Name:_____ Pd. _____ Date:_____

DNA from the Beginning

Directions:

A. Log onto the website http://www.dnaftb.org
B. Click on "CLASSICAL GENETICS." Click on "CHILDREN RESEMBLE THEIR PARENTS"
C. Read through this section to find the answers to the questions below. You will also need to go to the "ANIMATION" tab to find answers.
D. Make sure, when writing your answers, you are providing details and writing in complete sentences. THIS WILL BE YOUR NOTES!
E. When you come to a "PAUSE POINT," check in with your teacher before you continue.

Number One Children Resemble Their Parents

1. Most offspring seem to be a _____ of the characteristics of both parents.

2. Explain what happened in 1865 that changed the field of genetics forever.

3. These "factors" are now known as _____

4. What type of plant did Gregor Mendel use in his studies? Why did he choose to use this particular plant?

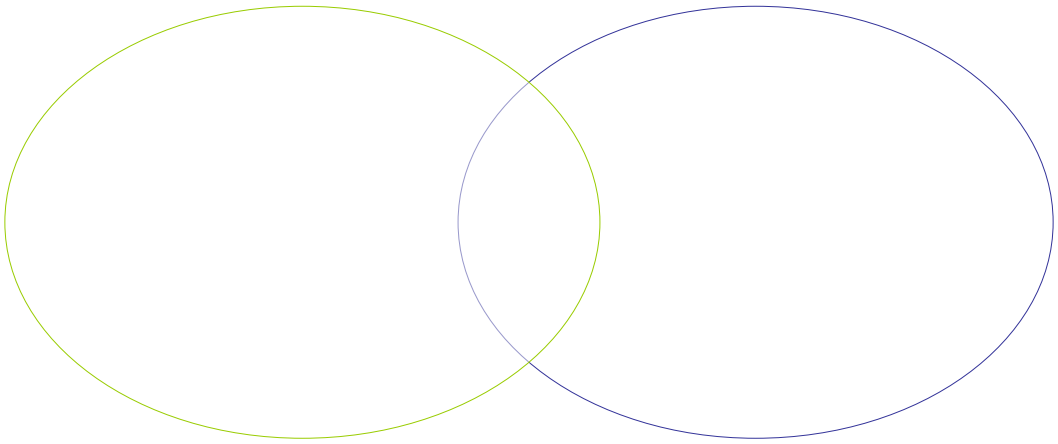
Click on Animation at the top of the page…

5. 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 fertilizes the eggs? _____

6. Summarize how cross-fertilization is accomplished?

7. Fill in the Venn Diagram comparing Self-Fertilization to Cross-Fertilization

Self-Fertilization



Cross-Fertilization

PAUSE POINT: _____ CORRECT _____TEACHER INITIALS

On the right menu bar click on NUMBER 2 "GENES COME IN PAIRS"

8. What did Mendel conclude about genes?

9. The self-fertilizing pea plants produced _____ strains. *Explain this concept*.

Click on Animation at the top of the page…

10. Each visible trait is called a _____.

11. Make a chart of ALL of the traits Mendel studied for pea Plants. Make sure it is neat and orderly (you will be using this chart later).

12. In the example for seed color, what was the PHENOTYPE for the seeds?

13. Mendel reasoned that each trait was controlled by one _____. Each form is called an _____. The pair of _____ is called the _____.
(Include a drawing here)

14. If a pea plant has the two alleles YY, what is its PHENOTYPE _____ GENOTYPE _____

PAUSE POINT: _____ CORRECT _____TEACHER INITIALS

On the right menu bar click on NUMBER 3 "GENES DON'T BLEND"

15. Offspring appear to have a mixture of parental _____. What observations did Mendel make AND what problem did he have to solve? (this will be found under the ANIMATION tab)

On the right menu bar click on NUMBER 4 "SOME GENES ARE DOMINANT"

