

«Прикоснись к профессиям!»

Профессия:палеонтолог

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«Следопыты»*

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<https://youtu.be/ghOVbvC903I>

Палеонтология для детей в интерактивном музее



В мире географических профессий

Профессия Палеонтолог





Step 1: An organism is buried by the layers of sediment. As an organism dies, it is buried by the layers of sediment that have accumulated on top of it. The layers of sediment are made up of sand, silt, and clay particles.



The fossil remains are left for months, or perhaps years, before they are buried by more layers of sediment. The heat and pressure from the layers of sediment above the organism cause the soft tissues to decay, leaving behind only the hard parts.

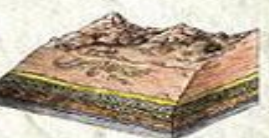
Permineralization & Replacement



Eventually, the bones become infiltrated with mineral-rich water and are replaced by a hard mineral substance. The mineral-rich water seeps into the pores of the organism's remains, and the minerals are deposited in the spaces, eventually replacing the original organic matter.



Over the original organic matter has been replaced by the bones are now made of mineral matter. The original organic matter has been completely replaced by a hard mineral substance, such as silica or calcite.



When geologists excavate, they can find the fossilized remains. The fossilized remains are lifted out of the ground and preserved in a museum or a laboratory for study.



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Trilobites are one of the most common types of fossils. They are often found in sedimentary rocks and can provide valuable information about the environment in which they lived.



The fossil of the stem of a plant is a type of fossil. These fossils are often found in sedimentary rocks and can provide valuable information about the environment in which they lived.



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A fossilized trilobite is a type of fossil. These fossils are often found in sedimentary rocks and can provide valuable information about the environment in which they lived.



Impressions are a type of fossil. These fossils are often found in sedimentary rocks and can provide valuable information about the environment in which they lived.



Molds and casts are a type of fossil. These fossils are often found in sedimentary rocks and can provide valuable information about the environment in which they lived.



Insects with preserved bodies are a type of fossil. These fossils are often found in sedimentary rocks and can provide valuable information about the environment in which they lived.



Carbonized fossils are a type of fossil. These fossils are often found in sedimentary rocks and can provide valuable information about the environment in which they lived.

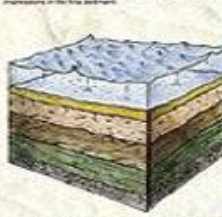


Trilobites are a type of fossil. These fossils are often found in sedimentary rocks and can provide valuable information about the environment in which they lived.



Track fossils are a type of fossil. These fossils are often found in sedimentary rocks and can provide valuable information about the environment in which they lived.

Other Types of Fossils



Principle of Original Horizontality
If we know that the layers of sediment were originally horizontal and are now tilted or folded, we know that they have been deformed by forces acting on them after they were deposited.



Law of Superposition
In any sequence of rock layers, the oldest layer is at the bottom and the youngest layer is at the top.



Principle of Faunal Succession
The fossils in any layer of rock are always found in the same order, and this order can be used to identify the layer.

Geological Time Scale

Quaternary	10,000 years ago - present
Pleistocene	2,600,000 - 11,700 years ago
Holocene	11,700 years ago - present
Recent	1800 - present
Upper Pleistocene	11,700 - 26,000 years ago
Lower Pleistocene	26,000 - 2,600,000 years ago
Upper Pliocene	3,000,000 - 2,600,000 years ago
Lower Pliocene	2,600,000 - 3,000,000 years ago
Upper Miocene	5,300,000 - 5,000,000 years ago
Lower Miocene	5,000,000 - 5,300,000 years ago
Upper Oligocene	23,000,000 - 23,800,000 years ago
Lower Oligocene	23,800,000 - 23,000,000 years ago
Upper Eocene	35,800,000 - 36,000,000 years ago
Lower Eocene	36,000,000 - 35,800,000 years ago
Upper Paleocene	66,000,000 - 66,200,000 years ago
Lower Paleocene	66,200,000 - 66,000,000 years ago
Upper Cretaceous	100,000,000 - 66,000,000 years ago
Lower Cretaceous	66,000,000 - 100,000,000 years ago
Upper Jurassic	201,300,000 - 145,500,000 years ago
Lower Jurassic	145,500,000 - 201,300,000 years ago
Upper Triassic	252,170,000 - 201,300,000 years ago
Lower Triassic	201,300,000 - 252,170,000 years ago
Upper Permian	260,000,000 - 252,170,000 years ago
Lower Permian	252,170,000 - 260,000,000 years ago
Upper Carboniferous	306,000,000 - 260,000,000 years ago
Lower Carboniferous	260,000,000 - 306,000,000 years ago
Upper Devonian	372,000,000 - 360,000,000 years ago
Lower Devonian	360,000,000 - 372,000,000 years ago
Upper Silurian	419,000,000 - 372,000,000 years ago
Lower Silurian	372,000,000 - 419,000,000 years ago
Upper Ordovician	444,000,000 - 419,000,000 years ago
Lower Ordovician	419,000,000 - 444,000,000 years ago
Upper Cambrian	541,000,000 - 444,000,000 years ago
Lower Cambrian	444,000,000 - 541,000,000 years ago
Upper Precambrian	541,000,000 - 4,543,000,000 years ago
Lower Precambrian	4,543,000,000 - 541,000,000 years ago



