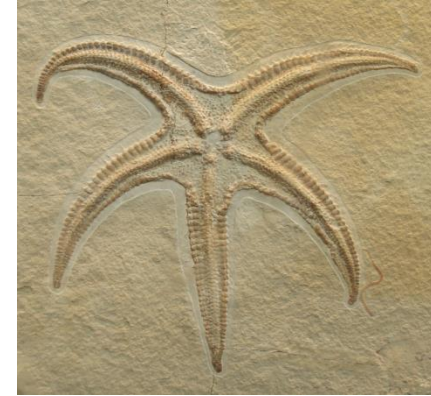


Starter

What are these? What do you know about them? What do you think we can learn from them?



L.O – What questions do you have about fossils?

- I can recall what a fossil is.
- I can also generate scientific questions about fossils.
- I can even explain what we can learn from fossils.
- I can generate scientific questions!

OBSERVATION AND DISCUSSION!



On the next few slides, you will see some pictures of fossils-

1. Think of some adjectives to describe the fossils.
2. Do the fossils resemble anything that you recognise that is alive today or are they different? How are they different?
3. What questions do you have about the fossils?















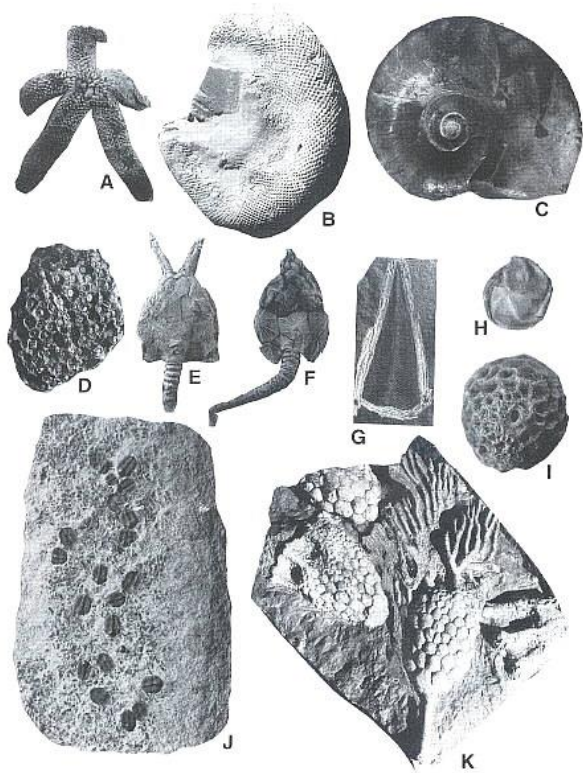
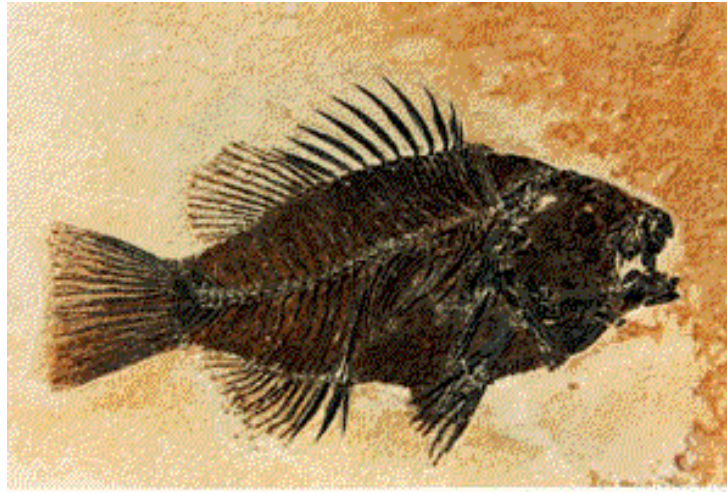


