The evolution of apes

Example

Patterns of evolution

The evolution of primates

The evolution of apes

Outline

Example

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- Context for evolution
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Exit
Madison Avenue
& 42 Street
Open M-F 6:30am-7:30pm
Track

Similarities and differences

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TABLE 9.1 The Geological Timescale

Era	Period	Epoch	Period begins (mya)	Notable events
Cenozoic	Quaternary	Recent	0.012	Origins of agriculture and complex societies
		Pleistocene	1.8	Appearance of *Homo sapiens*
	Tertiary	Pliocene	5	Dominance of land by angiosperms, mammals, birds, and insects
		Miocene	23	
		Oligocene	34	
		Eocene	54	
		Paleocene	65	
Mesozoic	Cretaceous		136	Rise of angiosperms, disappearance of dinosaurs, second great radiation of insects
	Jurassic		190	Abundance of dinosaurs, appearance of first birds
	Triassic		225	Appearance of first mammals and dinosaurs
Paleozoic	Permian		280	Great expansion of reptiles, decline of amphibians, last of trilobites
	Carboniferous		345	Age of Amphibians; first reptiles, first great insect radiation
	Devonian		395	Age of Fishes; first amphibians and insects
	Silurian		430	Land invaded by a few arthropods
	Ordovician		500	First vertebrates
	Cambrian		570	Abundance of marine invertebrates
Precambrian				Primitive marine life

Table 9.1

Timeline

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PANGAEA
120°
80°
40°
80°
120°
225 mya
LAURASIA
GONDWANALAND
120°
80°
80°
120°
135 mya
North America
Eurasia
Africa
South America
India
Mada-
gascar
Australia
Antarctica
120°
80°
120°
65 mya
120°
80°
0°
40°
80°
120°
Present

Figure 9.4

15
10
5
0
−5
Temperature (C°)
0
1
2
3
4
5
δ 18O (0/00)
Paleocene
Eocene
Oligocene
Miocene
Pliocene
70
60
50
40
30
20
10
0
Time (mya)

Figure 9.5

Changing ecosystems

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- This radically changed the ecology of the world, and opened up many new niches, apparently including space for primates

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Sharp-pointed incisors
I
I
C
P
P
P
M
M
M
Three-cusped, triangular molars
(a)
I
I
P
P
P
M
M
M
Shearing blade on premolars
Slicing crests on molars
(b)
I
I
Large canine
C
P
P
M
M
M
Large incisors
Parallel ridges on molars
(c)

Figure 9.15

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(a) Adapids (*Notharctus*)

(b) Omomyids (*Tetonius*)

Figure 9.10

(a)

(b)

Figure 9.11

Interpreting fossil traits

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Species born
Species extinct
Population size
(a)
Time
Number of fossils formed
(b)
Time

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