

Natural History of Oregon Country

A Fossil Timeline

Worksheet

Purpose:

In this activity, you will create a fossil range chart for ammonites and their relatives in the Class Cephalopoda, which includes modern species such as octopuses, squids, cuttlefish, and nautilus. You will then use the information in the chart to determine the age of particular rocks and to predict which rock might contain oil.

Procedure:

Make a fossil range chart. Look at the pictures of fossils in figure 1. Each fossil represents an order that contains a variety of genera and species. Underneath each picture is a time range. You will make a bar graph on the sheet provided. Shade in the area that represents the time period during which the fossil existed. For instance, for the Goniatites, shade in everything from the Carboniferous to the Permian (including the Carboniferous and the Permian). When this is complete, you will have made a fossil range chart.

Figure 1: Representative Fossils from the Order Cephalopoda and their Geologic ranges.



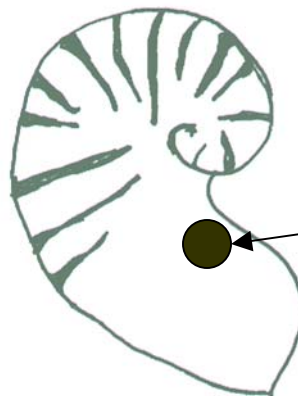
Name: Ammonite
Time Range: Jurassic to Cretaceous



Name: Belemnite
Time Range: Jurassic to Cretaceous

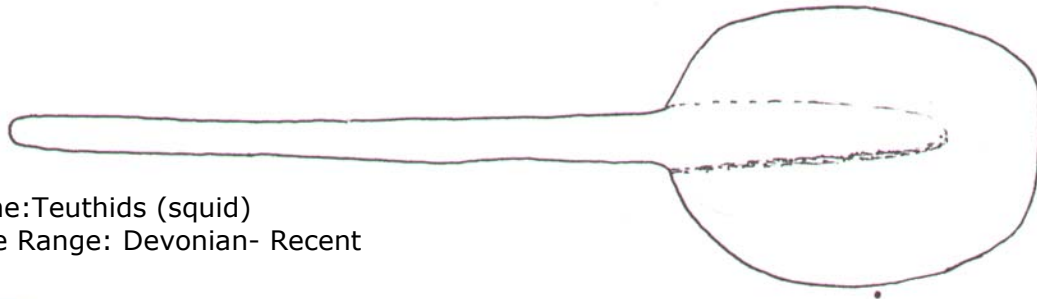


Name: Ceratites
Time Range: Triassic

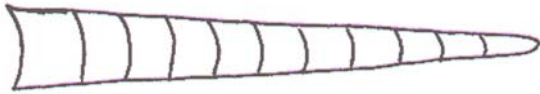


Name: Octopods (evidence)
Time Range: Jurassic-Recent

Name: Nautiloids
Time Range: Devonian-Recent



Name: Teuthids (squid)
Time Range: Devonian- Recent



Name: Orthocone
Time Range: Ordovician-Triassic



Name: Goniatite
Time Range: Mississippian- Pennsylvanian

	Cambrian	Ordovician	Silurian	Devonian	Mississippian	Pennsylvanian	Permian	Triassic	Jurassic	Cretaceous	Tertiary	Quaternary
Cephalopod Order Goniatites												
Ceratites												
Ammonites												
Nautiloids												
Orthocones												
Belemnites												
Teuthids (squids)												
Octopods (octopus)												

Data Analysis Questions:

1. If you have a rock that has a Ceratite in it what time period(s) is it from? How do you know?
2. If you have a rock that has a Goniatite and a Nautiloid what time period(s) is it from? How do you know?
3. If you have a rock that has an Ammonite and an Orthocone in it, what time period(s) is it from? How do you know?
4. If you find a rock that has an Orthocone what time period(s) is it from? How do you know?
5. Which fossils might you expect to find in a rock of Jurassic age?

6. If you find a sedimentary rock that has no Cephalopods in it, can you tell what time period it is from (using the information available in this lab only)? Why or why not?

7. Which fossil(s) make the best index fossils?

Application 8-11:

Look at the following diagrams of fossils that can be found in rocks. Identify the fossils using the pictures in figure 1. Then determine the age of each rock.

8.



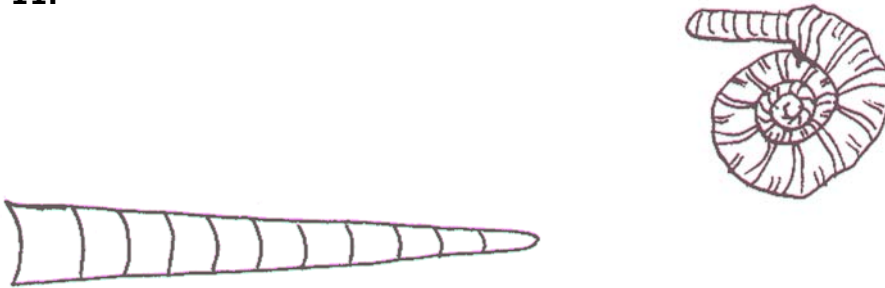
9.



10.



11.



12. Cephalopods are organisms that lived in the open ocean. During the Cretaceous, a lack of oxygen in ocean basins meant that large deposits of organic material built up. This material came primarily from microorganisms in the ocean water. This material was later buried and eventually became oil. Geologists from oil companies frequently use range charts to help them date rocks so that they might find more oil.
13. Imagine that you are an oil geologist. Of the rocks you dated in questions 8-11, which would you recommend further investigation for oil?