

**Components of a 5 E Lesson Plan**

**1) Engage:** It is not forcing children to learn but inviting them to do so.

**2) Explore:** opportunity to practice or work with their new knowledge in some way. The most effective explorations allow for mistakes or trial and error. It is looking at a concept before discussing all the details, with hopes that students will discover answers to possible questions through exploration.

**3) Explanation**: Checking for misunderstandings helps the teacher to observe what objectives need to be clarified or taught.

**4) Elaboration:** Here the students can participate in an extension, or a different activity that either re teaches an objective or teaches more details about the concept being taught.

**5) Evaluation:** Finally, after the objectives are taught, it is time to assess. What have students effectively learned? What do they not understand? What should be done to help them? They might make a model, paint a picture, or make a mini book with drawings and facts to illustrate what they learned.

**Genetics Lesson using 5E lesson plan:**

1. **Engage**: Students will be given a Trait Survey. All of the traits surveyed are inherited traits.
2. **Explore**: Reference the inherited traits and how often they are observed. You give a brief introduction to the terms dominant and recessive, homozygous and heterozygous and how it works as part of Mendel’s theory of heredity. Students will then apply that knowledge to a practice set.
3. **Explanation**: Go over the practice set for genotype and phenotype for accuracy. Answer any questions and clarify.
4. **Elaboration**: Students will obtain 2 alleles for each trait. Using the knowledge just obtained, they will write the genotypes and phenotypes of their creature. They will then make a drawing of their creature.
5. **Further** **Elaboration:** Using the 4th part of Mendel’s theory of heredity, students will get with a partner and complete Punnett squares to predict the possible outcome for each trait for their offspring.
6. **Evaluation:** Students are given an alien and asked three questions to assess their knowledge.
7. **Math Extension:** Students will explore the probability of an alien in their class creations having a recessive trait. This activity will reinforce fraction, decimal and percent conversions. Students will look at measures of central tendency (mean, median, range). This activity also includes a discussion of topics within probability: dependent/independent as well as theoretical/experimental.