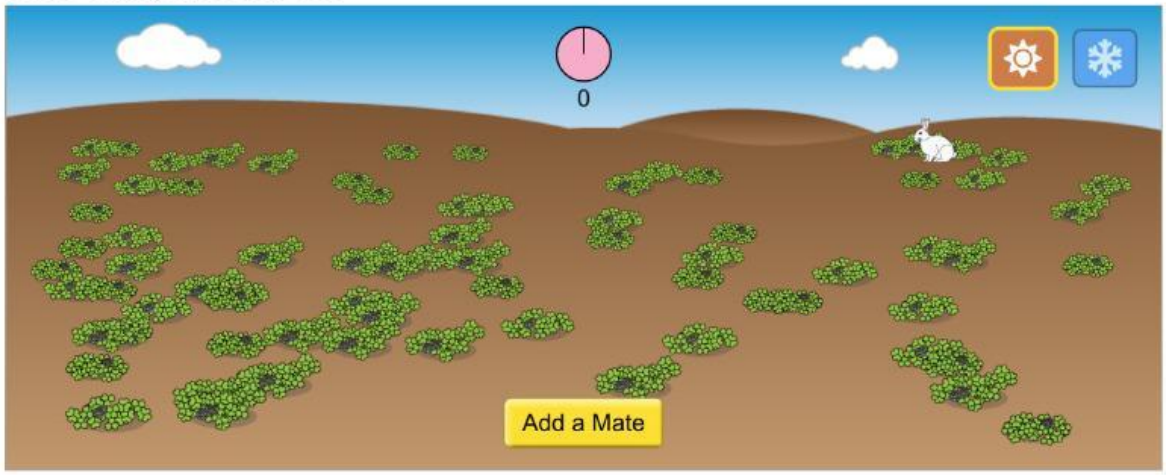
Name: _____ Period: _____

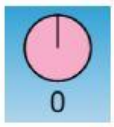
Natural Selection Simulation

Go to the Natural Selection simulation. https://phet.colorado.edu/en/simulation/natural-selection

- Click “play”
- Click “lab”

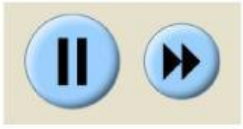
This is what you should see:





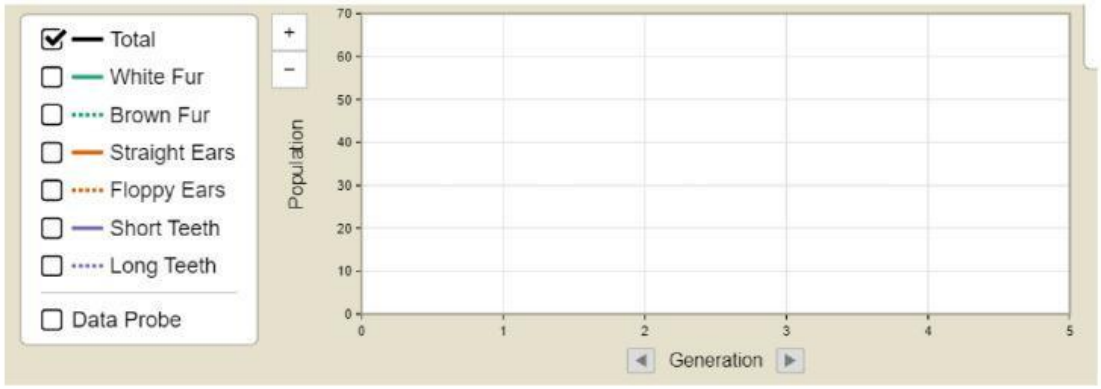
Timer (Ignore this)

Environment controls



Time control

Traits and environmental factors



Population graph

Part 1: Teeth

Reset everything using the  button. Click on the  on the left under the dominant column to add a mutation. Click “Add a Mate”. After 3 generations have passed on the graph click  to pause the simulation.

1. Based on the population numbers, which type of tooth is the predominant trait so far?

2. Do the current environmental conditions favor one type of tooth? Use evidence to support your answer. (Hint: the “proportions” setting next to the graph can provide evidence as well)

3. PREDICT: What would happen to both the populations of long teeth and short teeth rabbits if the food became tough? What would happen to the proportion of long teeth to short teeth?

DO NOT RESET. Click the “tough food box”, then click  to restart the simulation. After 7 generations have passed, pause the simulation to check your predictions.

4. Were your predictions correct? Use evidence to support your claims.

5. Write the REASONING for the following claim: *Long teeth in rabbits is a favorable mutation when food sources are tough.*

Part 2: Fur

Reset everything using the  button. Click on the 

on the RIGHT under the recessive column to add a mutation. Click “Add a Mate”. After 3 generations have passed on the graph click 

while letting the simulation run. Pause  the simulation after 8 generations.

6. How did the proportion of white bunnies to brown bunnies change after wolves were introduced to the environment? What would be a reasonable explanation for this change?

7. Based on the evidence, what is the difference between a dominant trait (white fur) and a predominant trait?

DO NOT RESET. Click the  then click  to restart the simulation. After 12 generations have passed, pause the simulation.

8. What effect did the change in environmental conditions have on the rabbit population?

Conclusion

9. What factors determine whether or not a mutation will become a predominant trait?