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### The Principle of Superposition [p.240]

Suppose that you have a brother who takes a lot of pictures of your family and piles them in a box. Over the years he adds new pictures to the top of the stack. Think about the family history recorded in those pictures. Where are the oldest pictures—the ones taken when you were a baby? Where are the most recent pictures—those taken last week?

### Superposition in Rock Layers

Layers of sedimentary rock, such as the ones shown in Figure 3, are like stacked photographs. As you move from top to bottom, the layers get older. The principle that states that younger rocks lie above older rocks in undisturbed sequences is called Superposition. Superposition helps geologists determine the relative ages of rock layers.

Superposition also helps geologists determine the relative ages of fossils. Fossils represent organisms that lived when sediments collected to form sedimentary rock. So, fossils found in a younger rock layer are younger than fossils found in an older rock layer. And fossils found in lower, or older, rock layers are older than fossils found in higher, or younger, rock layers.

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### Section 3 Absolute Dating p.246

#### Key Concept Because radioactive decay

occurs at a constant rate, the age of a rock can be estimated by analyzing the amounts of different isotopes in a rock.

#### What You Will Learn

##### • Radioactive decay is the

process in which a radioactive isotope tends to break down into a stable isotope of the same element or a different element.

##### • Radiometric dating is the

process in which parent and daughter isotopes are analyzed to determine the age of rocks and fossils

#### Why It Matters

Estimating the age of rocks helps tell the story of Earth's past.

you can use the glossary in the back of the book for vocabulary

#### Vocabulary

##### • absolute dating =

any method of measuring the age of any event or object in years

##### • radioactive decay =

the process in which a radioactive isotopes tends to break down into a stable isotope of the same element or another element.

##### • radiometric dating =

a method of determining the age of an object by estimating the relative percentages of a radioactive (parent) isotope and stable (daughter) isotope.

##### • half-life =

the time required for half of a sample of a radioactive isotope to break down by radioactive decay to form a daughter isotope.

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#### 7.3.c Students know how independent

lines of evidence from geology, fossils, and comparative anatomy provide the bases for the theory of evolution.