



## **Fossils and Evolution** KS2 (year 4, 5, and 6), KS3

Duration: 1 hour, max capacity: 35 students

KS2 & KS3

Travel back in time to discover what rocks and fossils can tell us about the history of life on Earth. Students examine incredible real fossils and Spin the Great Evolutionary Wheel of Fortune to learn how evolutionary change is driven by a struggle for survival in a changing environment.

KS3

Collect and interpret evidence on the evolution of a familiar species.

### **Key Words:**

Fossils, Evolution, Investigation, Working scientifically, Evidence, Palaeontology, Adaptation, Earth, Rocks, Natural selection, Charles Darwin, Variation.

### **Learning objectives**

To recognise that life on Earth has changed over time.

Understand that rocks can tell us about the environmental and climatic conditions at the time they were formed (and so provide information about previous (paleo) climates - KS3).

That some sedimentary rocks contain fossils and that these are the remains or traces of formerly living organisms.

Understand that fossils can be formed by different processes.

That fossils can reveal a sequence of change over time and that this change is called evolution.

That all natural populations show variation between individuals.

That individuals better adapted to their environment will be more successful, produce more offspring and pass on inherited characteristics to their offspring.

That this process is termed Natural Selection.

That the accumulation of favourable characteristics adapts a species to its environment and causes evolution.

To recognise that changes to the environment can drive evolution by changing the selection pressures on a species.

### **Content**

KS2 & KS3

Examine impressive fossils that illustrate a range of different formation processes.

Consider and discuss the formation of fossils and their value in understanding the history life on earth.

Identify rock types and link these to specific climatic conditions.

Play the Great Evolutionary Wheel of Fortune game as a flock of birds—competing to survive as the climate changes.

Discuss how competition and natural selection can cause evolution—or even extinction!

KS3

Examine a sequence of fantastic, life-sized fossil horse remains and plant fossils covering a 55-million-year period.

Record information from each stage to build a picture of the evolution of the modern-day horse.

Organise and interpret the evidence to reach a conclusion about why and how the horse evolved to its current form.

### **Curriculum Links**

The Fossils & Evolution workshop builds on Year 3 programme of study topics on rocks and fossils.

**Year 6: Evolution and inheritance.** Recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago.

**Year 6: Evolution and inheritance.** Recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents.

**Year 6: Evolution and inheritance.** Identify how plants animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution.

# we the curious Workshop



## **KS3 Working scientifically**

Understand that scientific methods and theories develop as earlier explanations are modified to take account of new evidence and ideas. Ask questions and develop a line of enquiry based on observations, alongside prior knowledge and experience. Make and record observations and measurements. Present observations and data using appropriate methods, including graphs. Interpret observations and data, including identifying patterns and using observations, measurements and data to draw conclusions. Present reasoned explanations

## **Genetics and evolution**

Differences between species, and variation between individuals within a species. Variation means some organisms compete more successfully, which can drive natural selection. Changes in the environment may leave individuals within a species, or entire species, less well adapted and this may lead to extinction

## **Potential Hazards and accessibility**

Some of the fossils are heavy but will be examined safely over a table

Seeds used in the final activity include conkers, quinoa, barley, chickpeas and coconuts

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