Principles of Natural Selection

10th graders should be able to understand the mechanisms of natural selection by giving examples of the four postulates:

1. The individuals within a population differ from one another

2. The differences are, at least in part, passed from parents to offspring

3. Some individuals are more successful at surviving and reproducing than others

4. The successful individuals succeed because of the variant traits they have inherited and will pass to their offspring

Instructions:

Press play

Press brown fur and add friends.

1. Hypothesize which bunnies would better survive in the arctic environment. Why?
2. Choose the arctic environment. What happened? Why?
3. Add wolves. What happened now? Why?
4. Reset. Press Arctic. Give the bunny white fur. Add friends. Give food. What happened? Why?
5. Reset. Press Arctic. Click long teeth. Which one is depicted on the chart as a larger population (long or short teeth)? Why do you think this happened?
6. Click on long tails. Which one is depicted on the chart as a larger population (long or short tail)? Why do you think this happened?
7. Repeat this experiment (steps 1-6) with the equator environment. Which parameters allow for a better survival rate? Why?

Answers:

1. Bunnies with white fur would be better adapted to the artic environment and would survive. Answers will vary.
2. Same as 1.
3. Bunnies with brown fur become extinct, leaving only the white bunnies left. Answers will vary.
4. The bunnies reproduce and dominate the world! Answers will vary.
5. Bunnies with short teeth have a larger population. Answers will vary.
6. Bunnies with short tail have a larger population. Answers will vary.
7. Answers may vary but brown bunnies with short teeth and tails will have a better survival rate.