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| **GVC #2—I can compare sexual and asexual reproduction, including patterns of inheritance in sexually reproducing organisms.** |
| **Learning Target - c.** I can predict patterns of Mendelian inheritance using a Punnett square. |

**Genetics Book Notes**

p. 124-140

**Vocabulary**

1. Use your book to describe the following:
   1. Heredity (p. 127) –
   2. Gene (p. 128) –
   3. Allele (p. 124) –
   4. Linked Gene (p. 131) –
2. The different alleles of a gene can be either **Dominant** or **Recessive**.
   1. What does it mean for an allele to be DOMINANT (p. 130)
   2. Based on your answer in part a, what do you think it would mean for an allele to be RECESSIVE?

**Mendel**

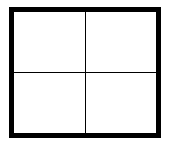
1. From the video that we watched on Mendel, list 3 interesting facts that you remember about him:
2. Mendel developed 2 important laws that help explain the patterns of inheritance that he observed, describe each of these 2 laws
   1. Law of Segregation (p. 130):
   2. Law of Independent Assortment (p. 131):

**Genotype vs. Phenotype**

1. A GENOTYPE is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (p. 132/133)
2. A PHENOTYPE is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (p. 132/133)
3. Having freckles is a dominant trait. A person with the allele combinations Ff and FF would have freckles, a person with the allele combination of ff would not have freckles.
   1. Which information listed above, describes the GENOTYPE?
   2. Which information describe the PHENOTYPE?
4. Genotypes can be described in the 3 ways listed below, Using the Freckle allele from #7 give an example of each of the genotypes listed below. (p. 131/133)

Homozygous Dominant Homozygous Recessive Heterozygous

**Sex-Linked Traits** (p. 138)

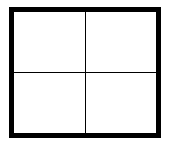
1. What are the SEX CHROMOSOMES?
2. Male Genotype \_\_\_\_\_\_\_\_ Female Genotype \_\_\_\_\_\_\_\_
3. Define SEX-LINKED TRAITS -
4. In Humans, color-blindness is a recessive sex linked trait (Xb).
   1. Show a cross between a mother that is a carrier for the color-blind trait and a father that is not color-blind.
   2. What chance do their sons have of being color-blind?
   3. What chance do their daughters have of being color-blind?

**Non-Mendelian Inheritance**

1. Define Mendelian Trait (p. 137):

Not all traits are considered Mendelian. Some Non-Mendelian types of inheritance are Polygenic traits, Co-Dominance, and Incomplete Dominance. **POLYGENIC TRAITS** are traits that are inherited on more than one gene.

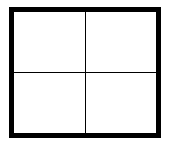
**Co-Dominance** (p. 139)

1. Define Co-Dominance:
2. Example: In cows, a white cow is WW, a black cow is BB, and the heterozygous condition produces a black and white spotted cow.
3. Show a cross between a black cow and spotted cow.
4. \_\_\_\_\_% of the offspring should be White

\_\_\_\_% of the offspring should be Black

\_\_\_\_% of the offspring should be Spotted

**Incomplete Dominance** (p. 140)

1. Define Incomplete Dominance:
2. Example: In snapdragons, red-flowered plants are (RR), pink-flowered plants are (RW), and white flowered plants are (WW).
3. Show a cross between a red-flowered plant and a pink flowered plant.
4. \_\_\_\_\_% of the offspring should be Red

\_\_\_\_\_% of the offspring should be Pink

\_\_\_\_\_\_% of the offspring should be White

**Selective Breeding**

1. Farmers and Ranchers use a process called SELECTIVE BREEDING to improve their crops and herds. Dog breeders use selective breeding to get desired traits in dogs. Describe how this is done: