**Vocabulary: Fast Plants® 1 – Growth and Genetics**

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**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.