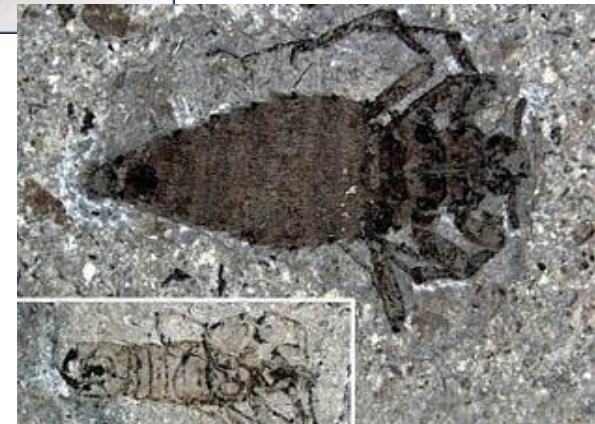
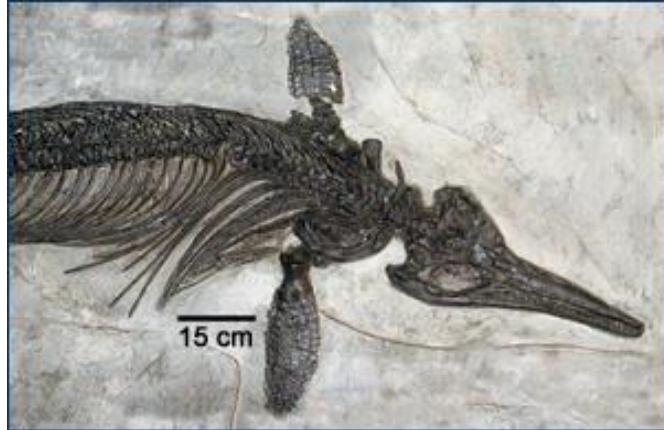
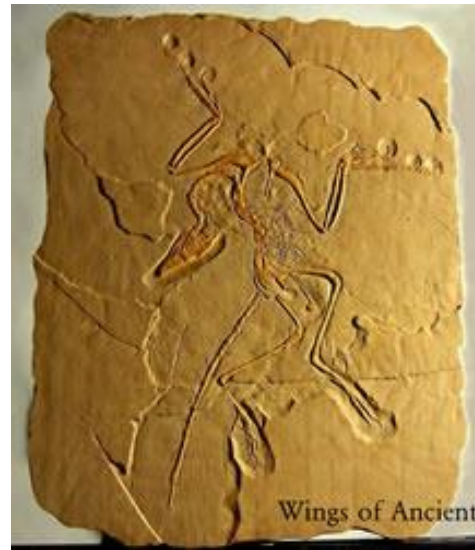


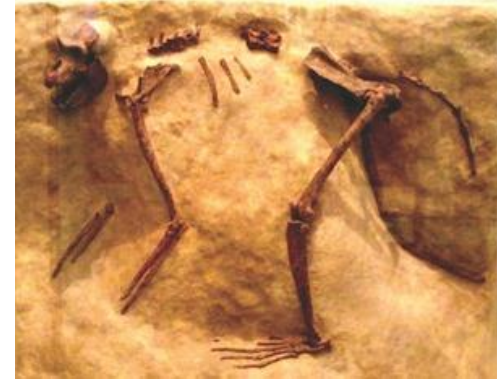












More:

<http://geology.com/articles/green-river-fossils/>

ACTIVITY! Choose one of the fossils...

- Draw a diagram of a fossil
- Describe it in detail.
- Does it look like anything that is alive today? How? What are the similarities and differences between your fossil and what we have alive today?

Challenge!

- What questions do you have about fossils?
- What do you think scientists can find out by studying fossils?

Description of the fossil.

.....
.....
.....
.....

Does it look like anything that is alive today? Explain fully.

.....

Questions I have...

- 1.
- 2.



What is
she
doing?