Index Fossils
These fossils are used to identify the layer of rock in which they were found.



Relative and Absolute Dating
Relative dating is used to determine the order of the layers of rock, while absolute dating is used to determine the age of the rock in years.

Fossils and Geology



The Rarity of Fossils
Only a small percentage of organisms that have ever lived are preserved as fossils. This is because most organisms are made of soft tissue, which decays quickly after death.



Permineralization
This process involves the replacement of the original organic matter with mineral matter, creating a fossil.



Non-Fossils
Some organisms, like fish and worms, do not fossilize because they are made of soft tissue that decays quickly.



Fossil Expeditions
Geologists often go on expeditions to find new fossils in the field. They use various tools and techniques to locate and excavate fossils.



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Determining Relationships
Geologists use various techniques to determine the relationships between different fossils and the layers of rock they are found in.



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СОСТАВ ЭКСПЕДИЦИИ

- В любом отряде нужен начальник и несколько специалистов - научных сотрудников.

Именно они будут собирать материал, и производить его определение.

- Необходимы люди в раскопочную бригаду.

Они будут работать ломом, киркой, лопатой для очистки или получения доступа к образцу.

- При работе с большими объемами очень твердых пород может понадобиться подрывник.

Вот сколько разнообразных людей могут оказаться
оказаться

**необходимыми в палеонтологическом
отряде!**

Загадки палеонтолога

◎ Чем занимается наука ПАЛЕОНТОЛОГИЯ?

История нашей планеты насчитывает более четырех миллиардов лет! И не всегда Земля была такой, какой мы привыкли ее видеть.

Как зарождалась жизнь на планете?

Какие животные ее населяли,

как они выглядели и в каком климате жили?

Когда был Ледниковый период и как появился человек? На все эти вопросы отвечает наука

"палеонтология".

Палеонтологи нашли самые старые
останки динозавров



Загадки палеонтолога

◎ Как мы узнали о динозаврах?

А в этом, нам помогли палеонтологи!

Одной из задач палеонтологии, является восстановление (реконструкция) внешнего вида, способов питания, и т. д. животных и растений, которые существовали в прошлом. Великая эпоха динозавров началась 240 млн лет назад и продлилась около 175 млн лет. Землю заполнили всевозможные рептилии. На суше господствовали крокодилы, летающие птерозавры и, конечно динозавры. Эта эра закончилась, когда динозавры, птерозавры, морские рептилии и некоторые другие существа по непонятной причине внезапно вымерли.

Загадки палеонтолога

◎ Какую связь палеонтология имеет с динозаврами?

Кто дал имя динозаврам?

Английский учёный ПАЛЕОНТОЛОГ Ричард Оуэн нашёл большое количество огромных костей. Звери, скелеты которых он обнаружил, представились ему очень страшными, и он назвал их **«ужасными ящерами»**, или динозаврами. С тех пор их так и называют. Некоторые динозавры были огромных размеров, с целую теннисную площадку, а другие – маленькие, как курица. У одних кожа была гладкая, у других – покрытая чешуйками, а то и вовсе роговым панцирем, защищающим тело. Помимо этого у некоторых ящеров были рога или шипы. Нам известно около шестисот разновидностей динозавров.



ВОПРОСЫ «СЛЕДОПЫТАМ»

- Назови, чем занимаются палеонтологи!
 - Какими качествами обладают палеонтологи?
 - Кто нужен в палеонтологическом отряде экспедиции?
 - Какую связь палеонтология имеет с динозаврами?
 - Как мы узнали о динозаврах?
 - Какие книги или фильмы о динозаврах ты знаешь?

