

Name _____

The Marvelous Transformation: How Metamorphic Rocks Are Created

Short Answer Key

1. Contact metamorphism occurs when rocks are heated by nearby molten magma. An example is marble, which forms from limestone. Regional metamorphism happens over large areas and is typically associated with tectonic plate collisions. An example is schist, which forms from shale.
2. Index minerals are minerals that form under specific temperature and pressure conditions. By identifying which index minerals are present in a metamorphic rock, geologists can determine the range of temperature and pressure the rock has experienced. This information provides insights into the rock's history, including the geological conditions it has undergone.
3. Tectonic forces play a crucial role by pushing rocks deeper into the Earth's crust, subjecting them to increased heat and pressure. This leads to the formation of metamorphic rocks. An example of a geological feature resulting from regional metamorphism is the Himalayan mountain range, which formed due to the collision of the Indian and Eurasian tectonic plates.
4. Metamorphic rocks preserve a record of the intense geological processes they have undergone. By studying the mineral composition, texture, and structures within metamorphic rocks, geologists can decipher the history of tectonic plate movements, mountain-building events, and changes in Earth's crust over millions of years.
5. As a geologist, I would look for signs of recrystallization and changes in texture that are common in metamorphic rocks. These may include foliation (layering or alignment of minerals), the presence of index minerals, and a texture different from the parent rock (e.g., from coarse-grained to fine-grained).

