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**Genetics Study Guide**

1. Give an example of a trait that is influenced by the environment.
	1. Obesity/Skin Cancer/Height and Skin color can be influenced by the environment
2. What is an example of something from the environment that affects your existing genetic factors?
	1. Diet/Sun exposure
3. Name a trait that is purely a genetic trait.
	1. Widows Peak/Attached Earlobes/Blood Type
4. What is an environmental trait?
	1. A trait developed from an organisms surroundings
5. Why does sexual reproduction produce greater variations?
	1. DNA comes from 2 genetically different parents
6. Single celled organisms reproducing and creating cells exactly like themselves without combining genes from two different parents is an example of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
	1. Asexual reproduction
7. In asexual reproduction in plants, how does the genetic material compare between the new plant and the parent plant?
	1. They are identical
8. Define sexual reproduction.
	1. Reproduction by 2 parents that produce genetically different offspring
9. Name the parts of the cell theory.
	1. Cells come from other cells
	2. All living things are made of cells
	3. The cell is the basic unit of life in all living things
10. What is the basic structure and function of all life?
	1. Cells
11. Red green colorblindness is a recessive sex-linked trait located on the X chromosome. Who is more likely to get it and why?
	1. Both males and females can get sex-linked traits, but males are more likely because they only have 1 X chromosome and it doesn’t match with the Y chromosome
12. Sex linked genes are on what chromosomes?
	1. 23rd set of chromosomes - the X and Y chromosomes
13. A father does not have hemophilia, but the mother is a carrier. If hemophilia is a sex linked trait on the X chromosome, what is the probability of having a child with hemophilia?
	1. 25%
	2. Mom XXh
	3. Dad XY
14. What causes Down Syndrome?
	1. 3 copies of the 21st chromosome….chromosome fails to separate during meiosis
15. What is sickle cell anemia?
	1. Abnormally shaped blood cells that can’t carry as much Oxygen
16. What is cystic fibrosis?
	1. Unusually thick mucus in the lungs and intestines
17. Below is a pedigree showing a recessive trait. What is the possible genotype for Individual 1, generation I?

Aa….has to be a carrier because his child is affected by the trait

1. What is the possible genotype for Individual 2, generation II? AA or Aa
2. What is the possible genotype for individual 1, generation II? aa
3. What is mitosis?
	1. Occurs in all the BODY cells and produces 2 identical daughter cells
4. Meiosis results in \_\_half\_\_\_ the number of chromosomes of the parent cell.
5. Mitosis results in \_the same\_\_\_the number of chromosomes of the parent cell.
6. What is the probability that the offspring will be homozygous dominant?
7. AA= 25%
8. Using the same punnett square as above, what is the probability that the offspring will be heterozygous?

Aa = 50%

1. Patrick recently married Patti, a cute girl he met at a local dance. He is considered a purebred for his tall head shape (T), which is dominant over a short head (t). If Patti is a short-headed woman, what type of heads would their children have?
	1. TT/tt
	2. All children will have tall heads (heterozygous) Tt
2. In rabbits white fur is dominant to brown fur. If the mother is homozygous recessive and the father is heterozygous, what is the probability of the offspring having brown fur?

Ww/ww

50% will have brown fur

1. Make sure you know these skills:
	1. Make a pedigree chart based on a scenario
	2. Fill in Punnett squares and answer questions
	3. Difference/similarities of mitosis and meiosis
	4. Difference and influences in environmental traits and genetics
	5. Examples of genetic disorders including symptoms and how they are obtained