

## Lesson 1



## WHAT HAPPENED TO DINOSAURS?

**Lesson objectives:** to acquaint pupils with one of the climate crisis in history that caused the extinction of dinosaurs 66 million years ago; to improve pupils' understanding of the conditions which are favourable to support life.

Terms: meteorite, fossil, palaeontologist.

Materials required for the eco workshop: toilet paper rolls or macaroni



## 1. Discussion with an interactive task 5-10

5-10 min. 🕚

**Learning objectives:** to interest and acquaint pupils with the topic of the lesson; to find out pupils' basic knowledge of the life of dinosaurs and to exchange points of view.

### ACTIVITIES

**Teacher:** turns on the screen and leads the discussion. **Pupils:** answer the questions.

On the screen: questions and images of dinosaurs.

- What are dinosaurs?
- When did dinosaurs live?
- Did people meet dinosaurs?
- Do you recognize the dinosaurs on screen?

**Teacher:** touches the images on screen and invites pupils to check them out. **Pupils:** listen to information about dinosaurs.

**1. Diplodocus** was 26 metres in length, but its head was small, not bigger than the head of a horse. This dinosaur walked slowly with its tail raised high. It was an herbivore.

**2. Eoraptor** was the same size as a German shepherd dog – with a body approximately 1 metre in length. It was a fast runner and an omnivore.

**3. Elasmosaurus** was an aquatic dinosaur. Its body length was 14 metres. It was a slow swimmer with a very long neck and 4 flippers, and it fed on fish.

**4. Pegomastax** was a small dinosaur, which resembled a porcupine and a parrot. It was an herbivore, which had a beak with teeth.

**5. Suzhosaurus** was 6 metres long and weighed 3000 kilos. Its body was covered with feathers. This dinosaur was an herbivore.



## 2. Information (Audio/text)

**Learning** to provide information and enhance pupils' knowledge of dinosaurs.

## ACTIVITIES

2 min. 🕚

**Teacher:** coordinates activity **Pupils:** listen to the information about the dinosaurs.

On the screen: animations showing the life of dinosaurs.

Millions of years ago dinosaurs ruled on planet Earth. Dinosaurs were similar to reptiles that live up to this day – snakes, lizards and crocodiles.

Little baby dinosaurs hatched from eggs. The eggs were different in shape and size, and all of them had a hard shell to keep the babies safe during growth until they hatch. Although people imagine dinosaurs as huge monsters, in reality not all of them were predators. Some, like the tyrannosaurus, were large and furious, while others were very small. Besides, the biggest dinosaurs were herbivores.

Dinosaurs perished long before man appeared on Earth. The extinction of dinosaurs is one of the world's greatest mysteries.

The animals, that managed to survive, are crocodiles, lizards, snakes and insects.



Notes:

## **3. Interactive task**

	to acquaint with some theories about the extinction of dinosaurs;
Learning	to develop skills to express and argue opinions, to co-operate in a
objectives:	group; to tell about scientists' theories about the climate change
•	that caused the death of dinosaurs.

## ACTIVITIES

**Teacher:** organizes work in 4 groups, giving each group a task – to express an opinion of a theory *(for younger pupils it is possible to skip the group work).* **Pupils:** work in 4 groups, express their thoughts on each theory, present the group's shared opinion.

**On the screen:** Question – Why did dinosaurs die out? Four possible answers with images; by touching the image pupils listen to the scientists' point of view.

#### 1. Perhaps other animals prevailed?

 It could be possible, however, it does not explain why other aquatic animals died out along with dinosaurs.

#### 2. Maybe other animals ate all dinosaur eggs?

 Unlikely possible. A lot of mammals eat bird eggs, but birds are still living beside us.

#### 3. Perhaps the cause is a meteorite impact?

 Many scientists believe that a huge piece of rock from the cosmos crashed into Earth. The impact of the meteorite created dust clouds that darkened the sky, not letting sunlight and heat through. Earth became colder and the animals that could not adapt to these conditions died out.

#### 4. Maybe a vigorous volcanic activity?

 Many scientists think that the extinction of dinosaurs is due to a time of major volcanic activity. A great amount of volcanic ash and dust was tossed out in the air during these volcanic eruptions. They blocked sunlight, thus the climate changed – it became colder and dinosaurs died out.

Notes:



## 4. Discussion with an interactive task

Learningto develop an understanding of how weather conditions changeobjective:when the Sun is obscured, and how that affects life.

## ACTIVITIES

**Teacher:** coordinates activity. **Pupils:** express opinions.

On the screen: questions and interactive task.

- How did the weather conditions (climate) change when the dust clouds covered the light and heat of the Sun?
- What happened to plants and animals?
- Who was able to survive in such conditions?

## **5. Interactive task**

# Learning objectives:

to create an understanding of different time periods in the history of Earth; to apply the knowledge gained in the lesson in a new context.

2 min. 🕚

5-7 min. 🕚

## ACTIVITIES

Teacher: coordinates activity.

**Pupils:** arrange the timeline in the correct order and explain the choice.

#### On the screen: timeline.

Arrange the timeline in the correct order!

- 1. Dinosaurs.
- 2. Meteorite.
- 3. Cold (cool climate).
- 4. Ancient people.
- 5. Nowadays.



Ν	ote	es: _															

## 6. Discussion

Learningto create new ideas, to express and justify opinion, to hear outobjective:the opinions of others.

## ACTIVITIES

**Teacher:** leads discussion. **Pupils:** express opinions.

On the screen: questions and an image.

- How did people find out that dinosaurs had lived?
- What told people about dinosaurs?

