

Tutorial:

Mendel's Experiments

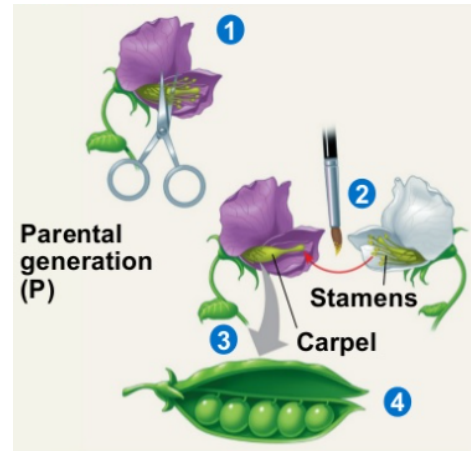
Gregor Mendel:



- grew up on a farm, was a gardener & beekeeper
- became a monk (free school)
- worked in the monastery's gardens
- experimented with pea plants by studying 7 traits that seemed to be inherited independently of other traits










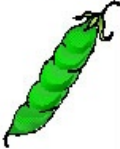






- Pea plants are sexually reproducing organisms that have an egg and pollen.
- They can self-pollinate allowing for identical flowers to be produced, just like in asexual reproduction.



7 traits Studied by Mendel:

Each option is considered an **allele**. There are two possible alleles for each trait.

Pea Plant Traits						
Seed Shape	Seed Color	Pod Shape	Pod Color	Flower Color	Flower Location	Plant Size
Round 	Yellow 	Inflated 	Green 	Purple 	Axial 	Tall 
Wrinkled 	Green 	Constricted 	Yellow 	White 	Terminal 	Short (Dwarf) 

Gregor Mendel's Experiments:

- To begin with, took 2 pure-bred parents (only produce offspring of same trait) for the trait he was looking at. This was called the **P generation** "parent generation".

Flowers were either
PURPLE or WHITE.



Stems were either
LONG or SHORT.

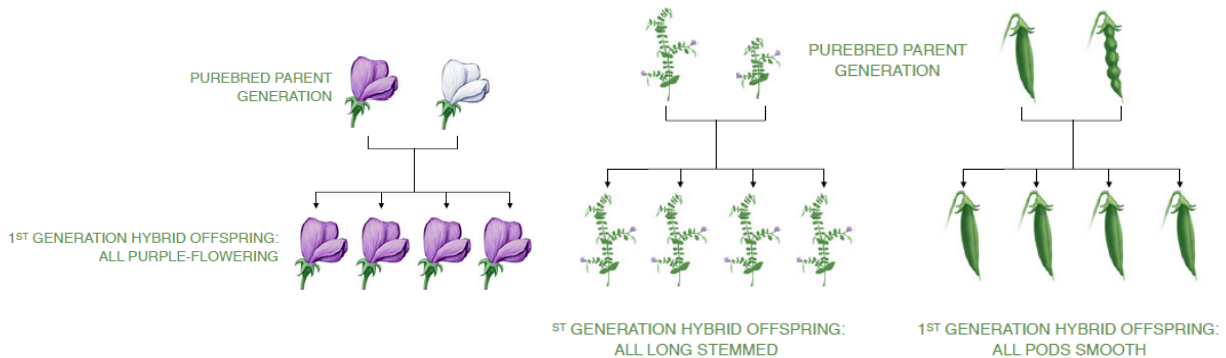


Pods were either
SMOOTH or BUMPY.



- He believed that the offspring would be a "blend" of the two parents.

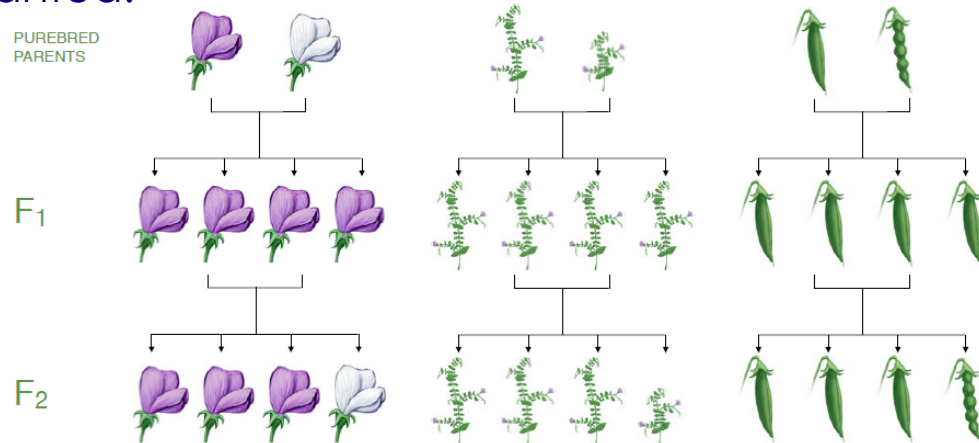
- The offspring of the P generation called the **F1 generation** (first filial "daughter" in Latin).



- All offspring showed the same trait that matched one parent, the other was not seen. Realized they were hybrids.

Notes - Mendel's Experiments.notebook

- The F_1 generation was allowed to self-pollinate creating the **F_2 generation** as their offspring, the peas were planted.

















- The F_2 generation showed the "lost" trait.

Mendel's Conclusion #1: Law of Dominance

A dominant allele completely masks the effects of a recessive allele

A dominant allele produces the same phenotype in heterozygotes and in homozygotes

	Flower Colour	Plant Height	Seed Color	Seed Shape	Pod Colour	Pod Shape	Flower Position
Dominant Trait	 Purple	 Tall	 Yellow	 Round	 Green	 Inflated (full)	 Axial
Recessive Trait	 White	 Short	 Green	 Wrinkled	 Yellow	 Constricted (flat)	 Terminal

Example: Law of Dominance

Here are the traits a plant inherited, the dominant traits are circled. Draw what the plant would look like.

Parent P₁ T₂

purple	white
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short	short
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smooth	bumpy
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F₁



Attachments

Data Table - Homeostasis Demo.docx