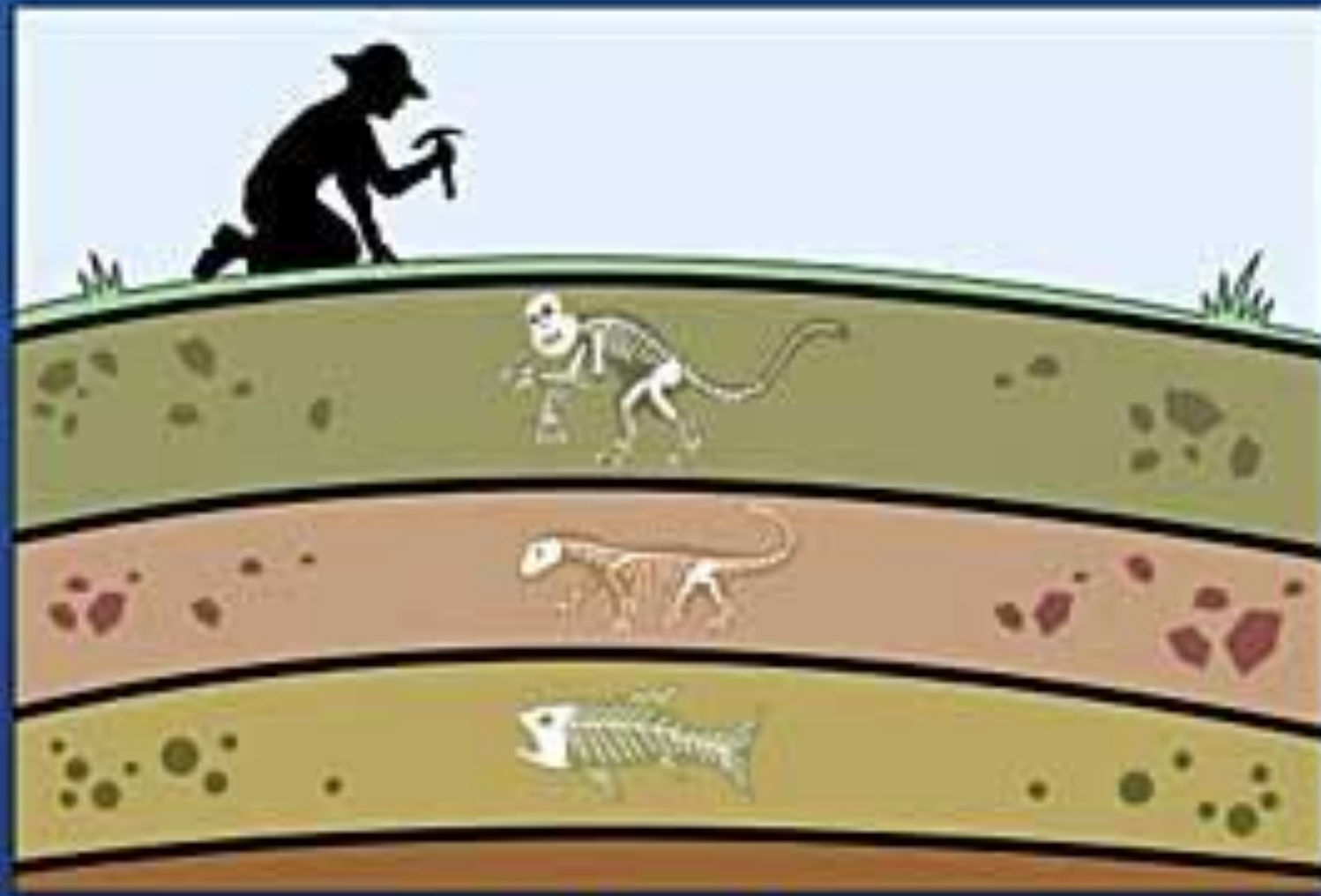
Why is
she doing
it?

What can
she find
out?

