Trails and Burrows Other trace fossils include trails and burrows made by worms and other animals. These, too, tell something about how these animals lived. For example, by examining fossil burrows you can sometimes tell how firm the sediment the animals lived in was. As you can see, fossils can tell a great deal about the organisms that have inhabited Earth.

Reading Check *How are trace fossils different from fossils that are the remains of an organism's body?*

Index Fossils

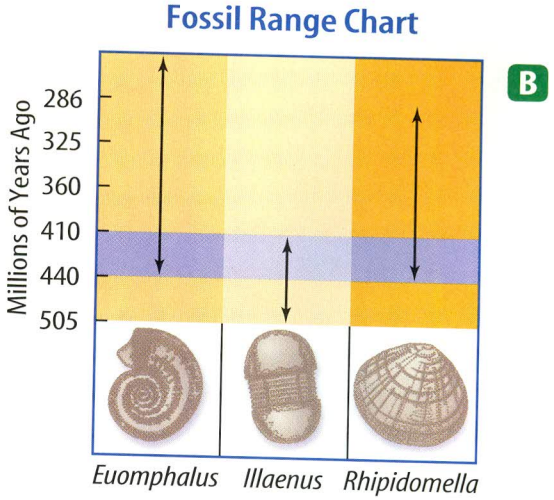
One thing you can learn by studying fossils is that species of organisms have changed over time. Some species of organisms inhabited Earth for long periods of time without changing. Other species changed a lot in comparatively short amounts of time. It is these organisms that became index fossils.

Index fossils are the remains of species that existed on Earth for relatively short periods of time, were abundant, and were widespread geographically. Because the organisms that became index fossils lived only during specific intervals of geologic time, geologists can estimate the ages of rock layers based on the particular index fossils they contain. However, not all rocks contain index fossils. Another way to approximate the age of a rock layer is to compare the spans of time, or ranges, over which more than one fossil lived. The estimated age is the time interval where fossil ranges overlap, as shown in **Figure 8.**

Field Guide

What types of fossils can be found in your part of the country? To find out, see the **Fossils Field Guide** at the back of the book.

A



B

Figure 8
A The fossils in a sequence of sedimentary rock can be used to estimate the ages of each layer. B The chart shows when each organism inhabited Earth. *Why is it possible to say that the middle layer of rock was deposited between 440 million and 410 million years ago?*