



"FOSSIL OR NOT"

Activity Book designed by Marta Fernández Alcalde (MUPA)

At the museum...



What does paleontology mean? Do you know anything about evolution? Do you want to be a paleontologist? Have you ever found a fossil? What does the word "dinosaur" mean? Where do humans come from?...

You probably know the answers to these questions, but a few years ago these were the questions that were on everyone's lips.

Scientists were searching for answers to these questions by discovering fossils and trying to prove the theory of evolution.

Join us on a journey through time from the origin of the Earth until the present day.



Letter for teachers:

Welcome to the Paleontology Museum of C-LM. We hope your students will enjoy the guided visit and the workshop "Fossil or not".

We have selected some activities and materials to help them understand a bit about the world of Paleontology.

There is a wide range of activities for different ages and levels. We have designed these didactic materials as a general guide and help for teachers, giving you the chance to adapt or choose the activities best suited for your specific classes.

Enjoy them and ... HAVE FUN!

VOCABULARY

Paleontology – Paleontologist – Fossil – Fossil site – Specimen – Dinosaur – Reptile – Lizard – Bone – Shell – Footprint – Trilobite – Ammonite – Pterosaur – Nothosaur – Coal – Claw – Tusk – Trunk – Egg – Nesting area – Cretaceous – Osteoderm – Spike – Feathers – Beak – Mass extinction



ARCHAEOLOGY or PALEONTOLOGY?

THIS IS THE QUESTION...



What's the difference between these two sciences?

Archaeology studies the remains of man-made things (coins, stone tools, pyramids, pottery...) and **Paleontology** studies the remains of living things that lived in the past (skeletons, amber, teeth, eggs, seeds, footprints...).

**I'M A PALEONTOLOGIST !
I HAVE A FASCINATING JOB**



People believe that I only look for dinosaurs, but my job is more than that! I look for animals, plants, bacteria... and I study the history of life on the Earth through fossils.

Would you like to be a paleontologist?

Why or Why not?

Open question.



INSIDE A PALEONTOLOGIST'S FIELD KIT

I need lots of equipment to dig up bones. Write the words in the right place.

Compass – Hammer – Field notebook – Brush – Magnifying lens – GPS – Hat
– Chisel – Spade – Boots – Geologic map – Tape measure – Plastic baggies



Chisel



Boots



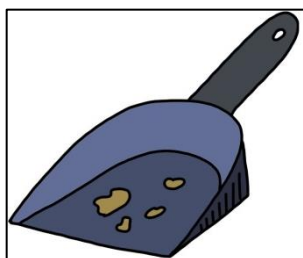
Field notebook



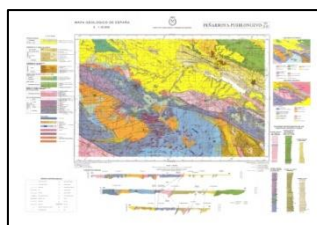
Compass



Plastic baggie



Spade



Geologic map



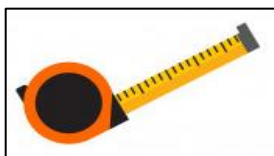
Hat



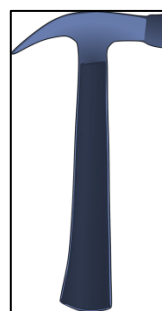
GPS



Brush



Tape measure



Hammer



Magnifying lens



Paleontologists use a **colorful** time line.

Match the eras with the sentences:

MESOZOIC

The time of mammals and flowering plants.