https://www.youtube.com/watch?v=tjhDV_GzTM8

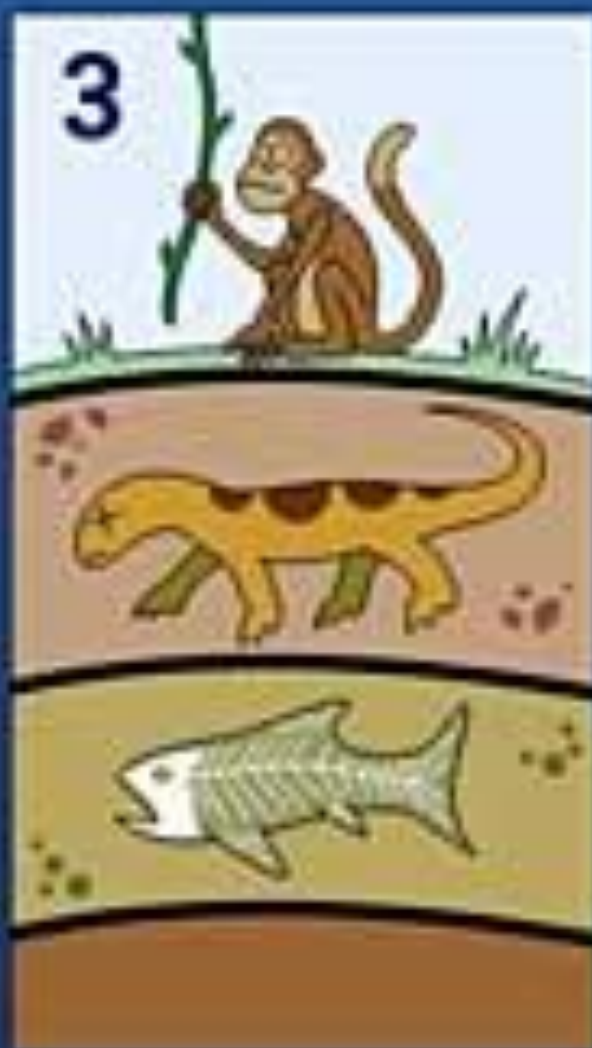
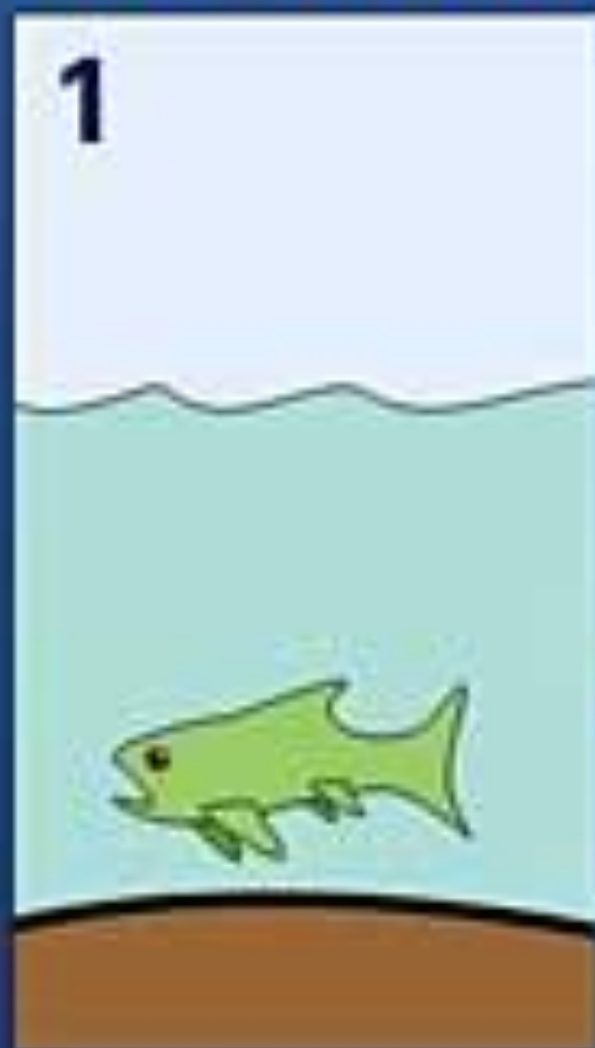
- Write down at least three things you learnt about Palaeontologists.
- Write down at least three things you would like to ask a Palaeontologist.
- Would you like this job? Why or why not?

