

**As You Read...****Think about:**

1. **What is the difference between chemical and physical weathering?**
2. **What are some of the different types of physical weathering?**
3. **How are chemical conditions on the Earth's surface different from those inside the Earth?**

Digging Deeper**Weathering**

If you were to sit and watch a rock surface for a day, or a month, or even a year, it might seem to you that rocks do not change. Yet rocks exposed at the Earth's surface do not stay the way they are forever. Over tens to hundreds of years, many processes that take place in the surface environment of the Earth cause solid rocks to be broken down into loose pieces of minerals and rocks. These processes, taken together, are called physical weathering.

Also, some of the minerals in rocks at the surface can be easily changed into other chemicals. Rocks form deep in the Earth, at much higher temperatures and pressures, and in a very different chemical environment. When these rocks are brought near the surface, the change in conditions makes some of their minerals chemically unstable. This chemical breakdown of some minerals when they are exposed at the Earth's surface is called chemical weathering. Physical weathering and chemical weathering act together, but they are easier to understand by considering them separately.

Physical Weathering

Physical weathering breaks rocks apart without changing their mineral composition. Here are some examples of processes that are important in physical weathering:

Ice Wedging

Water seeps into cracks in rocks near the surface. When the temperature drops below freezing, the water freezes. As it freezes, it expands. The expansion puts enormous pressures on the surrounding rocks. The frozen water acts like a wedge, making cracks wider. After repeated freezing and thawing, the rock breaks apart. This expansion and contraction is also a major cause of potholes in streets.