

**Science - Year 6**

**Evolution and Inheritance – Block 6EI**

# **The Game of Survival**

**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	
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Alfred Russel Wallace	
Background and early life	
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## Anning fossils

### Ammonite

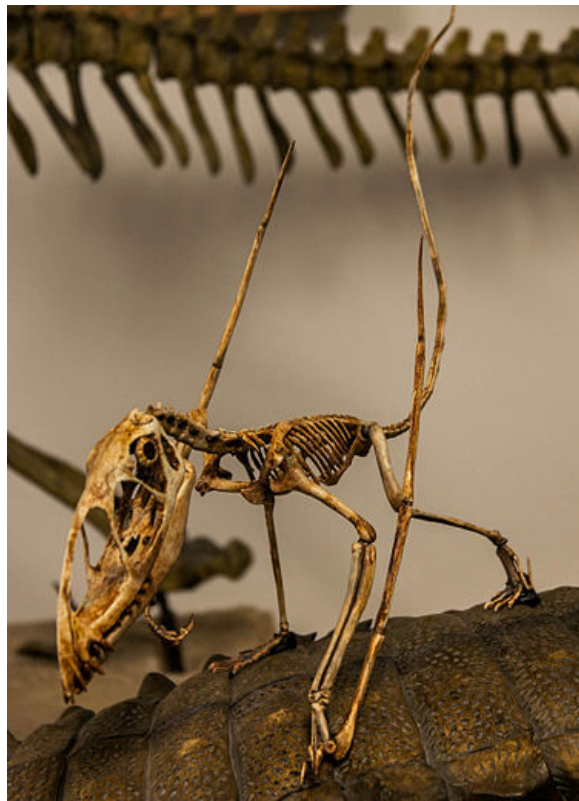




# Ichthyosaurus

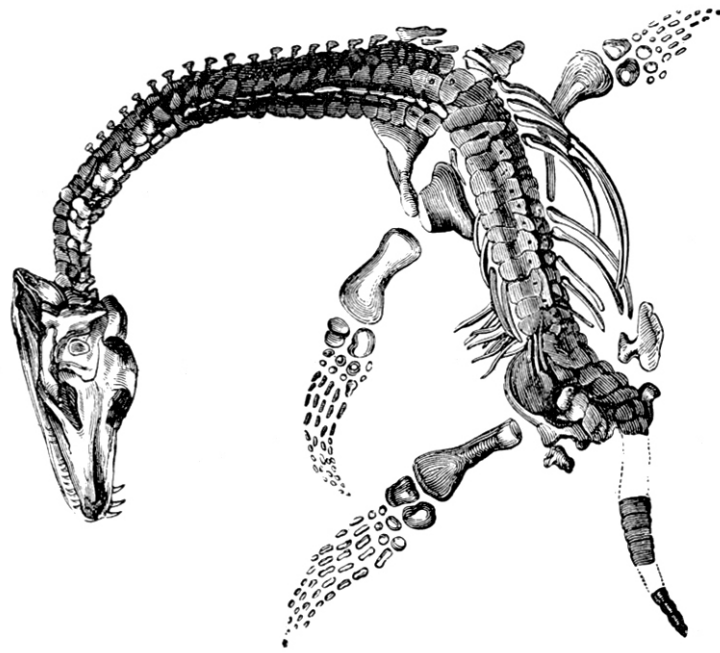


## Dimorphodon





Pleisiosaur



## 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 know 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/l\\_016\\_02.html](https://www.pbs.org/wgbh/evolution/library/01/6/image_pop/l_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 
		<b>Mississippian</b> Scale trees 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 
Late Proterozoic	<b>Cambrian</b> 540-490 million years ago	First fishes First chordates  
		First skeletal elements First soft bodied metazoans First animal traces 