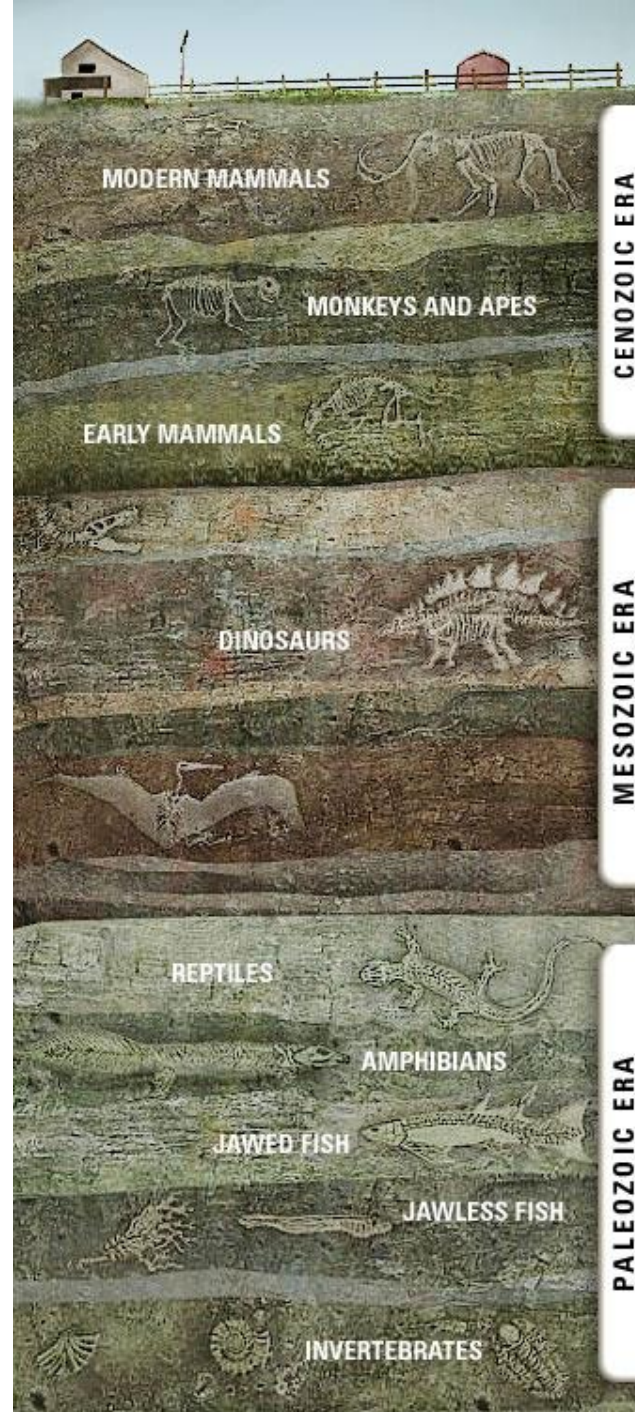
era	time (millions of years ago)	important events
Cenozoic	0.0	present time
	less than 0.1	advent of modern humans
Mesozoic	2.4	ice age
	66.4	mass extinction
	141	first flowering plants
	195	birds evolve from reptiles
Paleozoic	230	first dinosaurs and mammals
	245	
	280	mass extinction
	340	reptiles appear
	360	first insects
	370	amphibians appear
Precambrian	420	plants colonize land
	540	
	700	simple multicellular organisms evolve
	2,100	oldest eukaryotic fossils
	2,500	oxygen begins to accumulate in atmosphere
	3,500	oldest prokaryotic fossils



**...so the deeper we dig,
the farther back in time we see**

**rock layers are deposited
from the bottom up...**





WHAT CAN WE LEARN FROM FINDING AND
STUDYING FOSSILS?

What can we learn from fossils?

1. Life on Earth is very old.
2. Fossil records provide evidence that life has evolved.
3. Fossils provide us with evidence that many life forms have become extinct.
4. Fossils help us to understand ancient environments.
5. Fossils can show us how ancient organisms lived and grow.

- Design a fact file about the palaeontologist Mary Anning.
- You will need to include basic facts about her life as well as information about her work and her contribution to scientific understanding.
- Present your research in a interesting and eye catching way!
- Remember to make a list of the books and websites you have used.



L.O – To describe how fossils are formed.

- I can briefly explain how fossils are formed.
- I can also describe in detail how fossils are formed.
- I can even apply my knowledge about how fossils are formed.

Your questions - How old are fossils? How long does it take a fossil to form?