PALEOZOIC

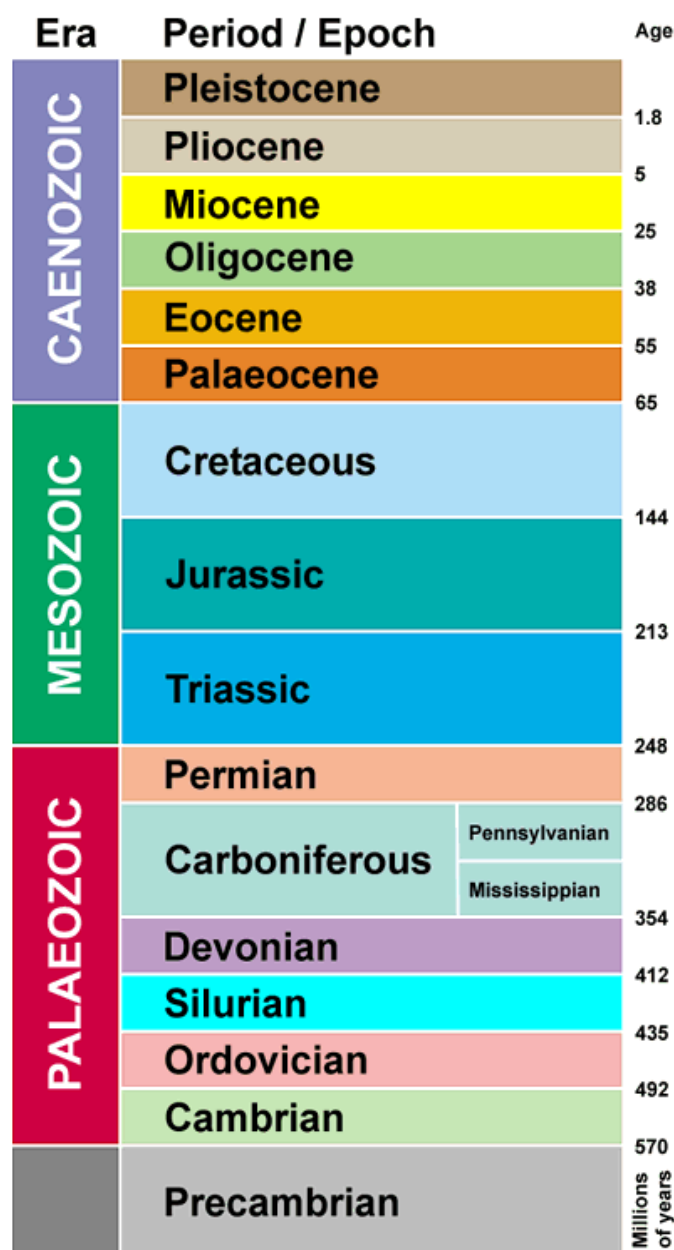
The era dominated by reptiles and dinosaurs.

CENOZOIC

The explosion of marine life and invertebrates.

Complete with these words and try to pronounce them... It's a tricky exercise!

CRETACEOUS - PALEOZOIC - PLEISTOCENE - JURASSIC - MESOZOIC
CARBONIFEROUS - CENOZOIC - TRIASSIC - PRECAMBRIAN





Fossils

Fossils are the remains or traces of animals and plants that lived in the past.

A **body fossil** is the remains of the body of an animal or plant, or the imprint or cast of it.

A **trace fossil** indicates that an animal or plant was there, but is not a body fossil. It includes footprints, tooth marks, eggs, coprolite (fossil excrement)...

You have to guess ...

If it is a body fossil, write a **B** and if it is a trace fossil write a **T**:



B



T



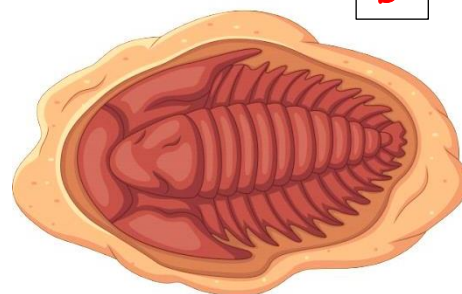
T



B



B



B



T



B



T



Fossilization!

Fossilization is the process of bone turning to rock over many thousands of years. But do you know how fossils form?

