


Short Performance Assessment: HS-LS3-1

Grade Level: **High School**

Adapted from [SNAP](#)¹

Title	Rabbit Genetics		
Designed by	Debbie Beam & Eileen Ragone	Course(s)	Living Environment/Biology
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Performance Expectation	<p>HS-LS3-1: Ask questions to clarify relationships about the role of DNA and chromosomes in coding the instructions for characteristic traits passed from parents to offspring.</p> <p>Clarification Statement: none</p> <p>Assessment Boundary: Assessment does not include the phases of meiosis or the biochemical mechanism of specific steps in the process.</p>
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Science and Engineering Practice	<p>Asking Questions</p> <ul style="list-style-type: none"> Ask questions that arise from examining models or a theory to clarify relationships.
Disciplinary Core Ideas	<p>LS1.A: Structure and Function</p> <p>All cells contain genetic information in the form of DNA molecules. Genes are regions in the DNA that contain the instructions that code for the formation of proteins. (secondary) (Note: This Disciplinary Core Idea is also addressed by HS-LS1-1.)</p> <p>LS3.A: Inheritance of Traits</p> <p>Each chromosome consists of a single very long DNA molecule, and each gene on the chromosome is a particular segment of that DNA. The instructions for forming species' characteristics are carried in DNA. All cells in an organism have the same genetic content, but the genes used (expressed) by the cell may be regulated in different ways. Not all DNA codes for a protein; some segments of DNA are involved in regulatory or structural functions, and some have no as-yet known function.</p>
Crosscutting Concept	<p>Cause and Effect</p> <ul style="list-style-type: none"> Empirical evidence is required to differentiate between cause and correlation and make claims about specific causes and effects.

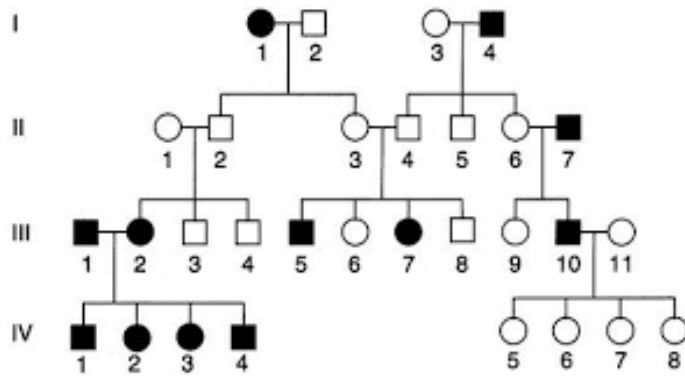
Student Performance	<ol style="list-style-type: none"> Addressing phenomena or scientific theories Evaluating empirical testability
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¹ The Short Performance Assessment (SPA) and the Assessment Rubric adapted from the Stanford NGSS Assessment Project <http://snappgse.stanford.edu/>



Name_____

1. Your friend has a white rabbit farm. By the 4th generation, there are no longer any long haired males. (Long-hair is dominant to short-hair) Your friend asks you to help explain how this could happen. Using the model(s), write two research questions one should support the claim that DNA is inherited from parents to offspring and the other question should be related to the cause and correlation between DNA and the proteins it codes for and the resulting trait observed in an organism.



<https://www.mun.ca/biology/scarrl>



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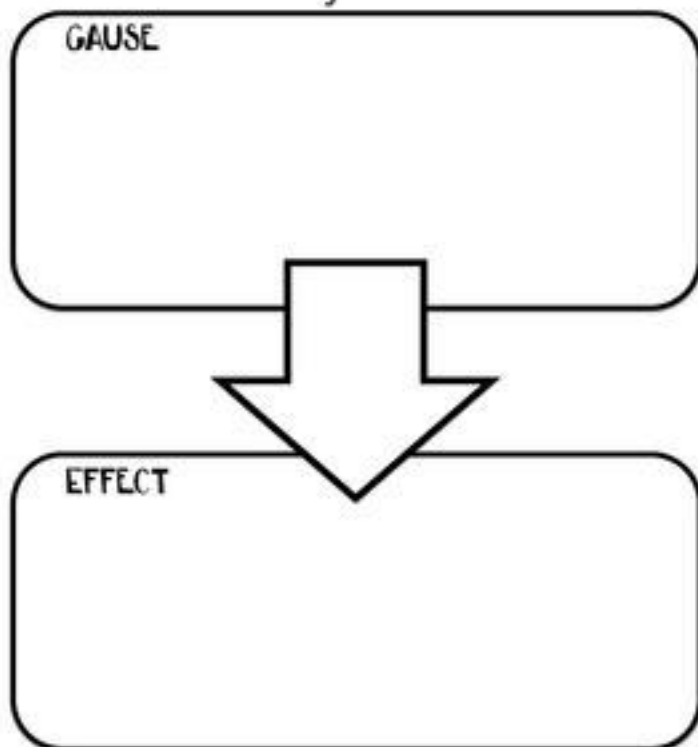


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2. After having so many rabbits your friend had to place a number of them outside during the winter. The rabbits had never been kept in such cold temperatures. After about a month, your friend noticed dark fur growing in the extremities. Write a research question using your knowledge of gene regulation to explore what happened?

3. Fill in the following graphic organizer to support the new research question.

CAUSE & EFFECT Organizer



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4. Design an experiment to test your new question.

5. Referring to question 4 what data would you collect to support your research question.



Assessment Rubric* - Question 1				
	Emerging	Developing	Approaching Proficiency	Excelling
Description of performance				
Sample student responses				

Assessment Rubric* - Question 2				
	Emerging	Developing	Approaching Proficiency	Excelling
Description of performance				
Sample student responses				

Insert additional Assessment Rubrics (if needed) here.



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