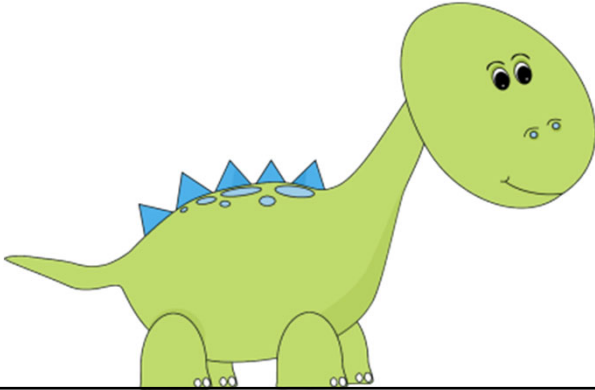


Can I Build a Dinosaur?



Traits and Variations

- Traits are inherited characteristics that vary among individuals of a species.
 - Traits are passed from parent to offspring.
- Organisms of the same species have variations, or differences, in their traits.
 - fur color



Adaptations

- Adaptations are favorable variations that help organisms survive in their environment.
- Adaptations occur in a species over time through a natural process.



Examples of Adaptations

•Camouflage

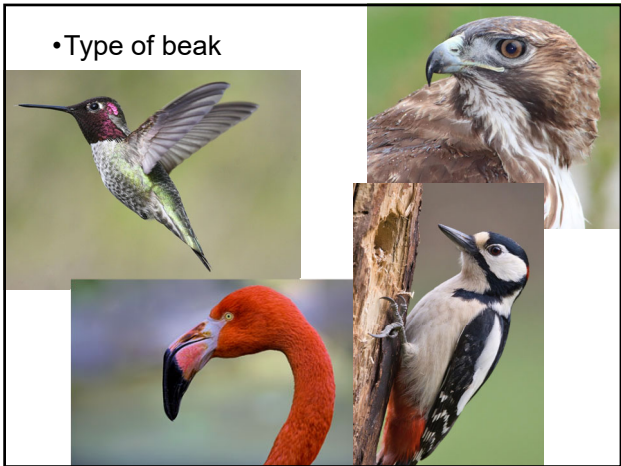


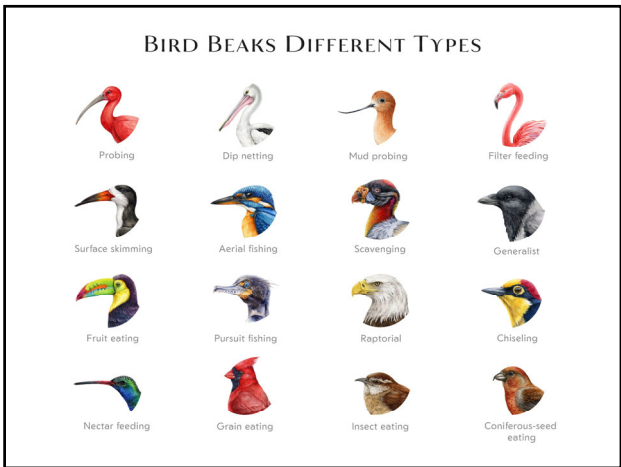


•Type of claws









Why are Adaptations Important?

- Adaptations are essential for an animal's ability to survive and reproduce.
- Without adaptations, animals might struggle to find food, avoid predators, or reproduce.

Structural Adaptations

- Structural adaptations are physical features that help organisms survive
- These adaptations involve changes in an organism's body structure or physical characteristics.

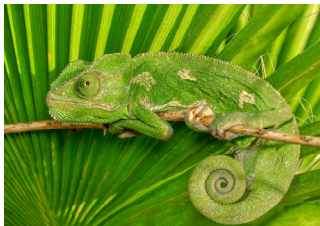


Examples of Structural Adaptations

claws

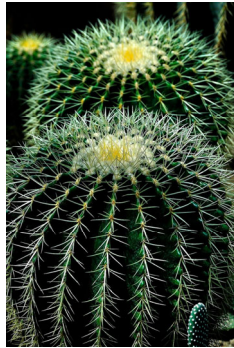


camouflage





thick fur



spines



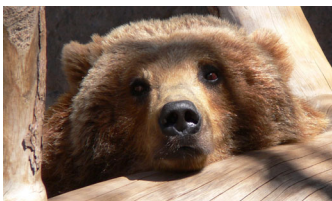
thick cuticles

spores



Behavioral Adaptations

- Behavioral adaptations are actions or habits that help organisms survive.
- These adaptations are behaviors that organisms exhibit in response to specific conditions or challenges in their habitat.



