

**Science – Year 5/6B Summer 1**

Evolution and Inheritance

# **Survival of the Fittest**

Session 4

**Resource Pack**

### Research starting points – NHM links

- Mary Anning, Natural History Museum  
<http://web.archive.org/web/20150503022220/http://www.nhm.ac.uk/nature-online/science-of-natural-history/biographies/mary-anning/index.html>
- Charles Darwin, Natural History Museum  
<http://web.archive.org/web/20150421031759/http://www.nhm.ac.uk/nature-online/science-of-natural-history/biographies/charles-darwin/index.html>
- Alfred Russel Wallace, Natural History Museum  
<http://web.archive.org/web/20150425013333/http://www.nhm.ac.uk/nature-online/science-of-natural-history/biographies/wallace/index.html>

**Key facts template**

Mary Anning	
Background and early life	
Specific area of interest	
Theories or finds of note	
Controversies	
Impact on modern scientific thinking	

Charles Darwin	
Background and early life	
Specific area of interest	
Theories or finds of note	
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Alfred Russel Wallace	
Background and early life	
Specific area of interest	
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## Anning fossils

### Ammonite

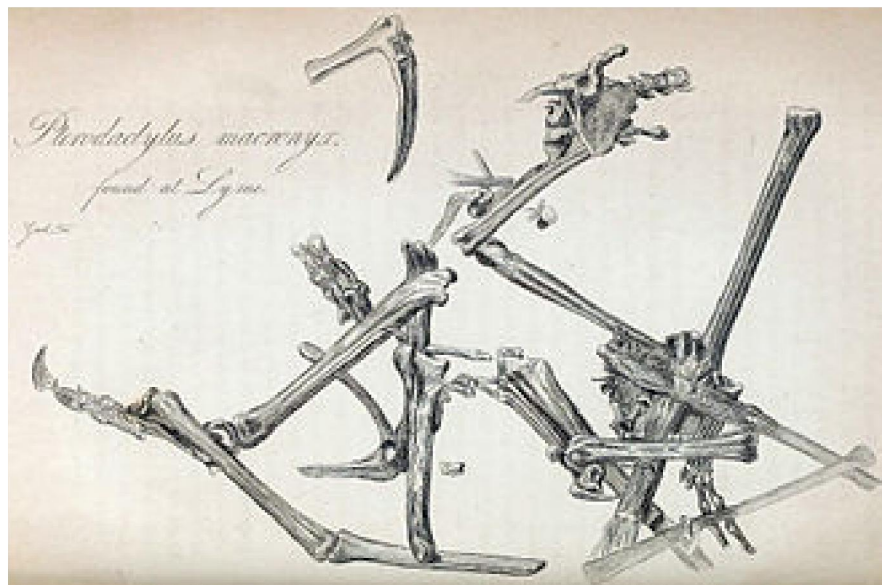
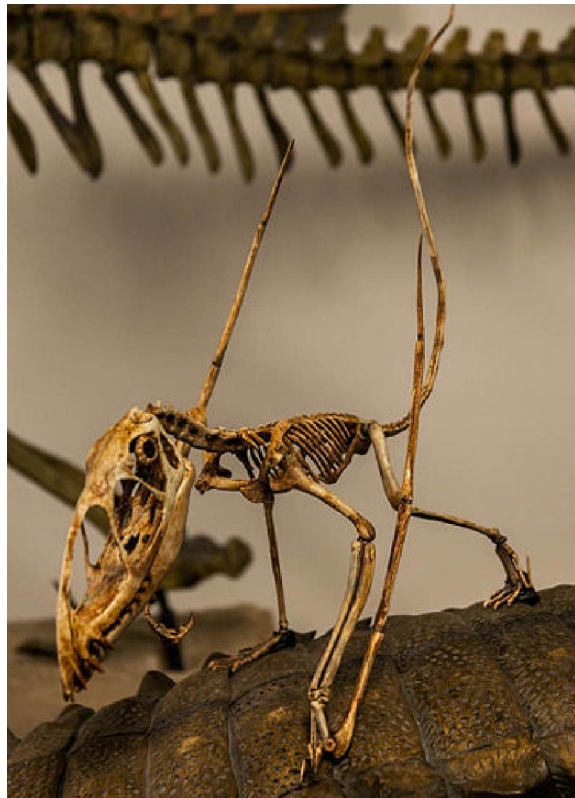