- A preserved living thing or a trace of a living organism is called a "fossil" if it is older than some minimum age, most often the arbitrary date of 10,000 years.
- Hence, fossils range in age from the youngest at the start of the Holocene Epoch to the oldest from the Achaean Eon, up to 3.48 billion years old.
- Discussion about how long – some say 1000s of years although some evidence from 2014 that fossils can form quicker than that.

HOW ARE FOSSILS FORMED?

- <https://www.youtube.com/watch?v=S5tMRSvyjk4>

Watch the following segment of Bill Nye the science guy.

Write down as many facts as you can!

Everyone must have at least 2 facts in full sentences.

Everyone must have at least 1 question.

We will discuss your facts.

Can you explain how fossils are formed? Use labelled diagrams to help you!

- Keywords to use....

Creature

die

mud

sediments

rock

Buried

rot away

sinks

pressure

minerals

Re-arrange the following so they are in the right order..

Fossil formation

- A. Fish is buried by mud and sediments.
- B. After millions of years more mud, sediment and sand pile up in layers adding weight and pressure, turning the layers into rock.
- C. Minerals help to harden the bones.
- D. A fish dies and sinks to the ocean floor.
- E. The soft parts of the body rot away.








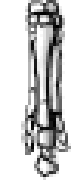


Draw a diagram to illustrate what is happening at each step.

Further challenge! Extension!


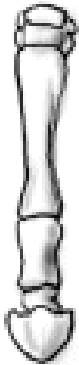
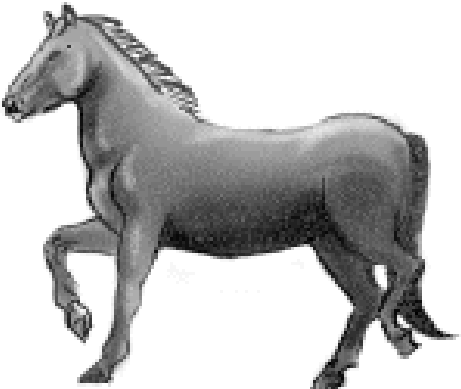


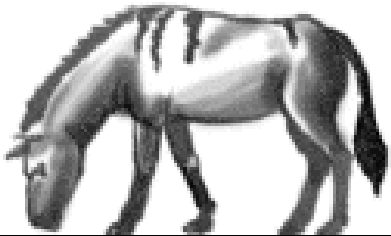

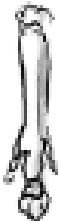


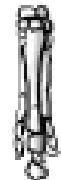
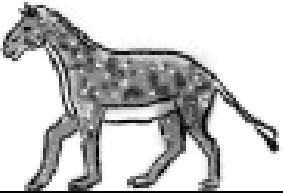

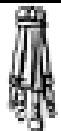

- Do you think a fossil would form if an animal dies in the following places? Explain why or why not in as much detail as possible. Write in full complete sentences.
1. In a open exposed area?
 2. In a muddy river estuary?
 3. On a ocean floor?
 4. The base of a crumbling rock?
 5. In a lava flow from a volcano?
 6. In volcanic ash cloud?

Answers to further challenge!

http://www.bbc.co.uk/sn/prehistoric_life/dinosaurs/burying_bodies/burial/burial.swf

 <p>Equus (modern horse)</p>	
 <p>Pliohippus (one-toed horse)</p>	
 <p>Merychippus</p>	
 <p>Meshippus</p>	
 <p>Eohippus (early horse)</p>	

What questions do you have about the fossils shown? What could we learn from this? What could they be showing us?

 <p>Equus (modern horse)</p>		
 <p>Pliohippus (one-toed horse)</p>		
 <p>Merychippus</p>		
 <p>Meshippus</p>		
 <p>Eohippus (early horse)</p>		

Depending on time You could have a go at making fossils!

- Resources you could use...

Simpler

<https://www.tes.co.uk/teaching-resource/making-fossils-tutorial-6394594>

Challenging questions at end.

<http://www.earthscienceeducation.com/taster/Biology%20KS4%20in%20an%20Earth%20Context-What%20is%20a%20Fossil.pdf>