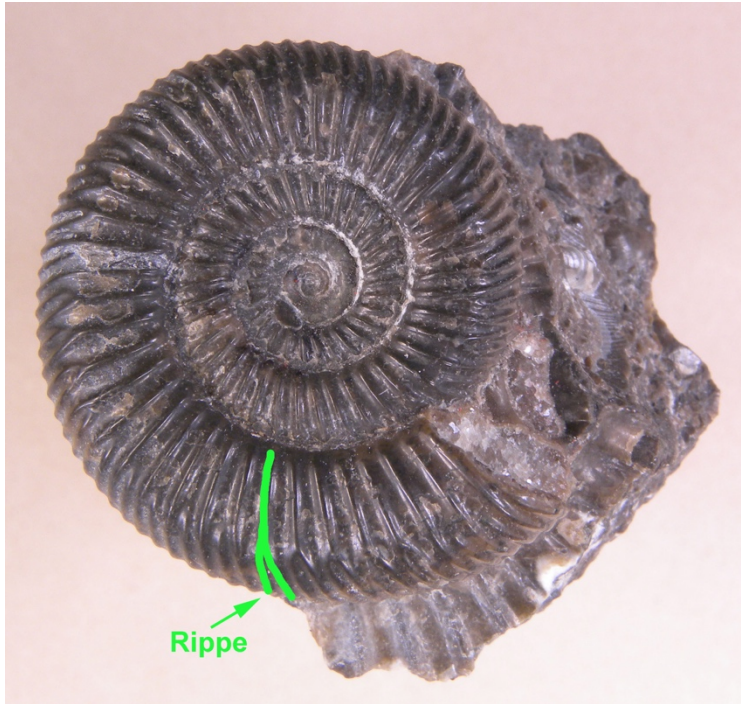


Challenge „Jurassic World in Luxemburg “

Level 3



Task 1



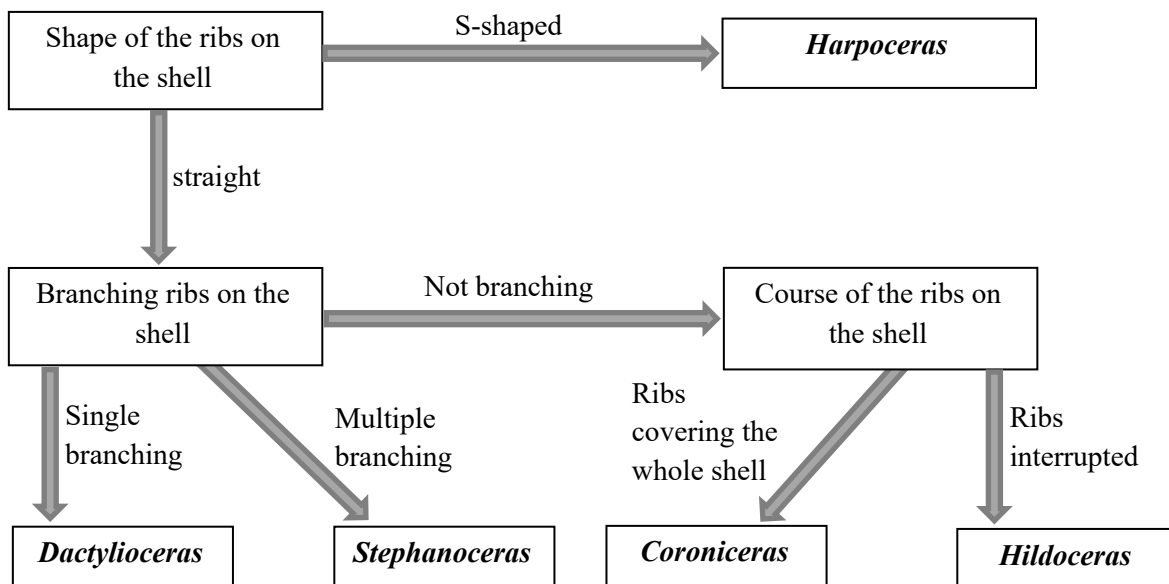
You immediately recognized the spiral fossil as ammonite. Ammonites are extinct squids.

There were many different species, but they only ever lived in short intervals of Earth's history.

