

Chapter 13

CRITICAL THINKING

• Geologic Time

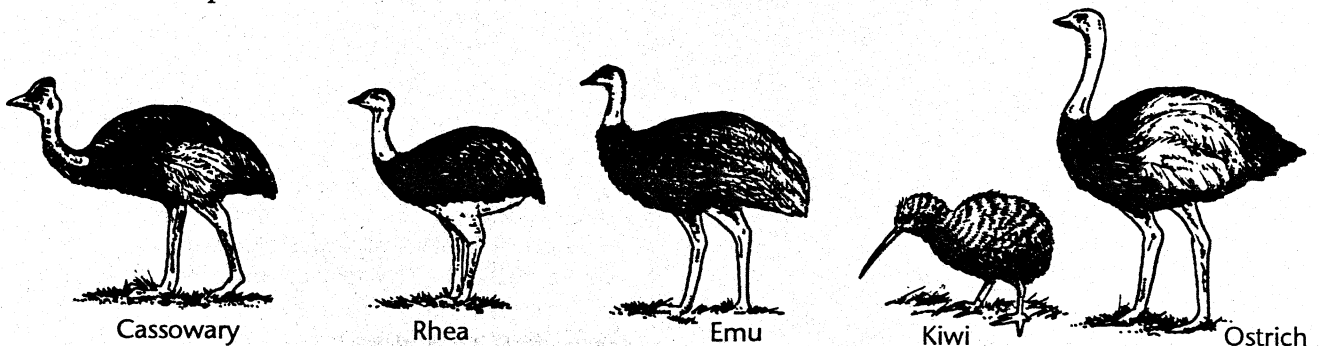
Flightless Birds and Marsupials

You've learned that there was once a supercontinent called Pangaea. The southern part of this supercontinent was Gondwanaland. Gondwanaland eventually broke up to form the present-day continents of the southern hemisphere: Antarctica, Africa, Australia, and South America, and the subcontinent of India.

Today the continents of the southern hemisphere are home to flightless birds belonging to the order *ratites*. Each is a different species. Perhaps the best known is the tall ostrich of Africa. Another, the rhea, is found in South America; the cassowary and emu live in Australia; and the smaller kiwi lives in New Zealand. Flightless birds probably originated in the southern supercontinent.

You've also learned that kangaroos, wallabies, wombats, and koalas are marsupials, that exist only in Australia. Other marsupials are found today in South America. Fossil forms of marsupials have been found in Antarctica. The only marsupial that exists in the northern hemisphere today is the opossum, found in North America. Marsupials are thought to have originated after Gondwanaland began to break up.

Ratites and marsupials have been important to our understanding of the supercontinents. They've helped us understand evolution within a species and how this has resulted in such a diversity of life-forms.



Applying Critical Thinking Skills

1. Do you think flightless birds originated before or after Gondwanaland broke up? Explain.
2. Why is it likely that marsupials originated after Gondwanaland broke up?
3. According to the theory behind this information, which of today's lands may have broken off from Gondwanaland first?
4. What possible explanations can you give for the fact that there are no ratite birds in India?
5. Why do you think the ratite birds are now separate species? Why are there such distinct differences between the marsupials in South America and those in Australia?
6. How do you account for the presence of a marsupial (the opossum) in North America?
7. Look at the picture of the birds above. What features do they have that would make you suspect they couldn't fly?