

CHAPTER 9 SECTION 3

DAY 1

SPI 0707.7.2 Label a diagram that depicts the three different rock types.

SPI 0707.7.3 Identify the major processes that drive the rock cycle.

What You Will Learn

- What metamorphic rock is
- How metamorphic rock is formed

Essential Questions

- What is metamorphic rock?
- How is it formed?

What Mastery Looks Like

Some Processes in the Rock Cycle

1	New rock forms from rock that is melted and then cools.
2	New rock forms after rock experiences high temperatures and pressure.
3	New rock forms after pieces of rock weather and then erode and are deposited in layers.

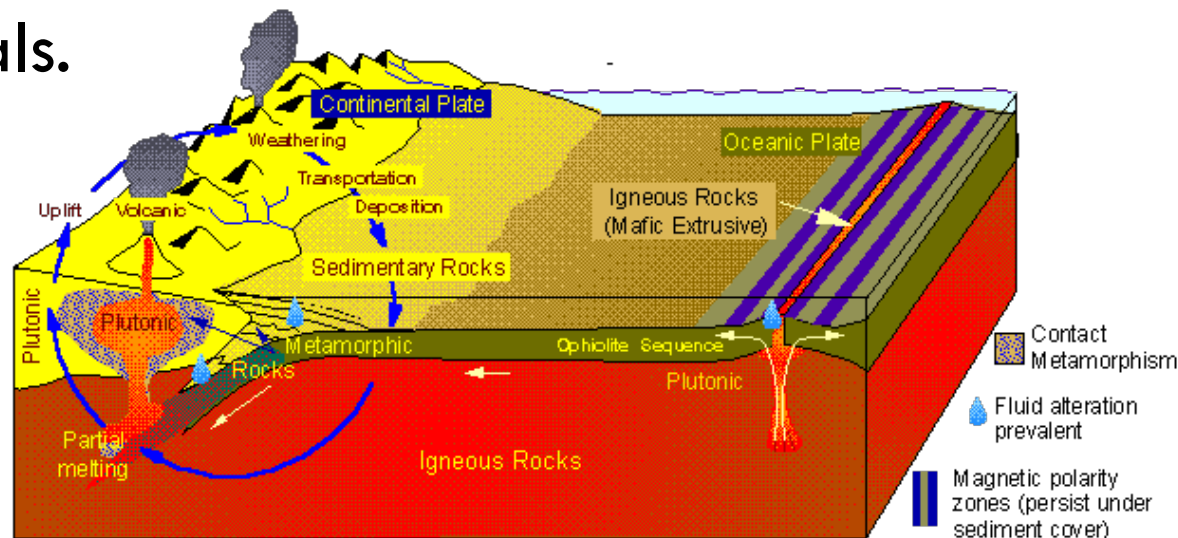
Which number represents metamorphic rock?

New Rock from Old Rock

- Physical changes on & within Earth constantly change rocks.
- Examples:
 - ▣ Weathering and Erosion = Sedimentary Rock
 - ▣ High Temperature with Molten Rock = Igneous
- Pressure and temperature increase as rocks are compressed or buried deeply.
- This leads to change in chemistry and grain sizes of rock. (without melting it)

New Rock from Old Rock

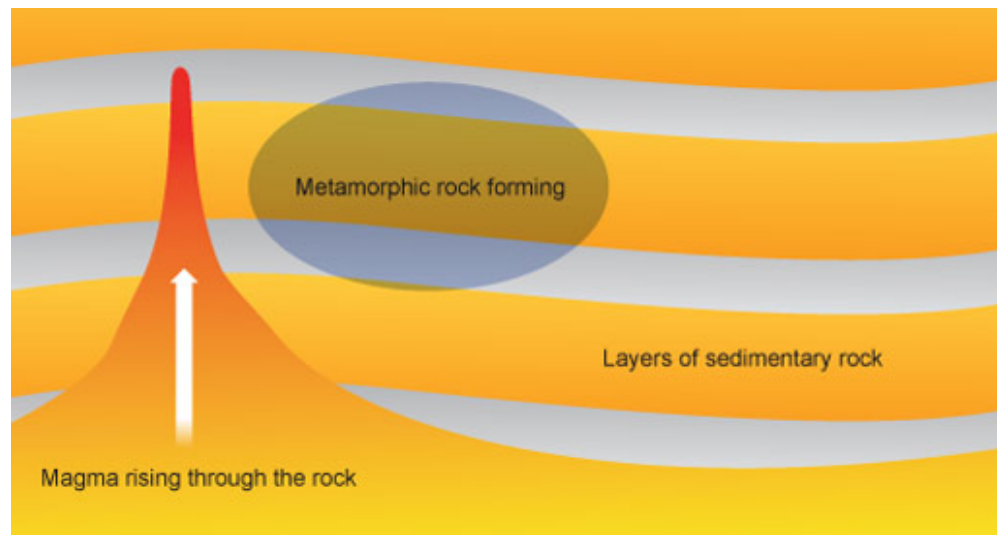
- These changes happen where Earth's tectonic plates collide to form mountains.
- This change in rocks takes **MILLIONS** of years.
- Existing rocks are cooked when magma is forced upward in Earth's crust – changing the mineral crystals.



Redrawn by W. Milner, as modified from Montgomery (1990) and Monroe and Wicander (1994).

Metamorphic Rock

- The term “metamorphic” means “to change form.”
- Process
 - New rocks form thousands of meters below Earth’s surface where temperatures and pressures are...
 - HIGH!
 - New rocks are formed when existing rock is heated and squeezed, but not melted.
- Rocks look different, have recrystallized and have been chemically changed.



Examples of Changed Rocks



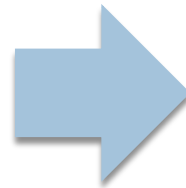
Granite



Gneiss



Sandstone



Quartzite

Examples of Changed Rock



Limestone



Marble

Metamorphic Rock

- Can any rock become metamorphic rock?
 - ▣ Think about it. Come with your answer tomorrow.

Exit Ticket

Some Processes in the Rock Cycle

1	New rock forms from rock that is melted and then cools.
2	New rock forms after rock experiences high temperatures and pressure.
3	New rock forms after pieces of rock weather and then erode and are deposited in layers.

Identify the process that shows metamorphic rock.

Work on your note-taking sheet until class is over.