STAGE 1

Not all living things fossilize. When a dinosaur dies, it needs the ideal conditions to become a fossil. What are these good conditions for fossilization?

- a) Its body is quickly buried in sand and mud. ☒
- b) Its body lays on top of the mud in the sun. ☐
- c) Its body is eaten by predators. ☐

STAGE 2

Most of the dinosaur's soft parts are eaten or rot away. What parts of the dinosaur does this include?

- a) Only bones. ☐
- b) Bones and muscles. ☐
- c) Muscles, skin and organs. ☒

STAGE 3

Next, the dinosaur bones harden into solid rock. What makes the dinosaurs bones harden?

- a) Heat from the sand and mud. ☐
- b) Minerals in the water and the ground. ☒
- c) Weight of the soil and rocks on top of them. ☐



STAGE 4

The rock erodes, exposing the deep layers containing the fossil skeletons and footprints. With a bit of luck and a lot of skill, the preserved remains of the dinosaurs are found by paleontologists. What type of rocks can contain fossils?

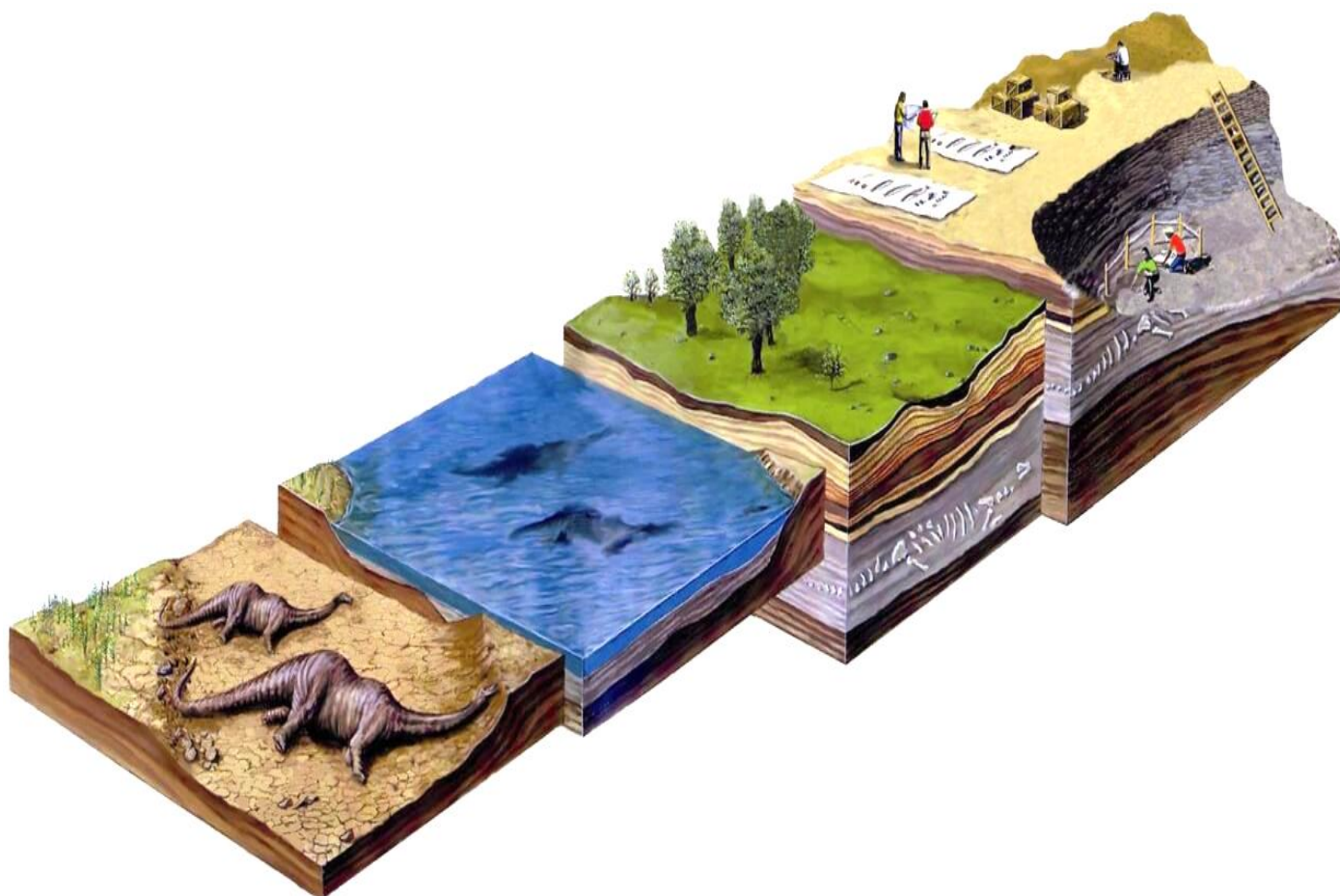
a) Sedimentary rocks.