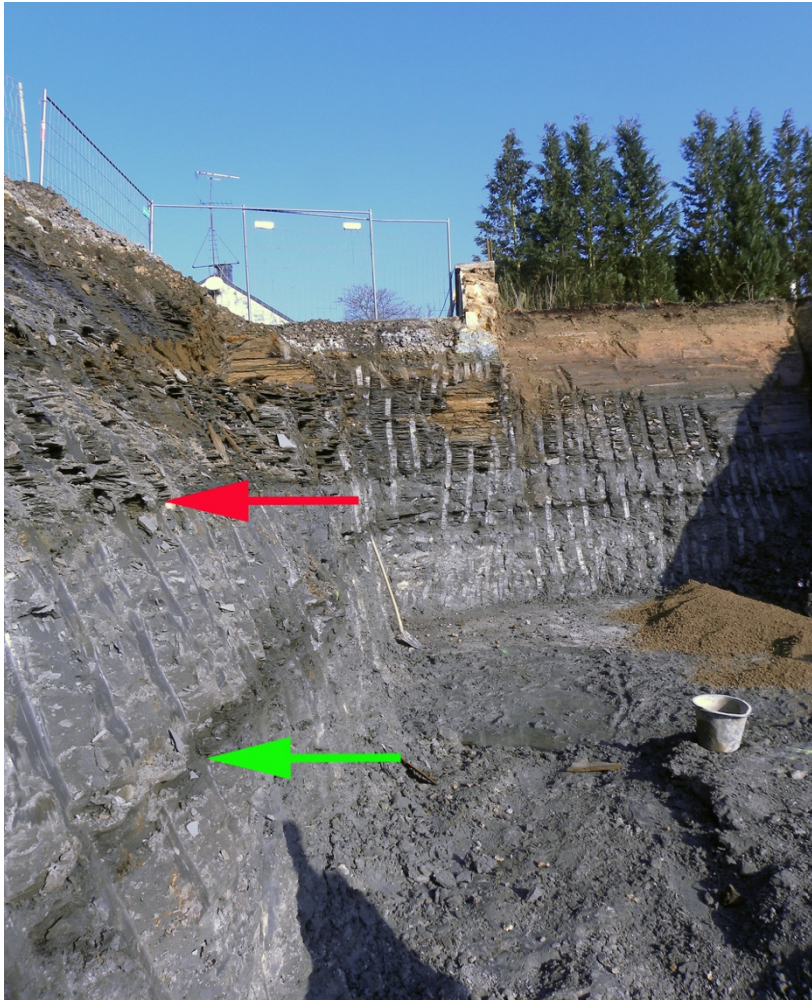
For this reason, ammonites are often used to classify rock layers.

However, the prerequisite for this is that ammonite fossils are correctly determined.

Use this identification key to find out which ammonite your find is. Mark the right name!



Task 2



On the construction site you took rock samples from two different layers (green and red arrow). You will use these samples to determine the age of the rocks.

How does this work?

The rocks contain tiny amounts of radioactive elements, from which you can use the half-life.

The concentration of these elements allows to calculate the time when these elements were deposited together with the rock.

The sample, the green arrow points to, shows an age of 182.69 million years, and the sample, the red arrow points to, shows an age of 182.65 million years.

There is 1.5 m of rock between the 2 samples (arrows).

How quickly was the rock deposited, that is how much rock (in cm) was deposited per 1000 years? Express the deposition rate with the unit *cm / 1000 years*.

Task 3



Lucky you! You found a well-preserved ichthyosaur skull!

Ichthyosaurs are extinct marine reptiles. Superficially they looked very much like today's dolphins, with 4 paddles and a caudal fin.

But beware! Dolphins are mammals, but ichthyosaurs were reptiles.

What must the ichthyosaurs' caudal fins have looked like in order to be propelled underwater?
Note: snakes are reptiles, i.e. they bend their spine horizontally. Mammals mainly bend their spine vertically.

Use this information to draw an ichthyosaur. Explain your considerations!

Draw your ichthyosaur !

Task 4



There is a great rarity amongst the fossils that you have found: a petrified wing of a grasshopper! But wait, where do grasshoppers normally live? How is it possible that a grasshopper could petrify together with an ammonite and an ichthyosaur?

Bonus question



Right next to the construction site you notice a heap of rubble and rock that looks different from what you saw in the excavation pit.

