

factors that don't blend, chromosomes that carry them, and the ways both get bent

Chromosomes and the Mechanism of Inheritance

- heredity: transmission of genetic information from one generation to the next
- Gregor Mendel worked out inheritance by hybridizing garden pea (*Pisum sativum*)
- this was before chromosomes or genes were even known
- he studied seven contrasting traits, one or a few at a time
- treated results mathematically: counted ratios, not just descriptions
- he called the unit of heredity a **factor**
- factors occur in pairs, pass through gametes, segregate without ever blending
- these factors are what we now call genes

Why Mendel succeeded *

- large sample sizes, carefully planned crosses
- tracked one to three traits at a time, never everything at once
- he chose the pea for its easily recognised contrasting characters, each controlled by a single factor

Mendel's Seven Traits in the Pea Plant

Seed shape

round (dominant) vs wrinkled (recessive)

Seed colour

yellow (dominant) vs green (recessive)

Pod shape

inflated (dominant) vs constricted (recessive)

Pod colour

green (dominant) vs yellow (recessive)

Flower colour

purple (dominant) vs white (recessive)

Flower location

axial (dominant) vs terminal (recessive)

Plant height

tall (dominant) vs short/dwarf (recessive)