

Meiosis

Biology

Two divisions, four haploid cells, and the two sources of variation.

Meiosis I — reductional

- Homologous pairs separate
- Crossing over at chiasmata in prophase I
- Independent assortment at metaphase I
- Diploid → haploid
- Source of nearly all variation

Meiosis II — equational

- Sister chromatids separate
- Mechanically like mitosis
- Haploid → haploid
- Four cells result

THE DIFFERENCE THAT MATTERS

Variation comes from crossing over, independent assortment, and random fertilisation. Only the first two occur in meiosis.

Non-disjunction — chromosomes failing to separate — produces aneuploidy such as trisomy 21.