☐

b) Sedimentary and some metamorphic rocks.

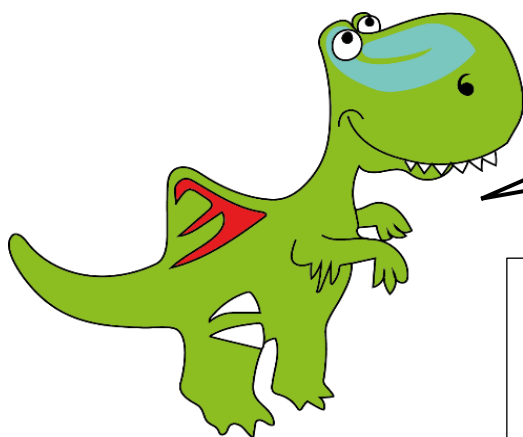
☒

c) Sedimentary, metamorphic and magmatic rocks.

☐



DINOSAUR WORLD



My name is
Concavenator! Help
me to fill in the blanks

Jurassic – volcanic – spikes – theropods –
meat eaters – lizard – Mesozoic – water –
dinosaur – flying – meteorite – horns

The word dinosaur comes from the Greek language and means 'terrible lizard'. The word was coined by the English paleontologist Richard Owen in 1842.

The first dinosaur to be formally named was the Megalosaurus.

Dinosaurs ruled the Earth for over 160 million years, from the Triassic period around 230 million years ago through the Jurassic period and until the end of the Cretaceous period around 65 million years ago. The era is known as the Mesozoic Era.

Scientists believe that the event leading to the extinction may have been a massive meteorite impact or huge volcanic activity.

Rather than being carnivores (meat eaters), the largest dinosaurs were actually herbivores (plant eaters).

Many plant eaters had natural weapons, for example spikes on the Titanosaur tail and the three horns attached to the front of the Triceratops head shield to defend against meat eaters.

Pterosaurs are not dinosaurs, they were flying reptiles that lived during the age of dinosaurs. The same goes for marine reptiles such as Plesiosaurs and Nothosaurs.

Birds today come from a type of dinosaur known as theropods.



DINOSAURS IN THE MUSEUM

LA S HOYAS FOSSIL SITE (125 Mya)

Hump – Feathers –
Backbone – Beak –
Ribs - Skull

Beak

Hump

Mantelisauros

Feathers

Pelecanimimus polyodon

Backbone

Concavenator corcovatus

Skull

Ribs

LO HUECO FOSSIL SITE (75 Mya)

Claws – Spikes – Tail –
Neck – Legs - Head

Head

Neck

Spikes

Claws

Velociraptor

Legs

Lohuecotitan pandafilandi

Tail



THE ICE AGE

Find the names of these 4 animals who lived in the cold age. And 5 body parts (trunk, fur, horn, canine, tusk) that you have to write in the correct place.