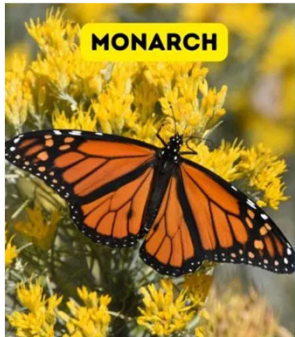
Examples of Behavioral Adaptations



migration

nocturnal behavior





mimicry

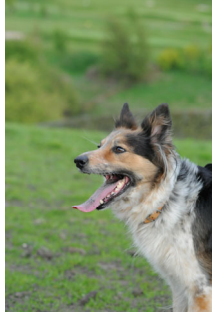
chemical signaling



dormancy

Physiological Adaptations

- Physiological adaptations are changes inside an organism's body that help them survive.
- These adaptations help organisms regulate and maintain internal balance as outside conditions change.



Examples of Physiological Adaptations

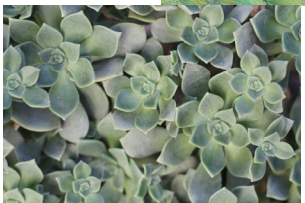
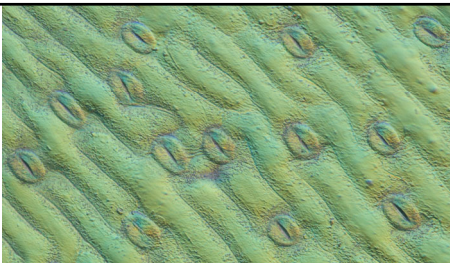


water storage

fat storage



stomata



water storage

Natural Selection

- Natural selection describes the process by which organisms better suited for their environment survive and produce more offspring.
- Favorable traits become more common over time as the offspring with favorable variations survive.
- Adaptations change in a species over time through the process of natural selection.

Peppered Moth



Antibiotic Resistance

- Antibiotics are medications designed to prevent the growth of bacteria.
- Over time, some bacteria have adapted to resist the effects of antibiotics.
- The overuse of antibiotics and antibacterial products could result in bacteria that are resistant and therefore, more deadly.

Artificial Selection

- Artificial selection happens when humans choose specific plants or animals to reproduce based on desired traits.

- more appealing color
- better taste
- size



Animal Breeding

- Dogs and cats are bred with specific traits to create breeds with desired characteristics.

- size
- shape
- coat characteristics
- behaviors

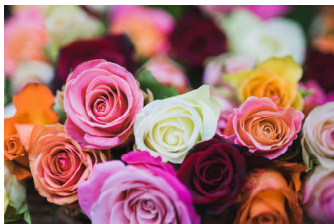
- Racehorses are bred to be faster and have greater endurance.



Plant Breeding

- Plants are bred for favorable traits.

- bearing lots of produce
- not getting sick easily
- being able to grow in certain weather
- color of flowers
- scent of flowers





Natural and Artificial Selection

- Key Similarities
 - Both affect the survival and reproduction of individuals based on their traits and adaptations.
 - Both contribute to changes in a population's characteristics over time.

- Key Differences
 - Natural selection is driven by environmental factors, while artificial selection is guided by humans.
 - Natural selection operates in the wild, whereas artificial selection occurs in controlled environments.

Genetic Engineering

- Genetic engineering (also called genetic modification) is a process that uses laboratory-based technologies to alter the DNA makeup of an organism.
 - changing one part of the DNA
 - deleting a region of DNA
 - adding a new segment of DNA

- One of the main concerns with human genetic engineering is the possibility of unintended consequences.
 - Manipulating genes can have unpredictable effects on an individual's health and well-being. Even small alterations can have significant repercussions, leading to unforeseen genetic disorders or complications.

- Before implementing human genetic engineering, a thorough risk assessment is necessary.
 - It is crucial to understand the potential long-term effects and consequences of altering our genes. This includes considering the risks of unintended mutations, genetic disorders, and the impact on future generations.

- The complexity of genetics makes it challenging to fully predict and understand the consequences of genetic engineering.
- The potential risks and uncertainties must be carefully evaluated before pursuing widespread implementation.
