



## Dinosaurs

### SEQUENCE 1

Age group	6-9 y.o.
Prior knowledge	None
Material needed	Dinosaur silhouettes, sand, brushes, trays.
Subjects	Dinosaurs
Skills involved	Scientific method
Time to carry out the sequence	2h

#### Step 1: Introduction

Start with a class discussion about what students know about dinosaurs. Encourage them to share their ideas and write them on the board.

Some students may be able to name dinosaurs that they know, so start a simple classification by showing photos (carnivores - herbivores, bipeds - quadrupeds).

#### Step 2: Did dinosaurs ever exist?

Ask the pupils how they know that dinosaurs existed.

They will probably mention that they have seen skeletons, bones or footprints.

- Introduction to Mary Anning's story

#### Step 3: Introduction to palaeontology

Ask the pupils to formulate hypotheses about what a palaeontologist does. Collect the hypotheses and then briefly explain the work of palaeontologists.



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A palaeontologist is a scientist who studies the Earth's geological past by studying fossils. Palaeontologists study fossils and the earth to try to understand what the world was like at different times in history and what has happened in between.

Palaeontologists don't just look for dinosaur bones but everything around them to try and understand the environment in which they live. They study the teeth to find out what they ate, the shape of the bones to find out how they moved, and their footprints to find out how fast they moved.

## Step 4: Junior palaeontologist

Ask the pupils to put themselves in the shoes of a palaeontologist by looking for dinosaur remains (plastified dinosaur silhouettes cut into pieces) in a sandbox.

Form groups of two pupils and distribute the materials (one sandbox per group and one paintbrush per pupil). When the students find all the pieces, they assemble the dinosaurs.

When all the dinosaurs are assembled, they can be presented on the board (several silhouettes are present).

The class will try to recognise and name the different dinosaurs.

## Step 5: Dinosaur silhouettes

Create a synthesis by projecting the silhouettes of the dinosaurs on the wall and outlining them. The pupils can then identify the silhouettes by writing the names of the dinosaurs underneath.



# SCIENCES

## Step 6: Extension/reinvestment

You can create a mini-museum of dinosaurs by displaying the different silhouettes, to which you can add a poster showing the dinosaur's diet and characteristics...

You can also make an imprint of the dinosaur in salt dough.

The exhibition can then be opened to other classes in the school or even to parents.

This project allows pupils to discover the different jobs that exist in museums and to learn about scientific methods.



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## SEQUENCE 2

Age group	9-12 y.o.
Prior knowledge	None
Material needed	Dinosaur silhouettes, sand, brushes, trays.
Subjects	Dinosaurs, palaeontology
Skills involved	Scientific method
Time to carry out the sequence	3h

### Step 1: Introduction

Start with a class discussion about what students know about dinosaurs. Encourage them to share their ideas and write them on the board.

Some students may be able to name dinosaurs that they know, so start a simple classification by showing photos (carnivores - herbivores, bipeds - quadrupeds).

### Step 2: Did the dinosaurs ever exist?

Ask the pupils how they know that dinosaurs existed.

They will probably mention that they have seen skeletons, bones or footprints.

### Step 3: Introduction to palaeontology

Ask the pupils to formulate hypotheses about what a palaeontologist does. Collect the hypotheses and ask the pupils to carry out research in pairs.

Pool what the pupils have found for their research.

- Introduction to Mary Anning's story and explanation of the work of palaeontologists.

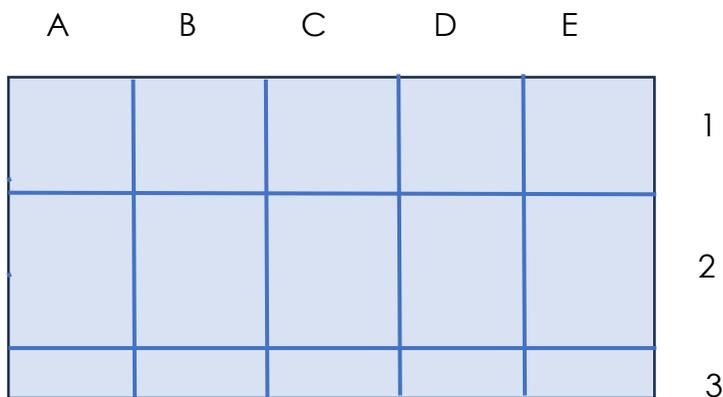


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## Step 4: Junior palaeontologist

The teacher forms several groups of 3 or 4 pupils and explains the activity. Each group is presented with an excavation site containing elements that will enable them to hypothesise about what happened or what living beings lived there at the time. Pupils will be given tools to make the dig easier (paintbrushes).

