**Baby Alien Teacher Guide**

**Background**

(The “SpongeBob Genetics” activity is a lead-in to this activity and contains foundational background information and concepts.)

In this activity, students learn about heredity and how traits are passed on to each generation by creating a baby alien. Prior to creating an alien, first discuss that genes are units of heredity. There are two alleles, one is dominant and the other is recessive. Dominant alleles have a capital letter. Recessive alleles have a lower case letter. If both alleles are different, it is heterozygous (blending of traits). Genetic makeup (letters) are called genotype. Physical characteristics are phenotype (e.g long legs, sharp teeth).

**Vocabulary**

**Allele** - one of two or more alternative forms of a gene that arise by mutation and are found at the same place on a chromosome

**Dominant Allele** - a variation of a gene that will produce a certain phenotype, even in the presence of other alleles

**Gene** - a unit of heredity which is transferred from a parent to offspring and is held to determine some characteristic of the offspring

**Genotype** - the genetic constitution of an individual organism

**Heterozygous** - A diploid organism is heterozygous at a gene locus when its cells contain two different alleles of a gene

**Homozygous** - a particular gene that has identical alleles on both homologous chromosomes

**Phenotype** - the physical expression, or characteristics of a trait

**Recessive Allele** - a variety of genetic code that does not create a phenotype if a dominant allele is present

**Trait** - a distinguishing quality or characteristic, typically one belonging to a person

**Materials**

Alien Lab Printable

Pencils

2 coins for each student

Colored construction paper

Markers and crayons

Glue

**Learning Objectives**

1. Students will understand the general process of heredity with Mendelian traits.
2. Students will understand the difference between **phenotype** and **genotype**.

**Procedure**

In this activity both parents are hybrid (heterozygous).

1. Pre-make enough circle “alien bodies” in different colors for each student to have one. You can also allow student to create their own alien bodies in whatever shape they choose.
2. Give each of your students two coins to flip (one represents mom, the other dad).
   1. Heads = dominant / Tails = recessive.
3. Students fill in the genetic chart to discover what their alien baby will look like.
4. Once their chart is filled, they look at the genotype and phenotype that represents each trait and construct their baby alien out of construction paper.
   1. Each student starts out with a circle of their choosing for the body of their alien.
   2. They choose the colors and the length of each component (arms, legs, fingers, toes).
5. Once their alien is constructed, they can choose to draw their baby alien with its Mommy and Daddy by looking at their genetic chart.
6. Allow the students to share their process and final creation.
   1. Encourage the use of proper terminology.



