Metamorphic Rock Objectives

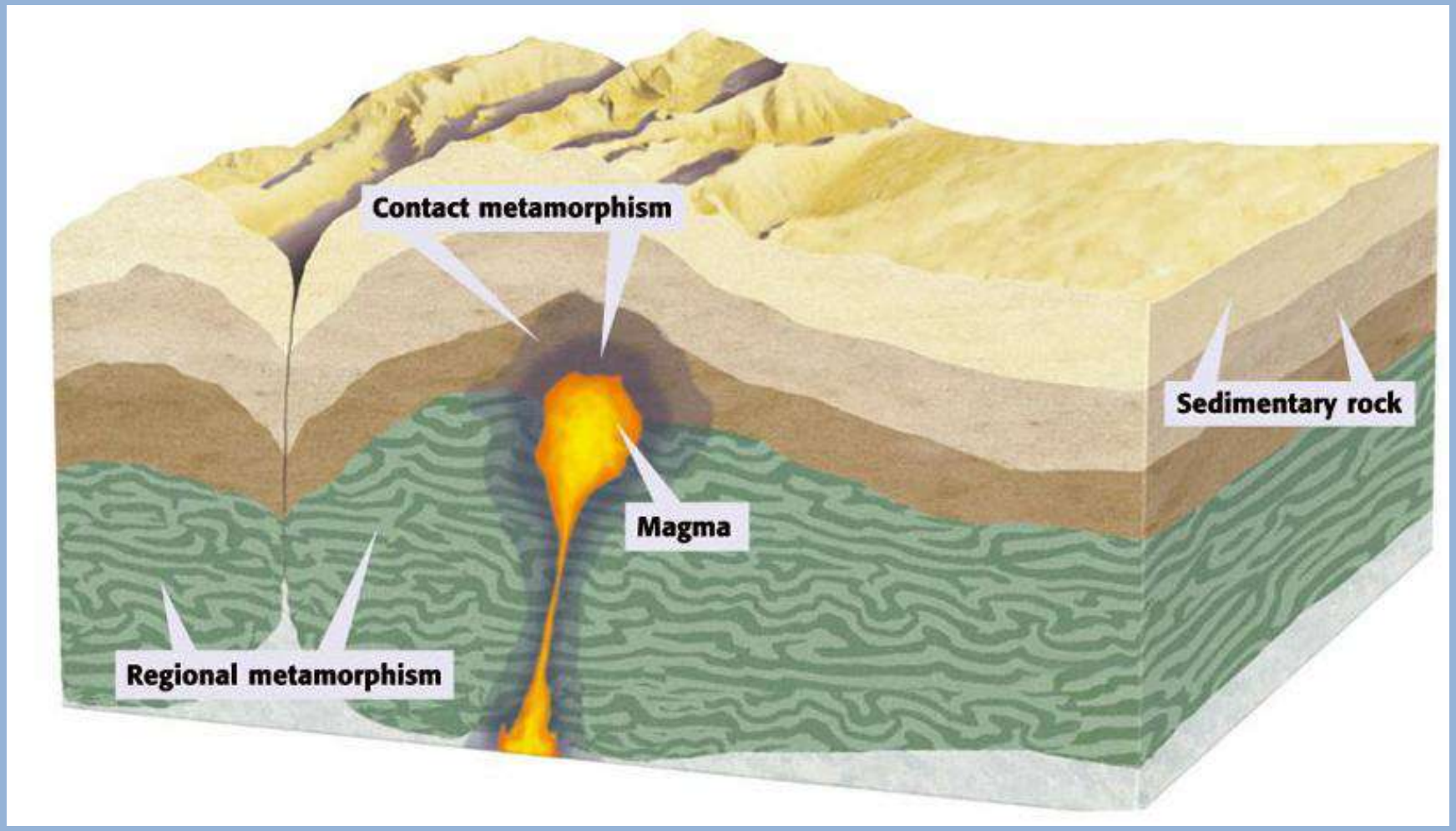
- **Describe** two ways a rock can undergo metamorphism.
- **Explain** how the mineral composition of rocks changes as the rocks undergo metamorphism.
- **Describe** the difference between foliated and nonfoliated metamorphic rock.
- **Explain** how metamorphic rock structures are related to deformation.

I. Origins of Metamorphic Rock

A. Contact Metamorphism One way rock can undergo metamorphism is by being heated by nearby magma. When magma moves through the crust, the magma heats the surrounding rock and changes it, causing *contact metamorphism*.

B. Regional Metamorphism When pressure builds up in rock that is buried deep below other rock formations or when large pieces of the Earth's crust collide with each other, *regional metamorphism* occurs.

Regional and Contact Metamorphism



II. Composition of Metamorphic Rock

A. Changes in Composition As rocks undergo metamorphism, the original minerals in a rock change into new minerals that are more stable in new pressure and temperature conditions.

B. Index Minerals Many of these new minerals form only in metamorphic rock. These minerals are known as *index minerals,* and are used to estimate the temperature, depth, and pressure at which a rock undergoes metamorphism.

III. Textures of Metamorphic Rock

A. Foliated Metamorphic Rock
Foliated metamorphic rock has mineral crystals aligned in planes or bands.

B. Nonfoliated Metamorphic Rock
Nonfoliated rocks have unaligned mineral crystals.

http://geology.com/rocks/metamorphic-rocks.shtml

Metamorphic Rock Structures

C. **Deformation** Metamorphic rock structures are caused by deformation.

http://www.geolsoc.org.uk/gsl/education/resources/rockcycle/page3571.html

Word Bank

Clastic
Extrusive
Igneous
Intrusive
Metamorphic
Regional
Rocks
Sedimentary