## Ichthyosaurus

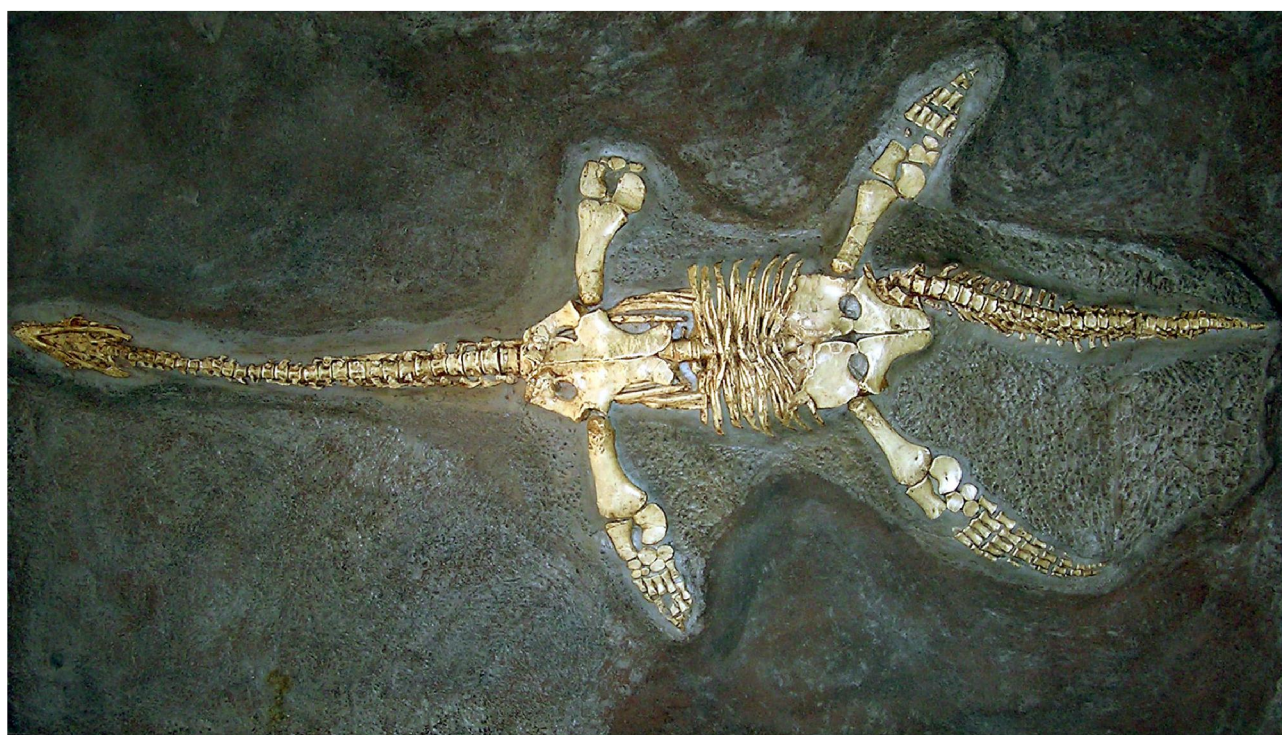
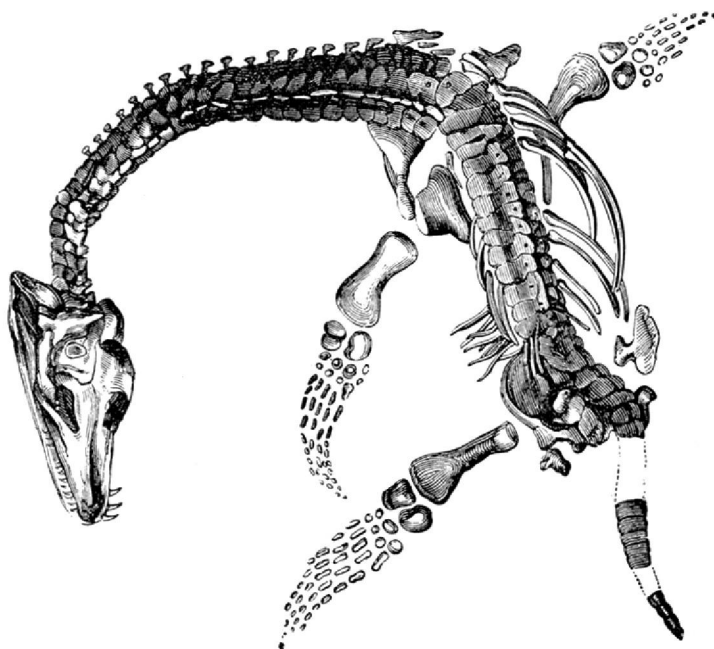


