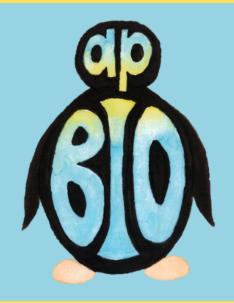
**5.5** 

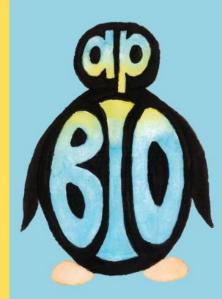


# Environmental Effects on Phenotype

#### **SYI-3.B.1**

Environmental factors influence gene expression and can lead to phenotypic plasticity. Phenotypic plasticity occurs when individuals with the same genotype exhibit different phenotypes in different environments

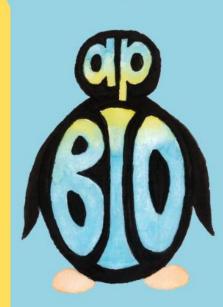
**5.5** 



What is phenotypic plasticity?

**5.5** 

What is phenotypic plasticity?



## Phenotype changes based on environment

This can be behavioral, physical, or morphological changes.

5.5

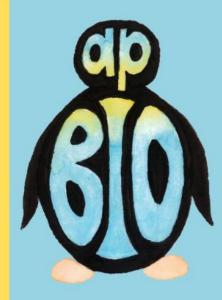


Example of Phenotype Plasticity

### Hydrangeas

No matter what the genotype states, the flower could develop as a pink or blue flower depending on the alkalinity of the soil planted in.

**5.5** 



Why would the snowshoe hare change to brown earlier?

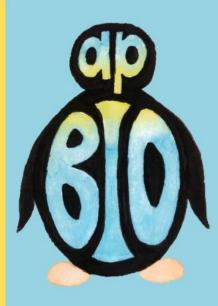
**5.5** 

Why would the snowshoe hare change to brown earlier?



As temperatures increase, the snowshoe hares will synthesize different proteins to change their white fur color to brown. This is a direct result of global climate change.

5.5



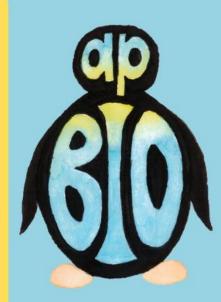
As temperatures increase, the caterpillar population will hatch earlier. Predict how the hatching of its predator is affected?

- A. Hatched earlier
- B. Hatched at same time
  - C. Hatched later
- D. Hatching rate decreased

5.5

TOPIC

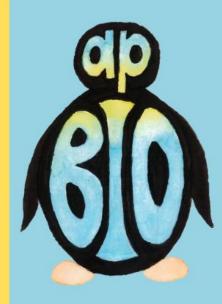
As temperatures increase, the caterpillar population will hatch earlier. Predict how the hatching of its predator is affected?



A. Hatched earlier

Due to the increase in temperature, the prey (caterpillar) will hatch earlier. In order for the predator to have food, it needs to start hatching earlier.

5.5



## Identify why many animals undergo plasticity

- A. Different genotypes
- **B.** Different ancestors
- C. Differential reproductive selectionD. Different species

5.5

Identify why many animals undergo plasticity

C. Differential reproductive selection

Plasticity involves a phenotypic change due to an environmental change. This process will allow individuals to have a higher fitness.

Example: The snowshoe hare is able to blend into the snowly environment during the winter then the muddy environment during summer.