

Name: _____ Date: _____

Life Science Notes ~~11~~ 12
Mendelian Genetics

- We inherit all of our physical traits from our parents.
- For each ^{trait} organisms receive one version of the gene from their mother and one version from their father.
- This means that for every trait, there are 2 genes.

Gregor Mendel

- Gregor Mendel was a priest and a teacher, who studied both science and math.
- He hypothesized that one should be able to predict what the offspring of plants will look like. He carefully planned experiments that proved his hypothesis to be correct.
- Mendel chose garden pea plants to study in his experiments.
 - He chose them, because of their short life cycles and their traits are easily seen.
- He studied traits such as:
 - Shape of seeds, shape of pods, color of seeds, color of pods, plant height, position of flowers, and, color of flowers

Mendel's Experiments

- Mendel began with purebreds, or plants that when bred together always produced the same trait. He cross-pollinated the purebreds.

Tall Pure x short pure P
100% Tall F₁

- As you can see, Mendel ended up with all Tall plants after he cross-pollinated them.
- Afterward, he cross-pollinated the second generation of plants.

Tall x Tall F₁
75% Tall 25% short

- Each time that he ran this experiment, he found that the height trait appeared in a very predictable ratio:

○ Tall: 3 ($\frac{3}{4}$)
○ Short: 1 ($\frac{1}{4}$)

- Due to this, Mendel decided that one trait had to be dominant over the other, recessive, trait. In the case of height, he determined:

○ Tall = dominant trait
○ Short = recessive trait.