HORN



FUR

CANINE



TUSK

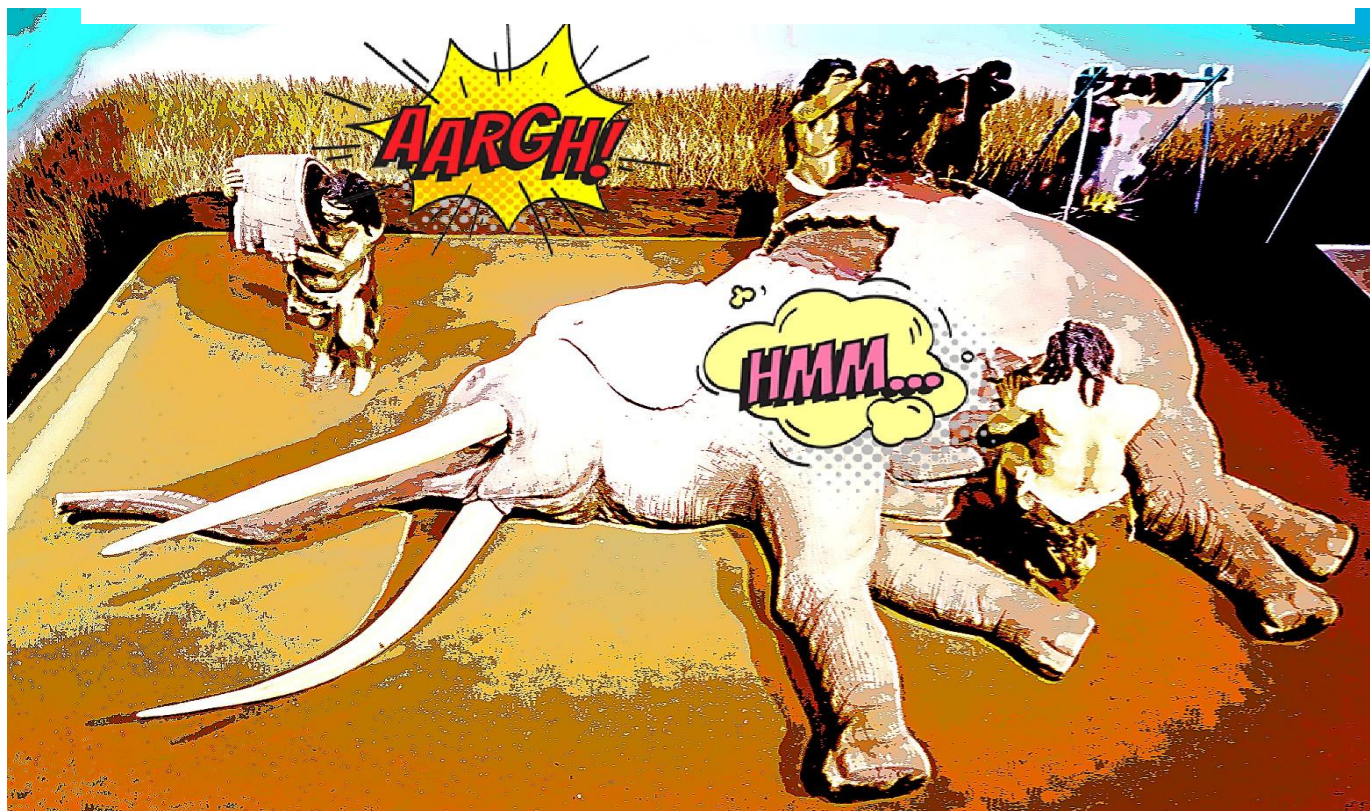


TRUNK





THE STONE AGE



Write the numbers in the correct box:

- 1-Primitive men used fire to cook food, keep the wild animals away and illuminate the cave.
- 2-They were good hunters and meat proteins were very important for brain development.
- 3-Primitive men made stone tools of flint such as arrows, axes or knives.
- 4-Cave paintings, which are found on walls and ceilings, are not only related to *Homo sapiens* but also to Neanderthals.

