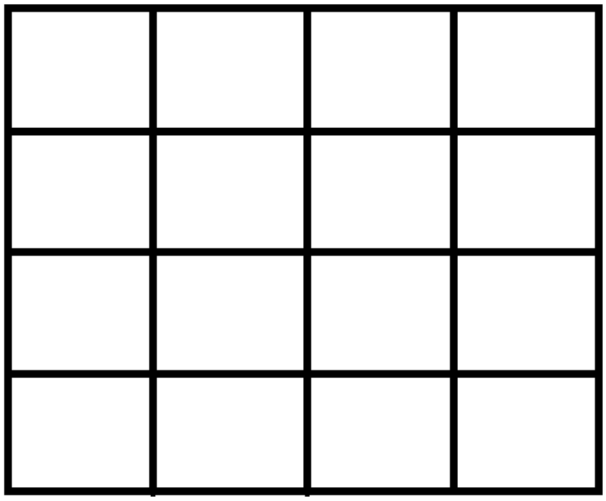
Name: _____ Period: _____ Date: _____

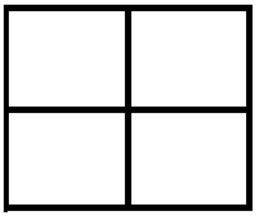
Unit 7. Chapter 11 Study Guide

1. What is the difference between homozygous and heterozygous? _____
   _____
   Give an example for each. Homozygous: _____ Heterozygous: _____
2. What are alleles? _____
3. For each trait, how many alleles does each organism have? _____ WHY? _____
   _____
4. What is the difference between genotypes and phenotypes?
   a. Genotype: _____ Example: _____
   b. Phenotype: _____ Example: _____
5. What is the P generation: _____
   a. F1 generation: _____ b. F2 generation: _____
6. Name 2 things Mendel contributed to genetics. _____
   _____
7. What did he work with? _____ why? _____
8. What type of allele would someone have if they are a carrier but they don't show the gene's traits? __
   a. Give an example. _____
9. What is a dihybrid cross used for? _____
10. Show the cross for two heterozygous round (R) AND yellow (Y) pea plants. Give the phenotypic ratio of these offspring.
    a. Mom's Genotype: _____
    b. Dad's Genotype: _____
    c. What is the Phenotypic Ratio?

       _____ : _____ : _____ : _____

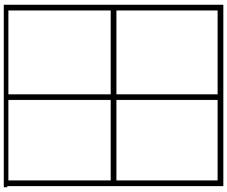


11. In guinea pigs, the allele for short hair is **dominant** (H) over long hair (h)
    a. What genotype would a heterozygous short haired guinea pig have? _____
    b. What genotype would a pure-breeding short haired guinea pig have? _____
    c. What genotype would a long haired guinea pig have? _____
    d. If a pure breeding short haired guinea pig bred with a long haired guinea pig, what percentage of the offspring will have short hair? _____
12. Show the cross for two heterozygous guinea pigs.
    a. What percentage of the offspring will have short hair? _____
    b. What percentage of the offspring will have long hair? _____



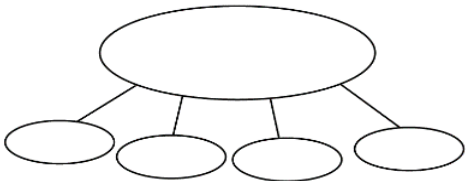
13. What are genes? _____
    _____
14. A purple-flowered pea plant is crossed with a white-flowered one and all the offspring are purple. How can you explain this? _____
15. For a recessive trait to show up, what genes/alleles must an organism have? _____
16. Are "Ss, SS, ss" genotypes or phenotypes? _____
17. Are "blonde hair, green eyes, 4 claws" genotypes or phenotypes? _____

18. Short haired guinea pigs are mated several times. Out of 100 offspring, 25 of them have long hair. What are the probable genotypes of the parents? **Show the cross to prove it!**

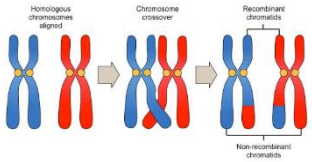


Parent 1: _____ Parent 2: _____

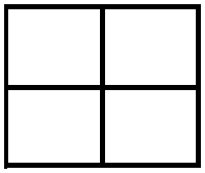
19. Use the buffalo trait for curly hair (H) vs straight hair (h) to describe the following:
    a. Homozygous dominant genotype: _____ phenotype: _____
    b. Homozygous recessive genotype: _____ phenotype: _____
    c. Heterozygous genotype: _____ phenotype: _____
    d. Purebred straight hair: _____ purebred curly hair: _____
    e. Hybrid hair: _____
20. What did Mendel always get in his F2 generation?--all dominant traits? All recessive traits? Or a combination of dominant to recessive in a 3:1 ratio? _____
21. How can a trait skip a generation? (Relate this to Mendel's law of segregation. Use your vocab!) _____
    _____
22. Which of these statements is correct?
    _____ a. A Punnett square shows the ACTUAL results of the offspring of a genetic cross.
    _____ b. A Punnett square shows the PROBABILITY of getting all possible offspring in a genetic cross.
23. Why can't a genotype be heterozygous dominant? _____
    _____
24. Which of Mendel's Laws explains that alleles for different traits separate into sex cells without affecting how other traits are inherited? Law of Segregation OR Law of Independent Assortment

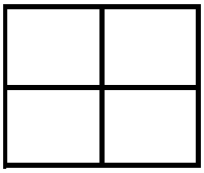


25. If a giraffe (genotype SsYY) produces sex cells, how many genetically different sperm can be produce? Show in gamete chart ("alien spaceship")
26. Humans have a diploid chromosome # of 46. How many chromosomes would be in a human haploid cell? _____
27. What are the only 2 kinds of human cells that are haploid?
    _____ and _____
28. The picture shown to the right is showing crossing-over. What is its purpose?
    _____



29. Are body cells like skin cells and brain cells haploid or diploid? _____
30. Cross a heterozygous tall pea plant with a homozygous recessive plant (T = tall; t = short).
    a. What is the phenotypic ratio of tall:short? _____: _____
    b. What are the genotypes of the offspring? _____





31. Show a Punnett Square below explaining how 2 parents with a dominant trait can have a child with a recessive trait.
    a. What is the phenotypic ratio? ____ : _____
32. Tell the differences between MITOSIS & MEIOSIS in regard to the following guidelines:
    a. Are haploid or diploid cells made? Mitosis: _____ Meiosis: _____
    b. Main purpose(s) of each type of division? Mitosis: _____ Meiosis: _____

Spiraling Questions:

33. What is the process by which living things keep their body conditions constant? _____
34. Eukaryotes have a _____, but prokaryotes do not.
35. In what types of cells does cellular respiration occur? _____
36. Use the picture to the right to label the sister chromatids & centromere
37. If a parent cell with 6 chromosomes goes through mitosis, how many chromosomes will the 2 daughter cells have? _____