Name(s)_____ Blk____

Monster Genetics Project

This project will demonstrate your understanding of different patterns of inheritance and how various mechanisms for the diversity of life can impact a population. You will aim to communicate your scientific ideas and information using appropriate scientific language, conventions, and representations.

The task: Create a visual representation of your monster's phenotype with a detailed genetic profile. You must include the following:

1. Genetic profile:	At least 5 complete Punnet squares with brief descriptions of the genes being represented. You must include at least one trait that is expressed through: □ complete dominance □ co-dominance □ incomplete dominance □ sex-linked inheritance Describe and explain one mutation that the population has experienced through evolutionary time.
2. Visual representation	Create a visual representation of your monster based on its genetic profile. This can be done by hand, on the computer, out of playdough, etc. but **must be an original creation**. □ Include all 5 (at least) characteristics discussed in your monsters' genetic profile.
Evolution Writeup	
3. Habitat	Include a description of the habitat/environment that your monster lives in and how it has **adapted** to survive in this environment over time. □ What **traits** are <u>selected for</u> in this population of monsters and why.
4. History	Explain the evolutionary history of your monster. How has **natural selection** (or **artificial selection**) impacted your monster species and or population. Focus on the evolution of one or two particular traits.

Extra: Think about naming your monster. Name's can carry great significance, indicating origin, family history, family legacy and much more.

How will I be Assessed

Criterion A: Knowing and Understanding	Emerging		Developing		Proficient		Extending	
	1(25%)	**2(50%)**	**3 (56%)**	**4 (60%)**	**5 (67%)**	**6 (74%)**	**7(88%)**	**8(100%)**
i. Explain scientific knowledge	i. **state** scientific knowledge • 4 punnet squares, all simple mendelin inheritance. One or two errors. • States mutation • Visual representation does not match genotypes. Multiple errors.		i. **outline** scientific knowledge • 5 punnet squares, missing one type of inheritances, or one error. • Outlines mutation • Visual representation missing 1 or 2 genotypes, 1 or 2 errors.		i. **describe** scientific knowledge • All punnext squares complete and correct. • Describes mutation. • Visual representation includes all genotypes correctly represented		i. **explain** scientific knowledge • Explains mutation • Describes and explains evolution of each genetic trait represented and how it is expressed in the phenotype.	
ii. apply scientific knowledge and understanding to solve problems set in familiar and unfamiliar situations	ii. apply scientific knowledge and understanding to **suggest solutions** to problems set in **familiar situations** • Short description of habitat. Very similar to example, traits are the same as example.		ii. apply scientific knowledge and understanding to **solve problems** set in **familiar situations** • Detailed description of habitat, includes brief reference to environmental conditions that have forced genetic evolution.		ii. apply scientific knowledge and understanding to **solve problems** set in **familiar situations** and **suggest solutions** to problems set in **unfamiliar situations** • Detailed description of environmental factors that have forced adaptations for survival. Relates this to natural selection.		ii. apply scientific knowledge and understanding to **solve problems** set in **familiar and unfamiliar situations** • Suggests future adaptations that may arise with changes in environment and predation.	
iii. analyse and evaluate information to make scientifically supported judgments	iii. **interpret** information to make **judgments** • States evolutionary history. Very little discussion about impact of natural selection.		iii. **interpret** information to make **scientifically supported judgments**. • Outlines the impacts of **natural selection** (or **artificial selection**. Focus on the evolution of one or two particular traits.		iii. **analyse** information to make **scientifically supported judgments** • Detailed analysis of the impacts of **natural selection** (or **artificial selection** in relation to their monster. Comments on multiple traits represented in genetic profile. Creates scientific judgments as to why these traits and not others.		iii. **analyse** and **evaluate** information to make **scientifically supported judgments** • Breaks down the evolutionary history. Draws connections and relationships to modern species. References external information	

State	Give a specific name, value or other brief answer without explanation or calculation=
Outline	Give a brief account
Describe	Give a detailed account or picture of a situation, event, pattern or process
Explain	Give a detailed account
Interpret	Use knowledge and understanding to recognize trends and draw conclusions from given information
Analyze	Break down in order to bring out the essential elements or structure. To identify parts and relationships, and to interpret information to reach conclusions.