Genetics

Punnett Squares

**Learning Outcomes**

* **I can use a Punnett square to determine the probability of genotypes and/or phenotypes for autosomal traits.**
* **I can use a Punnett square to determine the genotype of the parents of autosomal alleles if the probability of the offspring outcomes is known.**
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* Steps

1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
4. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
5. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Examples – Y = yellow seed colour y = green seed colour

1. What are the possibilities for seed colour when a homozygous dominant plant and homozygous recessive plant are crossed?
2. What are the possibilities for seed colour when 2 heterozygous plants are crossed?

**Interpreting the Data**

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Examples – Y = yellow seed colour y = green seed colour

1. What is the probability of getting a yellow seed when a homozygous dominant plant and homozygous recessive plant are crossed?
2. When 2 heterozygous plants are crossed, what is the probability of getting:
3. A homozygous dominant offspring?
4. A heterozygous offspring?
5. A yellow seed?
6. Homozygous Dominant
7. Heterozygous
8. Yellow Seed

1. If the probability of a cross with a heterozygous parent for yellow seeds results in 50% yellow seeds and 50% green seeds, what is the genotype of the other parent plant?

* Work backwards – fill in the Punnett square with what you know
* Fill in what the other parent must be.
* Complete the Punnett square to double check your answer.