16. Genes can _____ in various ways, BUT _____ _____ their distinct identities. Give an example.

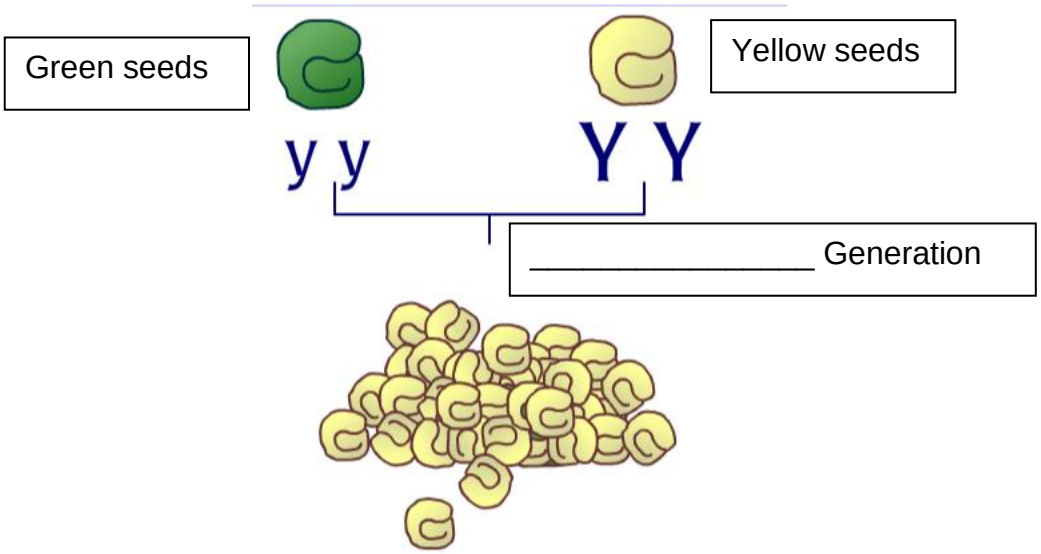
17. What did Mendel propose as to why the offspring only had yellow seeds?

18. The _____ trait is seen whenever a single copy of its gene is _____

19. The _____ trait is shown ONLY when a copy of the _____ gene form is _____ from each parent.

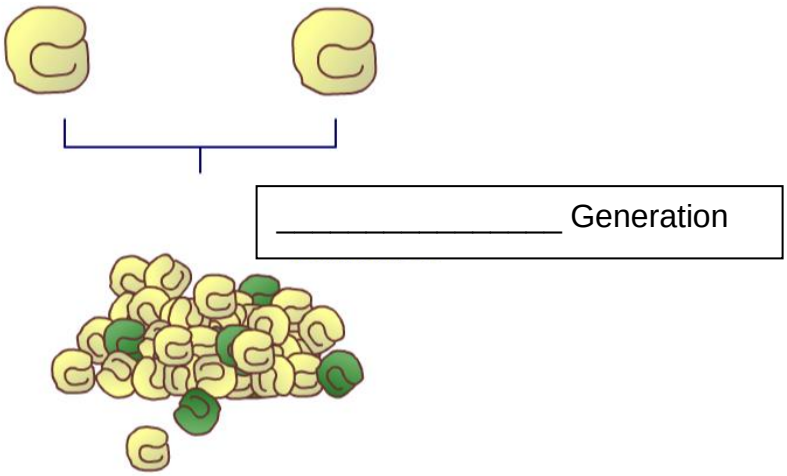
Click on Animation at the top of the page…

20. Let's write down what happens when Mendel crossed a pure-bred green pea with a pure-bred yellow pea. _____ is DOMINANT to _____



The _____ _____ seems to have DISAPPEARED!

Now the yellow pea's _____ .



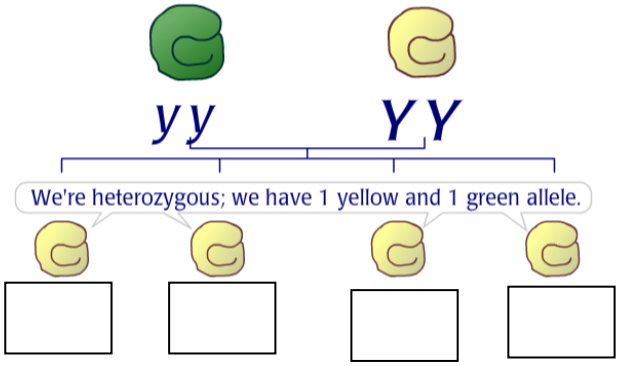
Some of this generation were _____!