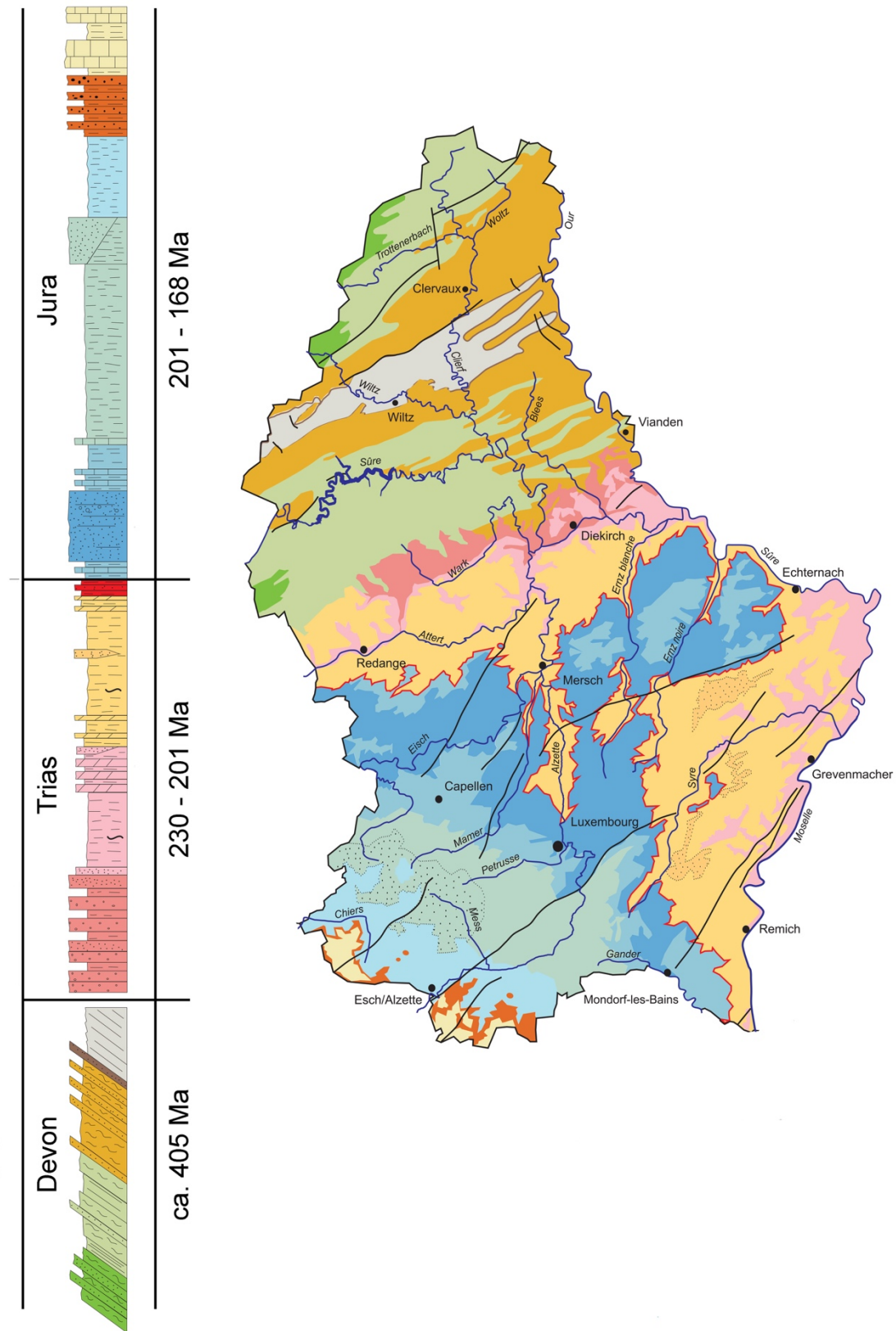
You examine this rock and you find a nice fossil.

It is a trilobite.

This belongs to a group of crayfish-like arthropods that died out about 300 million years ago.

Why is it impossible that these rocks come from the pit where you found the ammonite, the ichthyosaur and the grasshopper? Where else could this rock come from?

Hint: Have a look at the geological map of Luxemburg (on page 8).



Geological map of Luxemburg.