Intro to Mendelian Genetics Webquest Name: _____

Go to the following address: http://www.dnaftb.org/dnaftb/.

Click on Classical Genetics. Concept 1, Children Resemble Their Parents, will appear.

1. What did Mendel call "genes"?

2. Click on Animation at the top of the slide. Click on the arrow (next) in the bottom right hand corner to continue through the animation.

- Why did Mendel choose pea plants for his work?

- How did Mendel "cross fertilize" his plants?

3. Click on Bio at the top of the slide and learn more about Mendel.

- John Gregor Mendel is often called _____ of _____. He lived from _____ to _____. Through his work with pea plants, Mendel discovered the basic laws of _____ and was able to recognize the mathematical _____ from one generation to the next.

4. Mendel's Laws of Heredity are known as:

In the top right hand corner, click on concept 2, Genes Come in Pairs.

1. Define "pure-bred" plants

Click on Animation at the top of the slide. Use the arrow in the bottom right to continue through the animation.

1. What is a phenotype? There are _____ and _____ traits (such as flower position and _____), _____ traits (like _____ & _____), and _____ traits, such as _____, and seed coat color. There are a total of _____ traits and each has _____ phenotypes.

2. What are the phenotypes of pod color? Of seed shape?

3. In the experiment, Mendel explains to you, he tests seed _____. Green seeds and yellow seeds are _____.

4. Each form of a gene is called an _____ and a pair of alleles written together is called a _____.

5. What is the genotype of a purebred green seed?

Click on Bio at the bottom of the slide. Read about The Man, the Monk.

6. Where is the Augustinian Monastery located where Mendel did his work?

While at the university, Mendel took courses in _____, _____, and _____. He also taught _____ _____ science. Mendel spent _____ years conducting his experiments from _____ to _____. He published his results in_____.

Click on concept 3, Genes don't Blend, in the upper right hand corner.

1. How are pea plant characteristics different than mixing paint colors?

Click on Animation at the top of the slide.

2. When Mendel crossed two purebred parents, the offspring did not appear mixed. Instead, what did he observe in the hybrid offspring?

Click on concept 4, Some Genes are Dominant.

1. What did Mendel propose for the reason that only one trait showed up in his hybrid plants?

Click on Animation.

2. When Mendel crossed purebred yellow peas with purebred green peas, what happened?

3. When Mendel crossed the F1 hybrid peas, what were his results?

4. Diagram a purebred yellow seed plant. This plant is _____ because it has ____ yellow alleles.

5. What is the genotype (letters) of the offspring that resulted from that cross between a purebred green plant and a purebred yellow plant?

6. Peas can be yellow if they have two _____ alleles or one _____ and one _____ allele. Green peas must have _____ copies of the green _____.

7. What are the possible genotypes of offspring when you cross 2 heterozygous plants?

8. Most of the offspring will be _____ in color but the green _____ reappears in this generation. In this case, the yellow phenotype is _____ and the green phenotype is _____.

Click on Concept 5, Genetic Inheritance follows Rules.

1. What problem was presented when Mendel proposed that each trait is determined by a pair of genes? Mendel deduced that _____ cells contained only ____ parental gene each _____. Mendel found that different _____ _____ from parents resulted in specific_____ of _____-to-_____ traits.

Click on Animation.

1. Each parent can produce _____ types of gametes.

2. How are alleles selected to go into gametes? _____

3. What are Punnett squares used for?

4. Make the Punnett square that results from a cross of heterozygous pea plants.

5. What are the genotypes possible in the offspring?

6. What phenotypes do these genotypes represent?

7. What is the ratio of yellow peas to green peas?

Click on Problem.

8. Define dihybrid cross.

9. The plant in the problem is heterozygous for both two traits. What are the traits? What is the plant's genotype? What is the plant's phenotype?

10. What are the gamete combinations for this plant?

11. Give an example of a Tall, Yellow genotype. How many offspring are Tall and Yellow?

12. Give an example of a short, yellow genotype. How many offspring are short and yellow?

13. Give an example of a tall, green genotype. How many offspring are tall and green?

14. Give an example of a short, green genotype. How many offspring are short and green?

15. What is Mendel's Law of Independent Assortment?

Click on Concept 6, Genes are real things.

1. How did the discovery of chromosomes in the 1900s help to confirm Mendel's findings?

Click on Animation.

2. What tool helped to make Mendel's Laws of Heredity more acceptable in the early 1900s?

3. How did Dr. Schwann define what a cell was?

4. In some cells, the nucleus was replaced by _____. Cells from different species have a different number of _____. Scientists began to think that chromosomes carried the units of _____.