7. Interactive task

2 min. 🕚

Learning objective:

to develop an understanding of fossil formation and the work of a palaeontologist.

## ACTIVITIES

Teacher: coordinates activity.

**Pupils:** arrange the time zone in the correct order and explain, in conclusion listen to the audio information.

**On the screen:** a time zone with 5 blank windows and 5 images (dinosaur / dinosaur skeleton / dinosaur fossil / researcher digs up a fossil / fossil). Each of the 5 images has to be dragged into the correct window.

1. Fossils form over many thousands of years. The process begins when an animal dies.

2. The flesh and skin gradually decay and the bones remain. The remains are covered by sand or mud.

3. Years go by and the sand or mud turns into stone. It leaves an imprint of the animal. That is a fossil.

4. The researchers of dinosaur fossils are called palaeontologists. They carefully remove the layer of stone and sand from the fossil.

5. The fossil is taken to the museum after digging it out. It is sometimes possible to assemble the whole skeleton of a dinosaur.



3 min. 🕚

## 8. Interactive task – puzzle

**Learning** to strengthen the knowledge of fossils and the work of a palaeontologist.

## ACTIVITIES

5 min. 🕚

5 min. 🕚

**Teacher:** coordinates activity. **Pupils:** assemble a skeleton from several parts.

**On the screen:** three options (levels of difficulty) where a whole skeleton has to be assembled from various amounts of dinosaur bones.

## 9. Interactive task – test

Learning objective:

to test the pupils' knowledge and understanding.

## ACTIVITIES

**Teacher:** coordinates activity, gives feedback to pupils. **Pupils:** carry out a test individually or in a group.

#### On the screen:

- 1. Why did dinosaurs disappear?
  - Other animals ate all dinosaur eggs.
  - Weather conditions changed, it became too cold.
  - Other animals prevailed over dinosaurs.
  - Weather conditions changed, it became too hot..
- 2. How did people find out that dinosaurs had lived?
  - Ancient people drew dinosaurs on cave walls.
  - Scientists found dinosaur imprints in stone fossils.
  - There is no believable evidence of dinosaurs.
  - Ancient photos showing dinosaurs were found.
- 3. What animals have been able to survive to this day?

#### • Crocodiles, lizards, spiders.

- Small dinosaurs.
- Aquatic dinosaurs.
- Some little dinosaurs-herbivores.
- 4. What is mainly required for the life of humans and animals? Choose 4 most important things!

Computer, **<u>sunlight</u>**, **<u>air</u>**, toys, **<u>water</u>**, transport, **<u>food</u>**, mobile phone.

## 10. Eco workshop

Learningto get to know the principle of a green lifestyle – give things aobjectives:second life; to develop co-operation skills by working in a group.

## ACTIVITIES

**Teacher:** coordinates activity. **Pupils:** divide into groups and work according to the given example.

**On the screen:** assemble dinosaur skeleton models out of toilet paper rolls (or macaroni)! The first group creates the skeleton of a diplodocus. The second group creates the skeleton of a parasaurolophus. The third group creates the skeleton of a tyrannasaurus.

Materials required for the activity: toilet paper rolls or macaroni

# 11. Discussion with an interactive task – 5-10 min. 🕚 bridging task

**Learning** to improve pupils' knowledge about what kinds of natural environment are favourable to life.

## ACTIVITIES

Teacher: coordinates activity.

Pupils: listen to the audio information, answer the questions and do the interactive task.

Dinosaurs died out millions of years ago, because the climate became too cold due to rapid weather condition changes. However, the lizards living nowadays can be considered the relatives of dinosaurs. The sand lizard lives in our area. Have you seen one?

#### On the screen:

- 1) An image of the sand lizard.
- 2) What habitats are suitable for the sand lizard?
- 3) Images and two emoticons smiley and sad. The smiley face has to be put in the images that show a favourable environment for the sand lizard, the sad face has to be put in the images that show an unfavourable environment for the sand lizard. Favourable environment for the sand lizard forest, rock garden, sea dunes. Unfavourable environment for the sand lizard ocean, glaciers, rainforest.

10 min. 🕚

#### Source references:

1) Bentons, M. Dž. Dinozauri. Enciklopēdija bērniem. Rīga: Zvaigzne ABC, 2001. 95 pages.

2) Dinozauri. Pirmo zināšanu bibliotēka bērniem. Rīga: TIME-LIFE; Kristina&Co; SALBI, 1994. 87 pages.

3) Kāpēc? Enciklopēdija. Izsmeļošas atbildes uz āķīgiem jautājumiem. Rīga: Zvaigzne ABC, 2015. 160 pages.

4) 1000 jautājumi un atbildes. Kērods, R., Medžvika, V., Rīda, S. u.c. Rīga: Zvaigzne ABC, 2003. 319 pages.

5) Dinozauri. Mazie pētnieki. Rīga: Egmont Publishing, 2019. 16 pages.

6) Dinozauru uzskaitījums (online). (Viewed on: 29.03.2022) Available on:

https://lv.wikipedia.org/wiki/Dinozauru\_uzskaitījums

7) Sila ķirzaka (online). (Viewed on: 23.05.2022) Available on: https://www.latvijasdaba.lv/rapuli/lacertaagilis-l/

8) Sykes, B. 17 unusual, bizarre, and downright weird dinosaurs (online). (Viewed on: 27.05.2022) Available on: https://www.sciencefocus.com/nature/17-of-the-weirdest-dinosaurs-to-walk-the-planet/

9) Zucchi, C. Lacerta agilis (online). (Viewed on: 23.05.2022) Available on:

https://www.monaconatureencyclopedia.com/lacerta-agilis/?lang=en



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