

# INSTRUCTIONAL FOCUS DOCUMENT

## Eighth Grade Science



**UNIT: 05      TITLE: Heredity and the Environment: Traits and Genetics**

**SUGGESTED DURATION: 11 days**

Exemplar Lesson 01: Inherited Traits and Learned Behaviors  
Exemplar Lesson 02: Genetics



**State Resources:**  
Xtreem Science – Teacher Quality Grant 8<sup>th</sup> Grade  
<http://www.tcet.unt.edu/tegs/indexHtml.html>

Science TEKS Toolkit: <http://www.utdanacenter.org/sciencetoolkit/>

### RATIONALE:

These unit bundles student expectations that address the concept that traits of species can change through generations and the instructions for traits are contained in the genetic material of the organisms in order to identify patterns of inheritance.

Prior to this unit, in 6<sup>th</sup> and 7<sup>th</sup> grades, students were introduced to the idea of dominant and recessive traits. In the 8<sup>th</sup> grade, the study of how these traits were inherited and the prediction of the traits of possible offspring through the use of Punnett squares are introduced. This is an important skill that the student's will need in biology.

### MISCONCEPTIONS/UNDERDEVELOPED CONCEPTS:

- Daughters inherit most of their characteristics from their mothers. Sons inherit most of their characteristics from their fathers.
- Students can apply chance and probability to assigned genetics problems, but not to human situations in families.

PERFORMANCE INDICATORS	CONCEPTS	KEY UNDERSTANDINGS FOR LEARNERS
Identify inherited traits in a scenario and create a Punnett square to predict possible outcomes from events in the scenario. (8.11B, 8.11C) ELPS: 1C, 1E, 1H, 2E, 2I, 3D, 3H, 4E, 5B, 5G	Change – Properties    Nature of Science	An organism survives in its environment through its learned behaviors and inherited traits.  Genetic combinations result in patterns of inherited traits.  Inherited traits are dependent on the genetic information inherited from each parent.

### KEY ACADEMIC VOCABULARY SUPPORTING CONCEPTUAL DEVELOPMENT

- **Trait** –a genetically determined characteristic or condition; a distinguishing feature

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TEKS# SE#	TEKS	SPECIFICITY
8.11	<i>The student knows that traits of species can change through generations and that the instructions for traits are contained in the genetic material of the organism.</i>	
8.11B	Distinguish between inherited traits and other characteristics that result from interactions with the environment.	Distinguish  INHERITED TRAITS AND OTHER CHARACTERISTICS  Including, but not limited to: <ul style="list-style-type: none"> <li>• inherited traits                             <ul style="list-style-type: none"> <li>• plants</li> <li>• animals</li> </ul> </li> <li>• behaviors                             <ul style="list-style-type: none"> <li>• inherent/instincts (innate)</li> <li>• learned</li> </ul> </li> </ul>
8.11C	Make predictions about possible outcomes of various genetic combinations of inherited characteristics.	Predict  POSSIBLE OUTCOMES OF VARIOUS GENETIC COMBINATIONS  Including, but not limited to: <ul style="list-style-type: none"> <li>• use Punnett squares to predict phenotype and genotype of monohybrid crosses                             <ul style="list-style-type: none"> <li>• probability</li> <li>• ratios/percentages</li> </ul> </li> <li>• distinguish between dominant and recessive traits</li> </ul>