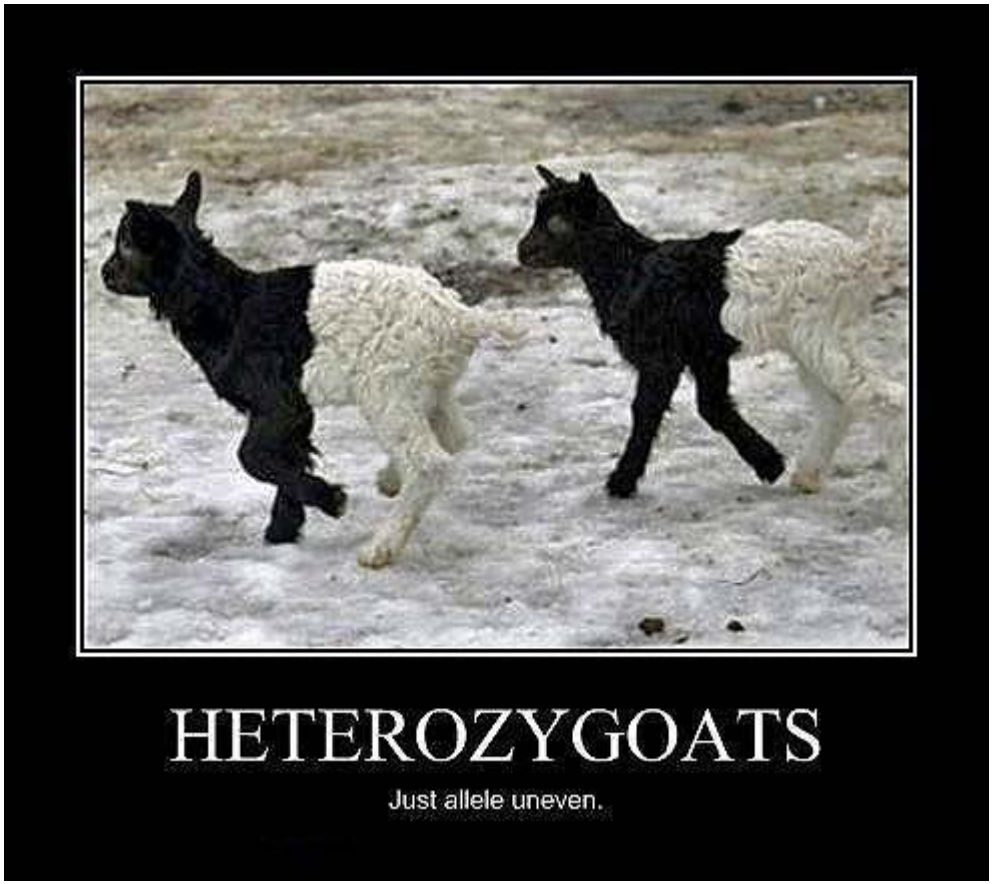
Punnett Squares



S1-1-11 Observe, collect, and analyze class data of single trait inheritance. Examples: hand clasping, earlobe attachment, tongue rolling

Punnett Squares

If we know the possible **GAMETES** that each parent will pass on to their offspring, We can determine the possible **GENOTYPES** that will result by using a **PUNNETT SQUARE*.***

A punnett square shows three types of information:

1. The **GAMETES** each parent can produce.
2. The **GENOTYPE COMBINATIONS** that are **PRODUCED**.
3. The **PROBABILITY** that a particular **GENOTYPE** will **OCCUR**.

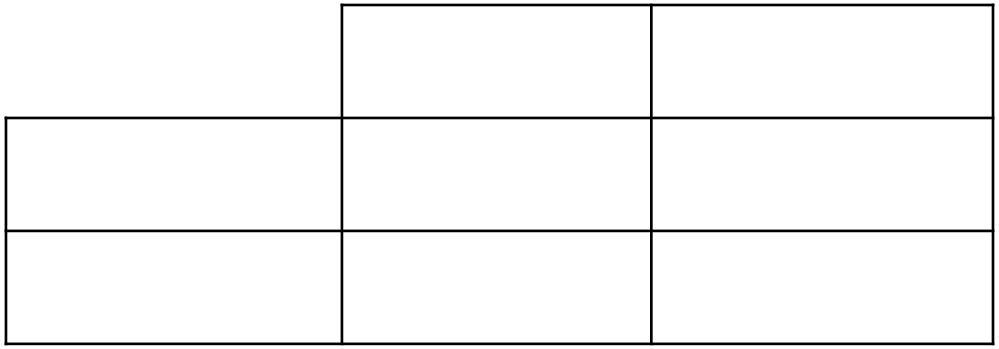
We must remember that genetics is very **COMPLEX**, and what results from our punnett squares is not what **ALWAYS HAPPENS**, since there may be other **FACTORS** involved.

Steps to Doing Punnett Squares

Example:

Cross a homozygous white pig (bb) with a homozygous black pig (BB)

1. ***Draw a punnett square, like a tic-tac-toe board:***



Steps to Doing Punnett Squares

Example:

Cross a homozygous white pig (bb) with a homozygous black pig (BB)

2. ***Fill in the gametes each parent can contribute. One parent on the top, and another on the left side.***

3. ***Match the genes in the table.***

Steps to Doing Punnett Squares

	B	B
b	Bb	Bb
b	Bb	Bb

The resulting genotypes are all **Bb**, meaning that **ALL** the offspring will be **BLACK PIGS** → their **PHENOTYPE** is **BLACK**.

This means that the **PROBABILITY** of **BLACK** pigs is **100**%

Notice that the **DOMINANT** gene (**CAPITOL** letter) is written **FIRST**.

Doing Punnett Squares

Example 2

A heterozygous black pig (Bb) mates with another heterozygous black pig (Bb).

What is the probability of a white pig being born?