

# Gregor Mendel

## The Father of Genetics

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## Gregor Mendel was:

- a young priest
- a science and math teacher
- curious of why some pea plants had different physical characteristics (traits). Why they looked different?



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## What did he observe?



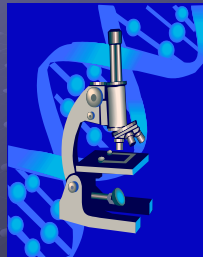
- He observed that the pea plants' traits were often similar to those of their parents, sometimes they were different.

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The passing of traits from parent to offspring is called **heredity**

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Mendel formed the foundation of genetics, the scientific study of heredity.



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## What he did.....

- He used pea plants because **they have many traits that exist in only two forms.** (tall/short, green seed/yellow seed) and **they were self pollinating**
- He decided to **cross plants with opposite forms of a trait**, for example, tall plants and short plants.

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- He started with purebred (always produces offspring with the same form of a trait as the parent)
- By using purebreds he knew that the offspring's traits would always be identical to that of the parents.

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## First Experiment (P generation)

- Crossed purebred tall plants with purebred short plants. He called it the parental generation or P generation.
- He called the offspring from this cross the first filial generation (F1) filial meaning "son of".
- In the F1 generation all the plants were tall. The shortness trait had disappeared.

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## Next experiment

- He allowed the F1 plants to self pollinate
- In the F2 generation there was a mix of tall and short plants.
- This occurred even though the parents were all tall.
- He found that  $\frac{3}{4}$  of the plants were tall and  $\frac{1}{4}$  of the plants were short.

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## He concluded that:

- individual factors must control the inheritance of traits in peas.
- They exist in pairs and the female parent contributes one factor while the male parent contributes the other.

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Today we call those factors that control traits genes.

They call the different forms of gene alleles



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- Although his work was not recognized until much later, Mendel is known as the father of genetics for his experiments and papers about his pea plants.



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