

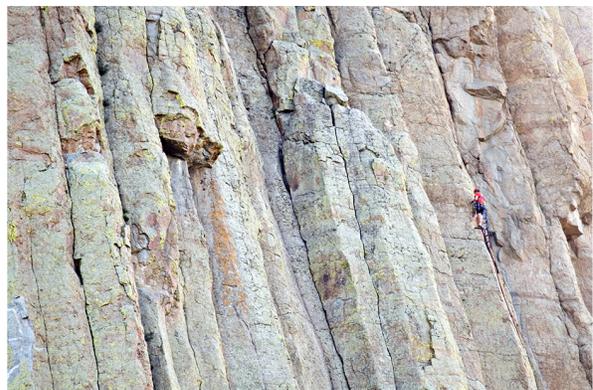


Devils Tower is a tall rock formation surrounded by flat land.

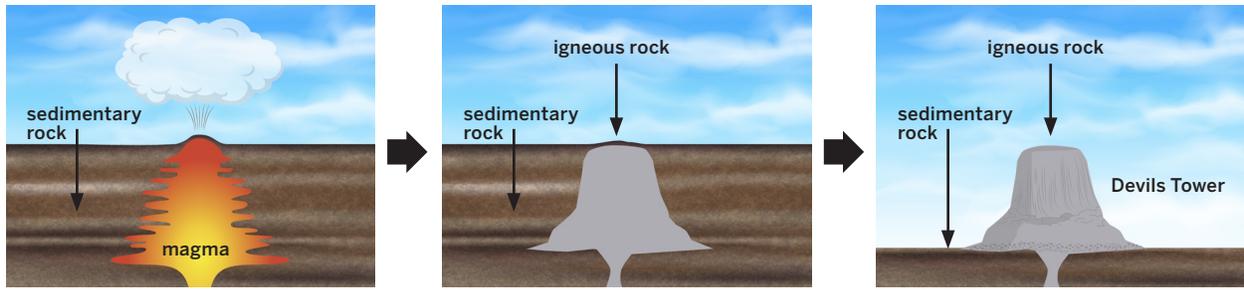
Devils Tower

Far out in the wilderness of Wyoming, a giant rock formation towers above the landscape. Devils Tower is a natural wonder visited by thousands of tourists, hikers, and climbers each year. The Lakota and other American Indian tribes in the area consider the rock formation a sacred site. Legends describe the columns of the tower being formed by the claws of a bear, and the Lakota name for the formation is *Mato Tipila*, which means “Bear’s Lodge.” In 1875, *Mato Tipila* was incorrectly translated into Bad God’s Tower, which later became Devils Tower. The formation has been a national monument since 1906, but people have been visiting this huge tower of rock for thousands of years. How did Devils Tower form, and why is it so much taller than the surrounding landscape?

Devils Tower is made of igneous rock, but is surrounded by sedimentary rock. These types of rock are formed by different processes. Exploring the different geological processes that formed Devils Tower can help explain its history.



This climber looks tiny compared to Devils Tower!



Devils Tower formed when magma pushed up through Earth's surface and cooled into hard rock. Over time, the land around it eroded away, leaving a tower looming over a flat landscape.

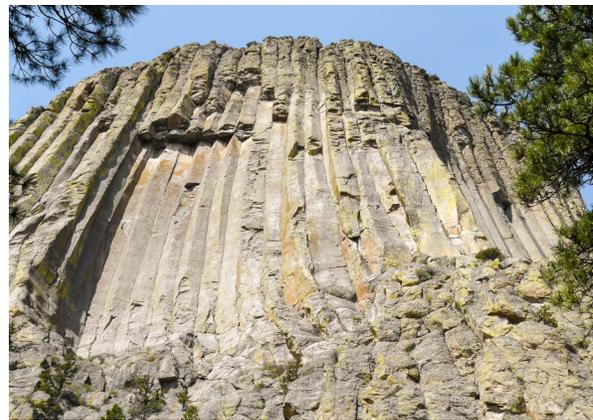
When you first see Devils Tower rising up above the dry landscape, it's hard to imagine that the whole region was once underwater. However, two hundred million years ago, this area of Wyoming was covered by a shallow sea. Blowing wind and falling rain weathered nearby rock formations over and over, causing small pieces to break off and become sediment. As bits of sediment ran into each other, they became smaller and smaller. They were driven downward by moving water and gravity. This erosion carried the sediment to the bottom of the sea. Over millions of years, compaction and cementation turned the sediment into solid sedimentary rock. Gradually, the sea drained away, leaving dry land in its place. That's how the land around Devils Tower formed.

However, Devils Tower itself is not sedimentary rock. About 50 million years ago, rock underneath Earth's outer layer in this region melted into magma. This only happens when rock gets up to very high temperatures—in the hundreds of degrees Celsius. Magma can cool to form different igneous rocks, depending on the way it melts. A column of the hot magma forced its way up into the layer of sedimentary rock, then cooled and became hard igneous rock called phonolite (FO-no-lite). After the magma solidified, it cracked into columns of rock. Over time, the sedimentary rock that covered the igneous rock was weathered and eroded away by wind and water, leaving a

tower of hard igneous rock standing like a skyscraper above the surrounding land.

The weathering of rocks into sediment isn't uncommon—it happens to rocks all over the place. However, the revealing of the columns in Devils Tower as the sedimentary rock around it weathered and eroded away has made it a dramatic sight and attracted visitors from all over the world.

Even though the igneous columns of Devils Tower are very hard, they are slowly being weathered and eroded—that is, they are being worn away as wind and water remove bits of sediment from them. The tower that now stands is much smaller than the original mass of magma that pushed up from below. Millions of years from now, Devils Tower will be completely weathered and eroded away.



After the hot magma that formed Devils Tower cooled, it cracked into flat-sided columns.