Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Period \_\_\_\_\_\_

Natural Selection Card Activity

**Natural selection** is the process by which [heritable](http://en.wikipedia.org/wiki/Heritable) [traits](http://en.wikipedia.org/wiki/Trait_(biology)) that make it more likely for an [organism](http://en.wikipedia.org/wiki/Organism) to survive and successfully [reproduce](http://en.wikipedia.org/wiki/Reproduction) become more common in a [population](http://en.wikipedia.org/wiki/Population) over successive generations. The natural [genetic variation](http://en.wikipedia.org/wiki/Genetic_variability) within a population of organisms means that some individuals will survive and reproduce more successfully than others in their current [environment](http://en.wikipedia.org/wiki/Ecosystem). For example, the [peppered moth](http://en.wikipedia.org/wiki/Peppered_moth) exists in both light and dark colors in the [United Kingdom](http://en.wikipedia.org/wiki/United_Kingdom), but during the [industrial revolution](http://en.wikipedia.org/wiki/Industrial_revolution) many of the trees on which the moths rested became blackened by soot, giving the dark-colored moths an advantage in hiding from [predators](http://en.wikipedia.org/wiki/Predators). This gave dark-colored moths a better chance of surviving to produce dark-colored offspring, and in just a few generations the majority of the moths were dark.

1. Shuffle the deck of cards.
2. Pull 20 cards from the deck.
3. Each card’s value represents the height of an individual of a population. Face cards are 10.

List the heights of your population

\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_,

\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_,

\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_,

\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_,

1. Find the average height of the population.

\_\_\_\_\_\_\_\_\_\_

1. There has been a terrible drought and many plants died. The animals in this population are herbivores. Since all animals can reach the lower vegetation, it doesn’t take long for the vegetation on the lower branches to be eaten. Only the animals in your population that are **7 or taller** will survive the drought due to the limited energy/food source.
2. Now let’s see how this change in the environment will affect the next generation. Reshuffle the deck and pull two cards at a time from the surviving population. Each pair is a parental unit. Their offspring will be the average of their two heights.

parents \_\_\_\_\_\_\_\_/\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_/\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_/\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_/\_\_\_\_\_\_\_\_\_

offspring

parents \_\_\_\_\_\_\_\_/\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_/\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_/\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_/\_\_\_\_\_\_\_\_\_

offspring

1. List the heights of this new generation.

\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_,

\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_,

1. Find the new average height of this new generation. \_\_\_\_\_\_\_\_\_\_\_

# Reflect and Respond

1. What change in the environment caused some of the individuals to die?
2. What adaptation enabled some individuals to survive?
3. What happened to the height of the population over time?
4. How does nature or natural selection cause an adaptation to be the norm in a population?
5. What would have happened to the population if none of the individuals had been taller than 6?
6. Explain how a lion’s adaptation of sharp teeth might have become the norm.
7. Describe natural selection in your own words.