**The Father of Genetics**

* Gregor Mendel was from       and was a      .
* Mendel worked in the monastery’s garden and experimented with pea plants.
* Why is Mendel called the Father of Genetics?
* Mendel noticed that pea plants had a variety of different characteristics called traits.
* Which traits did Mendel study?
* Why did Mendel use pea plants?

1. Pea plants grow quickly
2. Pea plants are true breeding plants.
3. **Self-pollination-**
4. **Cross-pollination-**

**Mendel used the Scientific Method to study genetics:**

* Mendel used probability to predict the chances something would happen.
* Mendel’s predictions were accurate because he worked with almost 30,000 pea plants over 8 years.
* Mendel increased his chances of seeing a repeatable pattern; Scientific research is based on repeatable results.

**How Traits are Inherited**

**Heredity-**

**Trait-**

**Genes** are a section of DNA that codes for a specific trait

* During       genes separate. The result is      .
* When egg and sperm unite the new offspring receives two versions of each gene.

**Allele-**

**The Law of Dominance:**

-An organism receives two alleles for each gene that codes for a trait

-**Dominant allele**-

-**Recessive allele**-

**Symbols for Alleles**

**Trait** =

**Dominant allele** -       **Recessive allele**-

**Homozygous**-       **Heterozygous**-

(TT, Tt, tt) Capital letters always go first!! Every time you see the letters, there will be two. You get alleles from both your mom and your dad…that means two letters. You also have 2 copies of each chromosome that code for the trait. (23-paris of chromosomes)

**Phenotype**-       **Genotype**-

**Sample Genetics Problems:**

1. Cross a Homozygous purple plant with a white plant.

Trait:

T-

|  |  |  |
| --- | --- | --- |
|  |  |  |
|  |  |  |
|  |  |  |

t-

Possible Outcomes:

Genotype-

Phenotype-

1. Cross a Heterozygous purple plant with a white plant.

Trait:

T-

|  |  |  |
| --- | --- | --- |
|  |  |  |
|  |  |  |
|  |  |  |

t-

Possible Outcomes:

Genotype-

Phenotype-