Name   Date   Period

Intervention- Heredity Web Quest

DNA from the Beginning – Mendelian Genetics

Go to http://www.dnaftb.org/dnaftb/1/concept/index.html

Children resemble their parents

Read the text and answer the following questions

1. How have useful traits been accumulated in plants and animals over the centuries?

2. Was there a scientific way to predict the outcome of a cross between two parents?

3. Who determined that individual traits are determined by discrete "factors'? In what year?

4. These "factors" are now known as   .

5. Summarize what Mendel did?

Click on *Animation* at the top of the page. Move through the animation and answer the following questions.

1. Why did Mendel work with pea plants?

The next question deals with how pea plants self-fertilize

4. A) In the flower the male sex part is the   .

B) What does it drop inside the immature flower?

C) Name the female sex part?

D) What are the sex cells that develop there?

E) What fertilizes the eggs?

F) Why do you think this is called self-fertilization?
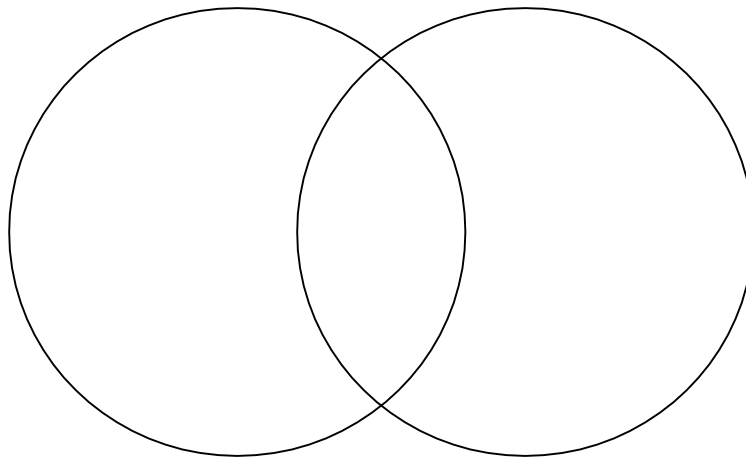
    The next question deals with how pea plants cross-fertilize

5. Summarize how cross-fertilization is accomplished?

Why is it different from self-fertilization?

On the right menu bar click on number 2 "*Genes come in pairs".* Then at the top click on *Animation.*

Click through the animation and answer the following questions

1. What is a phenotype?

2. What are the seven pairs of traits Mendel worked with in pea plants?

a.   b.   c.   d.   e.   f   g.

3. Explain what Mendel reasoned from the existence of yellow and green seed colors

4. What is an allele?

5. What is a genotype?

6. If a pea plant has the two alleles YY. What is its phenotype?

    What is its genotype?

On the right menu bar click on number 3 "*Genes don't blend".* Then at the top click on *Animation.*

Click through the animation.

2. What observations did Mendel make and what problem did he have to solve?

On the right menu bar click on number 4 "*Genes don't blend".* Then at the top click on *Animation.*

Click through the entire animation. Answer the following using the type of diagram that is found in the animation

1. Diagram the cross & offspring between pure-bred green with pure-bred yellow.

3. Diagram the cross between two *heterozygous* plants (Yy x Yy)

What happened to the recessive phenotype?

On the right menu bar click on number 5 "*Gene inheritance follows rules".* Then at the top click on *Animation.*

Click through the animation.

1. Explain Mendel's law of segregation

2. Draw a Punnett square showing the heterozygous cross of two yellow seeds Yy x Yy.

Which genotype gives the green phenotype?   Which genotype gives the yellow phenotype?

Give an example from above that explains the 3 to 1 ratio.

Go to the following link: http://www.saburchill.com/IBbiology/chapters03/006.html

1. What kinds of information are found on a pedigree chart?

2. Draw the symbol that represents a male.

3. Draw the symbol that represents a female.

4. What does a line in between two individuals represent?

5. How is an individual that is affected by the trait shown? (draw a picture)

6. What is a generation? How many generations are depicted in the pedigree at the bottom of the

page?

7. Look at the top pedigree. How many children does that couple have? What are the sexes of the children?

8. Look at the bottom pedigree. How many children does the original couple have? Are any of these children affected individuals? Explain.

9. In the bottom pedigree, in the fourth generation, list the sex of each child from oldest to youngest.

Part Three: Draw a pedigree chart for the following family. James and Lily are grandparents. They have 3 children, Jessica, Crystal, and Suzanne. Jessica is married to Jacob and they have a daughter named Leah. Crystal is married to John and they have 3 children, Alice, Charlie, and John Jr. Suzanne is divorced and has 2 daughters, Isabella and Rita. Be sure that you use the appropriate symbols, designate the different generations properly, and include the correct name and gender.