

## Natural Selection Model

---

Speaking from a biological perspective, an organism's purpose is to thrive in its environment, survive predation, out-compete other organisms for resources, and to reproduce and create viable offspring. In the fictitious environment we are creating today, our population of dunces needs survives wholly on the acquisition of Brandtapple fruit.

A *dunce* is a hermaphroditic organisms that reproduces sexually. Dunces have evolved to specialize in the digestion and metabolism of brandtapple fruit- this fruit fulfills all of their food, water and vitamin needs.

**Round 1: Brandtapple fruit is easily accessible and found everywhere.**

**Round 2: Competition between dunces reduces the amount of brandtapple fruit available in the lower bushes.**

**Round 3: A hurricane came and devastation reigned. The high winds destroyed the brandtapple fruit on the mid-level branches.**

**Round 4: A fire swept through the home of the dunces, now only the upper-mist fruit is available for consumption.**

---

1. Draw how the brandtapple fruit has changed throughout the rounds of play.
2. What environmental pressures were placed on the dunce population?
3. What biological term is used to describe how well an organism adapts to a changing environment?
4. In a brief paragraph, explain what happened to the dunce population over time.
5. What was the biological reward for surviving each round?
6. Applying the concept of natural selection, and assuming the location of brandtapple fruit on the tree remains steady, what do you think would happen to the dunce population over a time period of 100, 500 and 10,000 years? (dunces mate constantly between the ages of 30-50, gustation is 3 months and a litter usually consists of three to five immature dunces per pregnancy)
7. How might the role of mutation change your predictions in number 6, above?