Name: _____ Date: _____ Block: _____

Evolution by Natural Selection - Project

In this individual assignment, you will be outlining the process of evolution by natural selection in a population of a ***real or fictional*** species of your choice. (Note: fictional is recommended.)

As a rough draft, you will answer all the questions on this sheet and demonstrate a good understanding of adaptations and evolution by natural selection. Then, you will present your story in one of the following formats: short story, children's book, comic strip, video, or oral presentation. Contact your teacher if you would like to use a different idea.

	Content and Understanding	Presentation
Developing	• Demonstrates a narrow and simplistic understanding of adaptations and evolution by natural selection; some gaps in knowledge are evident • Some minor elements may be missing	• Presentation adds some creative value to the assignment • Presentation would benefit from additional effort and attention to detail
Proficient	• Demonstrates a solid understanding of adaptations and evolution by natural selection • Information could use more detail in places; overall, descriptions show that the student was paying attention and absorbing key concepts from the case studies examined during this unit	• Presentation captures the information and retells the story in a creative way • Presentation makes effective use of the chosen medium • A good amount of effort is evident
Extending	• Species has been described thoroughly; examples of adaptations reflect an accurate and broad understanding of adaptations • Description of evolution by natural selection is a careful synthesis of multiple concepts and case studies examined during this unit	• Presentation is a sophisticated, creative, and well-executed production that makes the story come alive through masterful use of the chosen medium • Student has gone above and beyond in the amount of effort and attention to detail (e.g. more than one trait evolves) • Student has played to their strengths AND/OR challenged themself to try something new or outside their comfort zone

Part 1: Background Information

1. **Name** of species.
2. **Description** of species: physical appearance, unique behaviours, how they reproduce. (1 paragraph minimum; include a picture/drawing and citation if the illustration is not your own)
3. **Adaptations** of species (at least 3). For each adaptation, describe the adaptation and explain how it improves fitness.
4. **Population Description:**
    a) How many members are in your population? (minimum 10)
    b) Where does your population live? Describe the environmental conditions (e.g. habitat, other species that live in ecosystem, weather, predators, food sources, difficult conditions)

Part 2: Evolution by Natural Selection

1. Select **one trait** that will evolve, from the traits and behaviours described above in "Background Information". (e.g. "hair colour", "leg length", "ear shape").
2. Describe and illustrate at least two **variants** of the chosen trait/behaviour that exist in your population. These can be distinct variants (e.g. pink vs brown*) or a range of variation (e.g. height). In your description and/or illustration, describe the number of individuals that have each trait (e.g. 25% are pink, 75% are brown).
   ** Students aiming for a higher mark are strongly encouraged to avoid using colour as a trait, as colour and camouflage were used in many examples throughout this unit.*
3. Describe a **selective pressure** that will affect the chosen trait/behaviour.
4. Describe how the trait **evolves** (changes over multiple generations) in your population.
5. Describe the **end result** of the chosen trait/behaviour in your population. What variant(s) are present, and in what frequencies?

Vocabulary Elaborations:

Species: a group of organisms that look and behave similarly and could all reproduce with each other (e.g. horses, dogs, blue whales, emperor penguins)

Population: a group of organisms of the same species that live in a single region and interact with each other (e.g. black bears in British Columbia)