Phoenixville Area School District UbD Science Unit Plan

Grade Level: 7th Grade **Unit Name:** Heredity: Inheritance and Variation of Traits **Author:** A. Gottschall

Stage 1 Desired Results

Overarching NGSS & PA

3.1.6-8.N Develop and use a model to describe why asexual reproduction results in offspring with identical genetic information and sexual reproduction results in offspring with genetic variation.

Which branch(es) of science apply:

LS

Transfer

Students will be able to independently use their learning to…

1. Ask questions and/or define problems
2. Develop and/or use models
3. Plan and/or carry out investigations
4. Analyze and interpret data using computational thinking
5. Obtain, evaluate, and communicate information (supported by evidence)
6. Construct explanations and design solutions

Meaning-Making

Students will understand that…

- Organisms reproduce either sexually or asexually and how these reproductive processes result in the transfer of genetic information to their offspring.
- Asexual reproduction results in offspring that are genetically identical while sexual reproduction results in offspring with genetic variation.
- The inheritance of half of an offspring's genes from each parent and how this leads to variations in traits.

ESSENTIAL QUESTIONS
Students will keep considering...

- How do organisms reproduce and transfer genes to their offspring?
- How do offspring produced by asexual reproduction and sexual reproduction compare?
- Why do different offspring of the same parent usually look different?

Knowledge and Skills Acquisition

Students will understand that…

- How genes are transferred from parents to offspring.
- What a dominant allele is compared to a recessive allele.
- Understand that organisms can reproduce sexually or asexually.

Students will be skilled at…

- Identifying organisms that reproduce sexually and asexually.

	• How a punnett square is designed and functions. KEY VOCABULARY • Genes • Sexual reproduction • Asexual reproduction • Fertilization • Trait • Inheritance • Allele • Dominant • Recessive • Variation	• Determine the possible traits that are being passed down to offspring. • Classify characteristics that can be passed down by both parents. • Determine what trait came from which parent.

Stage 2 – Evidence		
Evaluative Criteria	***Assessment Evidence***	
Rubric	PERFORMANCE TASK(S): 1. Illustrate and explain Punnett's Square. • You may draw, use images from magazines or the Internet. • Include an explanation of how the illustration demonstrates or describes the Dominant or Recessive Genes. • Put the explanation next to the illustration. 2. Project should be planned out, neat, and creative. 3. Include color and be creative Writing prompts: *What are some visible traits you have and where do you think they came from?* Model the expression of genetic traits and then explore how acquired characteristics may occur.	Differentiation Considerations: Different modes of presentation – PowerPoint, poster, choice Use of notes and resources Chunked Assignment

Graded Quizzes Observation	OTHER EVIDENCE: Teacher Summatives: PhET Simulation: Genetics Expression. Participation in hands-on labs a. Checklists of collaborative behaviors in labs and activities Science Notebook a. Concept maps b. Vocabulary/Glossary entries c. Guided Research d. Lab Reports described above e. Daily Journal Entries Checklists of collaborative behaviors in class discussions Self-assessments for Performance Tasks TO CONSIDER FOR LATER: UNIT TEST(S) Class Participation	Differentiation Considerations: Adapted Quizzes Homogeneously grouped labs to allow for teacher support Notes/Resources available for more exposure Pictures to support vocabulary