21. Explain the results of these experiments.

    Pea color is controlled by _____. Each form is called an _____

22. INFER what the term **HOMOZYGOUS** means.

23. When a pure-bred green plant is crossed with a pure-bred yellow plant, the offspring will inherit _____



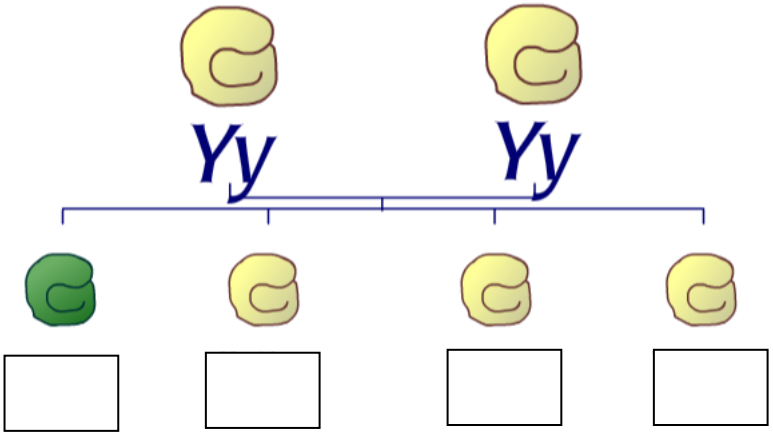
24. INFER what the term **HETEROZYGOUS** means.

25. Peas are YELLOW when they have either _____ yellow _____ OR _____ yellow _____ and _____ green _____

26. Green peas MUST have _____ copies of the _____ green _____

PAUSE POINT: _____ CORRECT _____TEACHER INITIALS

27. Now, let's see how the genes sort out when we cross two _____ plants



28. When two _____ plants are crossed, the offspring _____ show the _____ _____. BUT, the _____ _____ REAPPEARS!

On the right menu bar click on NUMBER 5 "GENETIC INTERITANCE FOLLOWS RULES" (ALL will be under the animation tab)

29. Explain Mendel's *Law of Segregation* (REMEMBER: "Gametes" is another term for sex cells)

30. What process is the Law of Segregation describing? _____

31. HETEROZYGOUS parents can pass one the _____ OR the _____ allele. So…

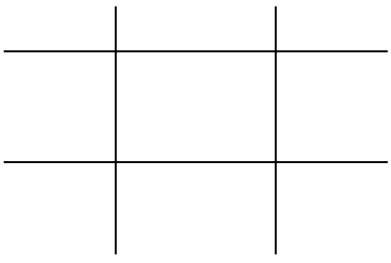
    Offspring with 2 RECESSIVE ALLELES = _____
    Offspring with 1 or 2 DOMINANT ALLELES = _____

32. Mendel concluded that _____ cells (sperm/egg) contain only _____ parental _____ of each pair

33. Mendel found that different _____ resulted in specific _____

34. What helps keep track of the alleles in gametes? _____

35. Show an example of a cross between two heterozygous parents for pea color.



List the possible offspring genotypes:

List the possible phenotypes that relate to each genotype:

PAUSE POINT: _____ CORRECT _____TEACHER INITIALS

PART 2: PROBLEM SET W/ TUTORIALS

Once you have finished the DNA FROM THE BEGINNING Webquest, go to the following website…
http://www.biology.arizona.edu/mendelian_genetics/mendelian_genetics.html

Use the space below (add additional paper if needed) to diagram the problems on a Punnett Square BEFORE looking at the tutorial. GOOD LUCK!

Click on "MONOHYBRID CROSS." Do Problems #1-13