Science
Year 6

Evolve, Adapt, Inherit

How did Darwin's work change the way we think about the animal kingdom?

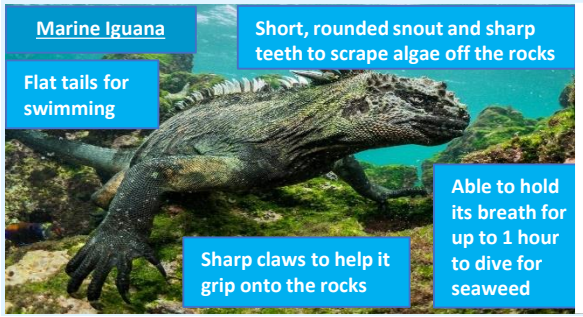
Shakespeare Primary School and Nursery

Evolution and Inheritance

Fossils provide evidence of organisms that lived millions of years ago. Some of the fossilised species became extinct, while others evolved into new species. A **species** is a group of organisms that can reproduce and have offspring which can also have offspring. Different species have different **characteristics** from each other. For example, dogs have tails and humans do not. The individual members of a species also have differences in characteristics. For example, humans have different coloured eyes, and dogs have different length tails. This means that no two members of a species are identical. The differences between the individuals in a species is called **variation.** In order to stay alive living things must have characteristics that are suited to their surroundings. If there is a change in the environment, then only those best suited will survive. As a result of their genes, some individuals of a species might have better camouflage, or be able to run faster. These individuals are more likely to survive. This is called **natural selection.** The members of a species that survive may reproduce. Their offspring are likely to have **inherited** the desirable characteristics of their parents. This is how species change in **evolution.**

Adaptation

If a habitat changes, this threatens the survival of the species that live there. If all the animals of a species die out, this is called **extinction.** Any feature (either physical or behavioural) which helps a plant or animal to survive is called an adaptation. Plants and animals are adapted to survive in specific habitats.



The Five Steps of Natural Selection

1. **There is variation within the same species.** For example, the birds have different length legs.

2. **There is a change in the habitat of the species.** There is a rise in the water levels that the birds live in.

3. **Some individuals have adaptations which make them more likely to survive.**

4. **The individuals with survival adaptation are more likely to reproduce.**

5. **Their offspring are more likely to have the survival adaptation.**

Working Like a Scientist and Working Scientifically

Scientists studying evolution and inheritance gather evidence from sources like fossils. They report their findings, including conclusions and explanations, through presentations and written reports. Using scientific evidence, they construct models and classify organisms to explain evolutionary processes.

A Scientist Just Like Me!

Emma Dunne is an English paleobiologist who works at the University of Birmingham. She uses information from fossils to investigate how ancient climate change affected the evolution of different species over millions of years of Earth's history. Emma uses this knowledge to help predict what might happen in the future.

Speak Like a Scientist

Previously learned vocabulary:
classify, adaptation, fossil, organism

New vocabulary:
evolution, extinction, species, inherited characteristic, variation, natural selection

Project Questions

What can fossils tell us?
How can offspring vary from their parents?
How do an animal's adaptations help it to survive? Give an example.
How does natural selection lead to evolution?

Careers: paleobiologist, paleontologist, geologist

If you want to be a paleobiologist, you need…

- to be **curious** about the history of life on Earth and how it has evolved.
- You need to pay **close attention to detail** such as the tiny differences in fossils.
- To be able to **share your ideas** with others.