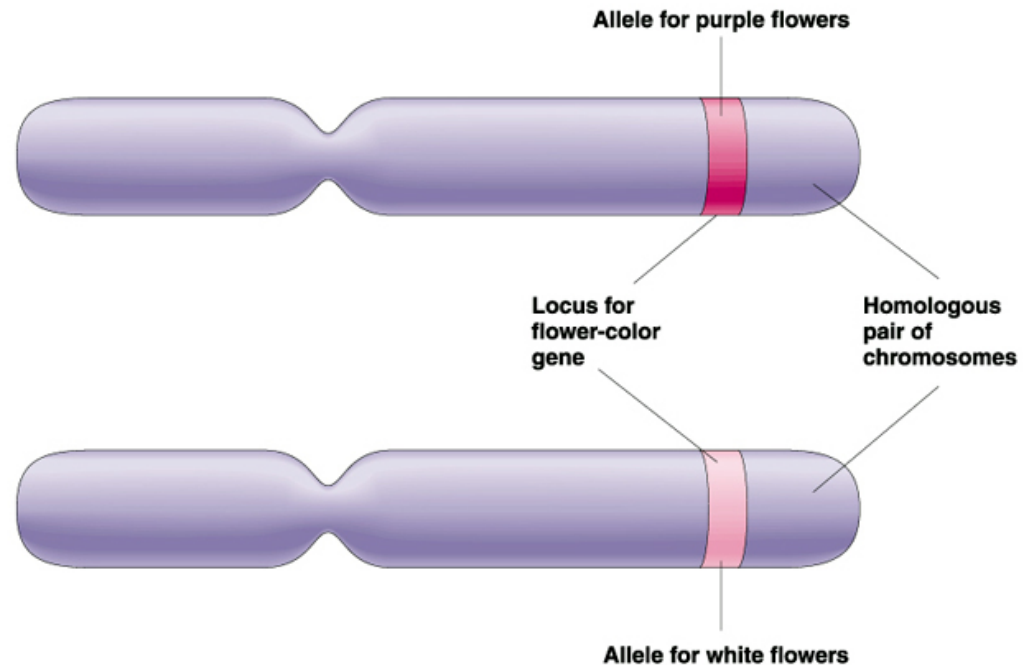
Determining Gender

- Whether an offspring is male or female depends on whether the offspring receives an X or a Y chromosome from the male
- The probability is 50% that an offspring is male or female



Allele

- one of two or more versions of a gene.
- An individual inherits two alleles for each gene, one from each parent



Homozygous

- Both alleles are the same for a trait
- TT, tt, EE, ee



Heterozygous

- Both alleles are different for a trait
- Tt, Gg, Cc



Hybrid

- An offspring that received different genes for a trait from each parent
- Examples: Bb, Tt, Yy



Purebred

- An offspring that received the same gene for a trait from each parent
- Example: YY, bb, DD, ee