## Dimorphodon



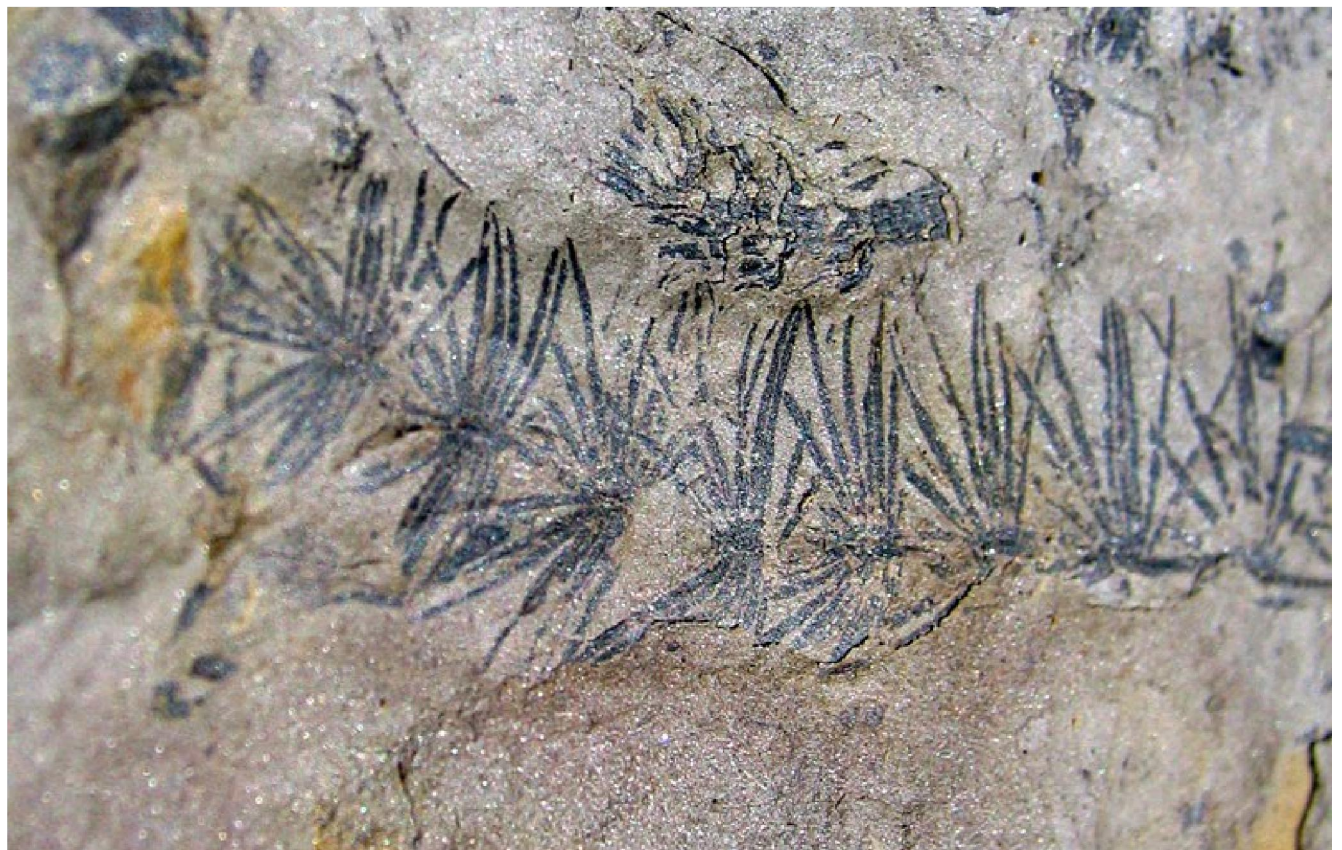


Plesiosaur





## Plants





## Scientist challenges

### Mary Anning scientists

***Key question: how does the fossil record support the theory of evolution through extinct and/or common ancestors?***

Look carefully at the fossil evidence and sketches and note:

- Modern creatures and plants that they remind you of
- Features that you recognise from living creatures and similarities to known creatures in terms of anatomy
- The evolutionary 'purpose' of certain features – how do you think such characteristics helped the creature to survive?

### Charles Darwin scientists

***Key question: how do anatomical observations help support the idea of natural selection?***

Look carefully at Darwin's finches (<http://www.arkive.org/myarkive/scrapbooks/view/4a327879-3688-418c-bb73-7f610a0103cf> and [https://www.pbs.org/wgbh/evolution/library/01/6/image\\_pop/I\\_016\\_02.html](https://www.pbs.org/wgbh/evolution/library/01/6/image_pop/I_016_02.html)) and note:

- How the finches are similar and different
- The individual shape and specific function of beaks in terms of the food they are most suited to eating
- The impact of the environment on the survival of finches with specific beak characteristics

## Alfred Wallace scientists

***Key question: why do brightly coloured caterpillars survive even though they are brightly coloured and can be seen by predators?***

- Research online a range of 'successful' (surviving) caterpillars that are brightly coloured and suggest why they have been selected for survival
- Can you suggest other theories for why some animals are brightly coloured or 'mimic' larger animals – how does this help them to survive?

