

Traits Over Time

Track how selection changes populations across generations.

7.13.D "describe and give examples of how natural and artificial selection change the occurrence of traits in a population over generations."

NAME _____

DATE _____

1 READ AND MARK _____ Read it twice

YOUR JOB Underline each trait that becomes more common. Circle the words that show what causes that change, then write N for natural selection or A for artificial selection beside each example.

Why Populations Change

- ① A population is a group of the same species living in one area. Individuals in a population have inherited differences, called traits. When some traits help individuals survive and reproduce in a certain environment, those individuals tend to leave more offspring. Their helpful traits can become more common across many generations. This process is natural selection. Natural selection does not give an individual a trait because it needs one. Instead, existing inherited variation affects which individuals leave more offspring.
- ② On a dark lava field, rock pocket mice vary in fur color. Some have dark fur, and others have light fur. Hawks more easily spot light mice against black rock. Dark mice are less likely to be eaten and may produce more young. Over many generations, dark fur becomes more frequent in the lava-field population. The rocks did not change mice. Predation changed which inherited fur colors were passed on more often.
- ③ Artificial selection also changes trait occurrence, but people choose which organisms reproduce. For example, a tomato grower saves seeds only from plants that produce large, sweet fruits. The grower plants those seeds the next season and repeats the choice for several years. Plants with genes linked to larger, sweeter fruit leave more descendants in the grower's crop. As generations pass, large, sweet fruit becomes more common. Unlike the mice, people, rather than hawks and lava, set the selecting conditions.

2 ANSWER WITH EVIDENCE Use the passage

- 1 How does the occurrence of dark fur change in the lava-field mouse population, and what causes that change?

- 2 Why is the mouse example natural selection rather than artificial selection?

- 3 Describe how the tomato grower changes the occurrence of a trait in the crop over generations.

- 4 What is one key difference between the selecting conditions in the mouse population and the tomato crop?

3 YOUR TURN Your own words

Create your own example of natural or artificial selection. In 3 to 4 sentences, describe inherited variation in a population, the selecting condition, and how one trait becomes more common over generations. Name the type of selection.

PART 1 • READ AND MARK

Underline each trait that becomes more common. Circle the words that show what causes that change, then write N for natural selection or A for artificial selection beside each example. Accept any marking that follows this job and points at the right text.

PART 2 • ANSWERS

#	QUESTION	ANSWER
1	How does the occurrence of dark fur change in the lava-field mouse population, and what causes that change?	Dark fur becomes more frequent over generations because hawks more easily spot and eat light mice on black lava, so more dark mice survive and reproduce.
2	Why is the mouse example natural selection rather than artificial selection?	Hawks and the dark lava environment, not people, affect which mice survive and reproduce.
3	Describe how the tomato grower changes the occurrence of a trait in the crop over generations.	The grower repeatedly saves and plants seeds from plants with large, sweet fruits, so large, sweet fruit becomes more common.
4	What is one key difference between the selecting conditions in the mouse population and the tomato crop?	In the mouse population, environmental conditions and predators select traits. In the tomato crop, a person chooses which plants reproduce.

PART 3 • YOUR TURN (SAMPLE ANSWER)

In a population of insects, some have genes for resistance to an insecticide and some do not. Farmers spray the insecticide, so more resistant insects survive and reproduce. Over generations, insecticide resistance becomes more common in the population. This is natural selection because the insecticide affects which insects leave offspring.

Accept other accurate examples if they identify inherited variation, a selecting condition, differential survival or reproduction, and a trait becoming more common over generations. For natural selection, the condition is environmental. For artificial selection, people choose which organisms reproduce.