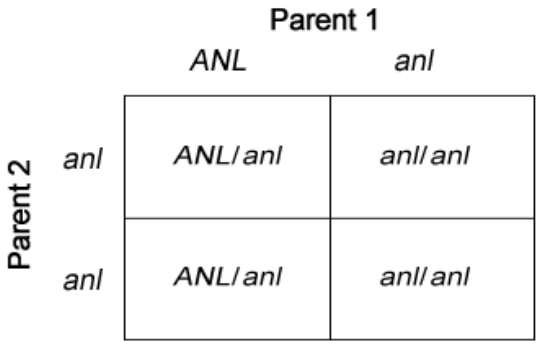
Vocabulary: Fast Plants® 1 – Growth and Genetics

Vocabulary

- Allele – one of two or more forms that a gene could take.
- Dominant allele – an allele that is always expressed when it is present.
  - Dominant alleles are usually represented by capital letters, such as *ANL*.
  - If an organism is heterozygous for a trait, the phenotype will be that of the dominant allele.
- Wisconsin Fast Plants® – common name for a rapid-cycling subspecies of *Brassica rapa*, developed at the University of Wisconsin-Madison as a model organism for research.
  - Fast Plants have a very short life cycle, taking about 44 days to grow from a seed to producing mature seeds.
  - Fast Plants have several traits that are controlled by a single gene, making them ideal for Mendelian genetic studies.

- Gene – a segment of DNA that determines or helps to determine a trait.
  - Most genes give instructions for building a particular protein.
  - Unlike the traits studied in this Gizmo, many familiar traits are determined by more than one gene.
- Genetics – the study of heredity, or how traits are passed from parents to offspring.
- Genotype – the genetic makeup of an organism.
  - The genotype describes the alleles that are present in an organism.
  - For example, a Fast Plant may have the genotype *ANL*/*anl*, *YGR*/*ygr*.
- Heterozygous – having two alleles that are different.
- Homozygous – having two alleles that are the same.
- Offspring – a new living thing produced by one or two parents.
- Phenotype – the physical appearance of an organism.
  - For example, a Fast Plant with the genotype *ANL*/*ANL* will have the purple-stem phenotype, shown above.

- Pollen – tiny grains that contain sperm cells.
- Pollination – the transfer of pollen from the anther to the stigma, leading to fertilization.
- Punnett square – a diagram that shows the possible offspring of two parents.
    - Punnett squares allow you to determine the probability of each offspring genotype.
    - For example, the Punnett square at right shows the offspring from an *ANL*/*anl* plant and an *anl*/*anl* plant. It shows that about half the offspring will be *ANL*/*anl* and half will be *anl*/*anl*.



- Recessive allele – an allele that is not expressed when the dominant allele is present.
    - Recessive alleles are usually represented by lowercase letters, such as *anl*.
    - If an organism is heterozygous for a trait, the phenotype will be that of the dominant allele rather than the recessive allele.
- Trait – a characteristic of an organism.
    - Examples of traits include stem color, leaf color, leaf shape, stem height, and many others.