Name _____ Class _____ Date _____

Punnett Square Practice

Background Information: You learned that *chromosomes* are made up of DNA and are divided into sections called *genes*. Genes code for *proteins*, which determine the *traits*, or physical features, of an organism. There can be different versions of genes, called *alleles*. Alleles/genes are passed from parents to offspring during reproduction. Some alleles are *dominant*, meaning the trait they code for is always expressed. Some alleles are *recessive*; they are not expressed if a dominant allele is present. When organisms have two copies of the same allele, they are **homozygous** for that trait. In the critter example, a critter that has two dominant alleles for tail style (TT) or two recessive alleles for tail style (tt) is homozygous for that trait. When organisms have one copy of each allele, they are **heterozygous** for that trait. In the example of critter tail style, a critter that has one of each version of tail style (Tt) is heterozygous for that trait. Finally, when we look at the actual gene combination (TT, Tt, or tt) we call that the *genotype*. When we look at the physical characteristics (straight or curly tails) we call that the *phenotype.*

Now, let's practice some critter crosses! For each cross,
- make a Punnett square
- write down the expected genotypes of the offspring (you may write this as a fraction)
- write down the expected phenotypes of the offspring (you may write this as a fraction)

You may use the back of this paper or write your crosses in your science journal. The first one is done for you as an example.

1. Cross two homozygous curly tailed critters.

	T	T
T	TT	TT
T	TT	TT

All four offspring (4/4) will be TT
All four offspring (4/4) will have curly tails

2. Cross two straight-tailed critters.
3. Cross a homozygous curly-tailed critter and a straight-tailed critter.
4. Cross two critters heterozygous for tail style.
5. Cross a critter heterozygous for tail style and a critter homozygous for a curly tail.
6. Cross a critter heterozygous for tail style and a critter with a straight tail.