Before starting, they will have to draw a grid around the excavation area using ropes, which they will have to hold in place on the excavation site. Once they've mapped out the area, they'll have to redraw the excavation field on their road map in order to name the different zones.



As they carry out their research, they will have to note down what was found and where in the excavation field.

When they have found all the information, the pupils will use their knowledge and internet research to come up with hypotheses about the dinosaur they have found, how it moved, its diet and its name.



## Excavation field 1:

Pupils will find a photo of very sharp dinosaur teeth and a dinosaur footprint with three fingers. They will be able to conclude that the dinosaurs found were carnivorous and moved around on their two back legs. Thanks to these two pieces of information, they will be able to hypothesise about the species of dinosaur.



Figure 1 Getty Image. (2022). L'analyse des dents des dinosaures permet d'étudier le régime alimentaire qu'ils avaient, il y a des dizaines de millions d'années. Radio Canada. <https://ici.radio-canada.ca/ohdio/premiere/emissions/les-annees-lumiere/segments/report>



Figure 2 Etienne, I. (2023). Une sécheresse persistante aux États-Unis dévoile l'une des plus grandes empreintes de dinosaure au monde. Science Et Vie. <https://www.science-et-vie.com/science-et-culture/archeologie/une-secheresse-persistante-aux-etat>

## Excavation field 2:

Here, the pupils will find a photo of fairly flat dinosaur teeth, a very large footprint resembling an elephant footprint, and a fossil of a fern. The pupils will be able to hypothesise that the dinosaur found was a herbivore by observing the shape of its teeth, that it moved around on all four legs and that it was probably very heavy.



Thanks to these two pieces of information, they will be able to hypothesise about the dinosaur's species.



Figure 3 Hoad, J. (n.d.). La plus grande empreinte de dinosaure sur l'île de Skye mesure 70 centimètres. Sciences&Vie. [https://www.sciencesetavenir.fr/archeo-paleo/paleontologie/decouverte-d-empreintes-de-dinosaures-geants-sur-une-ile-d-ecosse\\_122764](https://www.sciencesetavenir.fr/archeo-paleo/paleontologie/decouverte-d-empreintes-de-dinosaures-geants-sur-une-ile-d-ecosse_122764)



Figure 4 Maxisciences. (2013, July 21). "L'usine à dents" des dinosaures herbivores. Maxisciences. [https://www.maxisciences.com/sciences/paleontologie/l-usine-a-dents-des-dinosaures-herbivores\\_art30224.html](https://www.maxisciences.com/sciences/paleontologie/l-usine-a-dents-des-dinosaures-herbivores_art30224.html)

Then, pool everyone's hypotheses. The hypotheses do not necessarily have to be verified; the aim is to formulate hypotheses based on what they have found in order to understand the approach taken by palaeontologists.

- By looking at the dinosaur's teeth, you can determine whether it was a herbivore or a carnivore. In carnivores, the teeth are pointed and curved backwards to help shred meat. In addition, most carnivorous dinosaurs are bipedal and have three toes.



- Herbivorous dinosaurs, on the other hand, had teeth in the shape of small sticks that enabled them to pick up leaves like a rake or fairly wide, flat teeth that acted like grinding stones to crush plants. Herbivore footprints are often very wide, reflecting their slow, four-legged gait (due to their weight).

## Step 5: Dinosaur silhouettes

Create a synthesis by projecting the silhouettes of the dinosaurs on the wall and outlining them. The pupils can then identify the silhouettes by writing the names of the dinosaurs underneath.

## Step 6: Extension/reinvestment

A mini-museum of dinosaurs can be created by displaying different silhouettes. The silhouettes will be complemented by explanatory posters produced by each group describing the dinosaurs' characteristics, diet, etc.

It is also possible to make an imprint of the dinosaur in salt dough.

The exhibition can then be opened to other classes in the school or even to parents.

This project gives pupils an opportunity to discover the different jobs that exist in museums and to learn about scientific methods.



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