Natural Selection[1]

Student name: _____

Learning goals:

- Identify adaptations that allow organisms to survive.
- Understand the relationship between limiting factors and mutations in the survival of a species.

Open Exploration:

1. Play with the *Natural Selection* PhET simulation for a few minutes to find out how it works. Below, describe what the simulation is about.

Data Collection:

1. Using the **Intro screen**, fill in the following table based on your observations:

Objective	What actions did you take?	How many generations did it take?
How can you get more white rabbits?		
How can you make 20 brown rabbits?		

2. What conditions lead to the stabilization of the rabbit population?

3. What conditions cause the rabbits to "take over" the world?

4. What conditions lead to the death of all rabbits?

5. In the **Lab screen**, Explore the mutations and environmental factors to determine which may be advantageous for a given selection factor. Record your experiments and observations in the table below:

Get the rabbit community to survive situations such as:	Experiments and observations:
Wolf attacks ✔ Wolves 🐺 ◑	
Tough food ✔ Tough Food 🌿 ◐	

Limited food	
☑ Limited Food 🟢	
Wolf attacks and limited food	

Conclusions

Individually answer these questions:

6. Simulations are useful for understanding how natural processes work, but they are not always representative of the real world. In what way does this simulation differ from what could happen in a real ecosystem (How is this simulation different from what could happen in a real ecosystem)?

7. Using your own words and examples from the simulation, fill in the following term definitions table regarding natural selection:

Word	Definition	Simulation Example
Mutation		
Adaptation		

Environmental Factors		
Generation		
Natural Selection		

After answering, please share your answers with your team.