Darwinian Evolution

Contributor's to Darwin's thinking included:

-		-uniformitarianism (g	eologic processes s	till changing Earth	
•		– struggle for ex	kistence (resources))	
•		Gradualism			
•	John Baptiste Characteristics and Law of Us	se and Disuse	_– Inheritance of o	acquired	
Char	les Lyell				
•	Proposed theory of				
•	process	ses at uniform rates b	uilding & wearing o	down Earth's crust	
•	Proposed that the Earth was _	of years in	nstead of a few	years old	
•	Published by	Just Before The Beag	ile set sail & read b	y Darwin	
•	Explained Processes That Shaped The				
•	Helped Darwin Understand Se	ea Shells In The	Mountair	ns At 12,000+ Feet	
	■	_ Earth's Age			
	Theory of		Change		
•		, 1795, Scottish geol	ogist		
•	Studied invertebrate fossils in Paris Museum				
•	Described the forces that have changed life on Earth over				
	millions of years (erosion, ear	thquakes, volcanoes.)		
•	millions of years (erosion, ear Changes in Earth's	thquakes, volcanoes. due to slow)	processes	
•	millions of years (erosion, ear Changes in Earth's Idea Known as	thquakes, volcanoes. due to slow)	processes	
• • Li	millions of years (erosion, ear Changes in Earth's Idea Known as amarck's Theory of Evolution	thquakes, volcanoes. due to slow)	processes	
• • L:	millions of years (erosion, ear Changes in Earth's Idea Known as amarck's Theory of Evolution Jean-Baptiste	thquakes, volcanoes. due to slow , 1809)	processes	
• • •	millions of years (erosion, ear Changes in Earth's Idea Known as amarck's Theory of Evolution Jean-Baptiste One Of First Scientists To Und	thquakes, volcanoes. due to slow , 1809 erstand That Change) Occurs Over Time	processes	
• • • •	millions of years (erosion, ear Changes in Earth's Idea Known as amarck's Theory of Evolution Jean-Baptiste One Of First Scientists To Und Stated that Changes Are organism's lifetime	thquakes, volcanoes. due to slow , 1809 erstand That Change To) Occurs Over Time	processes	
• • • •	millions of years (erosion, ear Changes in Earth's Idea Known as amarck's Theory of Evolution Jean-Baptiste One Of First Scientists To Und Stated that Changes Are organism's lifetime Said acquired changes were _	thquakes, volcanoes. due to slow , 1809 erstand That Change To) Occurs Over Time	processes	

•	If a body part were	, it got		
•	If body part	_used, it		
•	Use & Disuse - Organisms Co By Using Them Or Not Using	uld Them	The Size Or S	hape Of
•	Blacksmiths & Their Sons (mu	uscular arms)		
•	Giraffe's Necks	from		
Voyag	e of the Beagle			
Charle	s Darwin			
•	Born Feb. 12, 1809			
•	Joined Crew of HMS		, 1831	
•	5 Year Voyage around world			
•	Avid Collector of	&		
•	During His Travels, Darwin M around the world, but	lade Numerous C	Dbservations And Col	lected Evidence from
The G	alapagos Islands			
•	Small Group of Islands 600 m	iles West of		
•	Very Different		_	
•	Or	n Islands		
	» Tortoises			
	» Iguanas			
	» Finches			
•	island	s off the coast of		
•	Island varied from	n s	pecies & from island	-to-island
•	Each island had	or	neck tort	oises
•	Finches on the	resembled	1 a	finch
•	More types of finches appea (seeds, nuts, berries, insects.	red on the island)	s where the available	e food was different

• Finches had different types of beaks adapted to their type of food gathering

Darwin's Observations

Patterns of	were shown	
Unique	in	
	_ Not Evenly	
 Australia, Ka 	angaroos, but No Rabbits	
 S. America, 	Llamas	
Both	&collec	cted
Viewed the	record as evidence of	
is the	slow, gradual change in a	of
organisms over		
Left unchecked, the numbe generation to generation	er of organisms of each species will increase exp	oonentially,
In nature,	tend to remain stable in	
	resources are	
's Conclusion		
's Conclusion Production of more	than can be supported by the	
's Conclusion Production of more lea	than can be supported by the ds to a struggle for amo	ong individuals
's Conclusion Production of more lea Only a fraction of	than can be supported by the ds to a struggle for amo survive each	ong individuals
's Conclusion Production of more lea Only a fraction of	than can be supported by the ds to a struggle for amc survive each	ong individuals
's Conclusion Production of more lea Only a fraction of	than can be supported by the ds to a struggle for amo survive each of the characteristics most fit for their	ong individuals
's Conclusion Production of more lea Only a fraction of Individuals who are likely to leave more	than can be supported by the ds to a struggle for amo survive each of the characteristics most fit for their than less fit	ong individuals
's Conclusion Production of more lea Only a fraction of lea Individuals who are likely to leave more	than can be supported by the ds to a struggle for amo survive each of the characteristics most fit for their than less fit	ong individuals
's Conclusion Production of more lea Only a fraction of Individuals who are likely to leave more Called The unequal ability of	than can be supported by the ds to a struggle for amo survive each of the of the than less fit for their than less fit to survive and	ong individuals
's Conclusion Production of more lea Only a fraction of lea Individuals who are likely to leave more Called The unequal ability of leads to a gradual change i	than can be supported by the ds to a struggle foramc survive each of the of the characteristics most fit for their than less fit to survive and n a, with favorable	ong individuals
's Conclusion Production of more lea Only a fraction of lea Individuals who are likely to leave more Called The unequal ability of leads to a gradual change i accumulating over generat	than can be supported by the ds to a struggle foramc survive each of the characteristics most fit for their characteristics most fit for their than less fit to survive and n ato survive and ions ()	ong individuals
's Conclusion Production of more lea Only a fraction of lea Individuals who are likely to leave more Called The unequal ability of leads to a gradual change i accumulating over generat New species	than can be supported by the ds to a struggle foramc survive each of the of the than less fit to survive and to survive and to survive and to survive and	ong individuals

Natural Selection

- - Similarities In _____ Development
 - Evolution of pesticide ______ in response to ______
 - _______time scale events that create and destroy species.
 _______time scale events (generation-to-generation) that change the _______and ______of populations

Key Concepts

Darwin Argued That Living Things Have Been Evolving On Earth For Millions of Years. Evidence For This Process Could Be Found In:

- The ______ Record
- The _____ Distribution of _____ Species
- _____ Structures of _____ Organisms
- _____ In _____ Development