The Fittest Bunny

Learning Objective: Students will be able to determine the fittest bunny by natural selection through the interactive website PHET.

Simulation Instructions:

1. Open PhET. Type in natural selection in search window. Hit Search
2. Click Run Now for Natural Selection simulation
3. Watch the bunny hop across the screen until it dies
4. Notice that as time passes, the population remains zero.
5. Skip forward until the bunny dies and click play again to see the bunny of the next generation.

Questions

1. Why is the population growing
2. FUR COLOR--Why do white vs brown bunnies survive in both environments

TASK ONE: Add friends

1. Click add a friend. After 3 generations, click pause. What happened to the population of bunnies and why?
2. PREDICT what would happen if you add wolves?
3. Why do you think the bunnies died?

TASK TWO: Add wolves

1. Select wolves as the selection factor and then click play.

PREDICT what will happen to the bunnies

2. Add wolves and pause after 1 generation.

3. What happens to the bunnies? Did the results match your predictions?

Observe how the wolves attack the bunnies in each environment

TASK THREE: Add brown fur

1. Select wolves as selection factor and Click on brown fur
2. PREDICT what will happen to the bunnies this time.
3. Pause generations. What happened to the brown bunnies?

TASK FOUR: Change environment

1. PREDICT what would happen to the bunnies in a different environment
2. Select arctic environment
3. Click Play
4. What happens to the brown bunnies?

Discussion Questions

1. How did the wolves act as a natural selection pressure?
2. Which bunnies were better suited for the Equator environment? Why?
3. Which bunnies were better suited to survive the arctic environment?
4. What would need to happen for the bunnies to survive the arctic environment
5. What do you predict would happen if food was the selection factor? If you have time, reset the form and select food as the selection factor.
6. How would you define the Fittest Bunny?

Answers

1. They ate all the bunnies around them. That forced the bunnies to change from white to brown
2. The brown bunnies survived the Equator environment because they camouflage
3. The white bunnies survived the Arctic environment because they camouflage in the snow.
4. The bunnies need to be white in order to camouflage with the snow and hide from wolves.
5. More food would help the bunnies survive and reproduce.
6. The Fittest Bunny is the bunny that survives the longest in its environment.