## Fossil 'What if'

What if a fossil turned out to be dated from before scientists believe such life forms existed?

What if a fossil is discovered that shows a creature previously thought to be extinct in a much later time period?

What if a fossil is found that shows a completely new species closely related to a modern creature?

What if one fossil is found containing two creatures previously thought not to overlap?



## Evolutionary time chart

Era	Period		Events
Cenozoic	<b>Quaternary</b> 2.6 million years ago – today		Evolution of humans
	<b>Neogene</b> 23 – 2.6 million years ago		Mammals diversify
	<b>Paleogene</b> 65-23 million years ago		
Mesozoic	<b>Cretaceous</b> 145-65 million years ago		Extinction of dinosaurs First primates First flowering plants
	<b>Jurassic</b> 200-145 million years ago		First birds Dinosaurs diversify
	<b>Triassic</b> 251-200 million years ago		First mammals First dinosaurs
Paleozoic	<b>Permian</b> 299-250 million years ago		Major extinctions Reptiles diversify
	<b>Carboniferous</b> 359-299 million years ago	<b>Pennsylvanian</b>	First reptiles
			Scale trees
		<b>Mississippian</b>	Seed ferns
	<b>Devonian</b> 419-359 million years ago		First amphibians Jawed fishes diversify
	<b>Silurian</b> 443-416 million years ago		First vascular land plants
	<b>Ordovician</b> 488-444 million years ago		Sudden diversification of metazoan families
	<b>Cambrian</b> 540-490 million years ago		First fishes First chordates
			First skeletal elements
			First soft bodied metazoans
			First animal traces
Late Proterozoic			

## **Glossary**

- Chn – Children
- Gp/s – Group/s
- H/W – Homework