

CHAPTER 9 SECTION 3

DAY 2

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

- The difference between foliated and nonfoliated rock.
- The journey of a rock

Essential Questions

- What is the difference between rocks that are foliated and nonfoliated?
- What does the journey of a rock look like?

What Mastery Looks Like

Foliation is:

- A)** layering of igneous rocks.
- B)** an alignment of mineral grains in a metamorphic rock.
- C)** alignment of any kind observed in any kind of rocks.
- D)** layering observed in sedimentary rocks.

Metamorphic rocks are classified primarily according to:

- A)** hardness.
- B)** environment of deposition.
- C)** chemical composition.
- D)** texture - the presence/absence of foliation.

Can any rock become metamorphic rock?

- Yesterday, I asked you to ponder whether or not any rock can become metamorphic rock.
- What do you think?

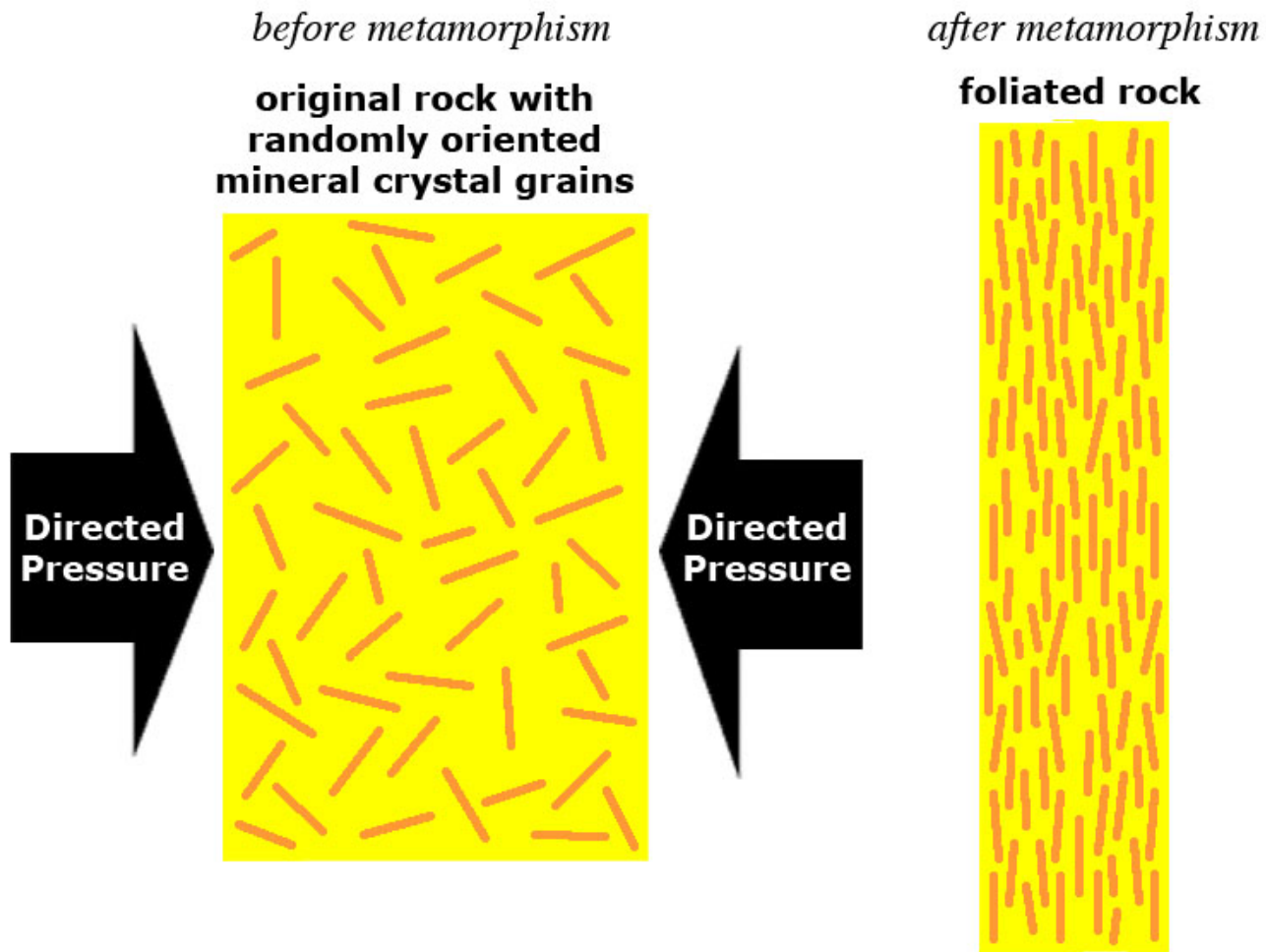
Metamorphic Rock

- Yes! Any rock can become metamorphic rock.
 - Igneous
 - Sedimentary
 - Metamorphic

Metamorphic Rock

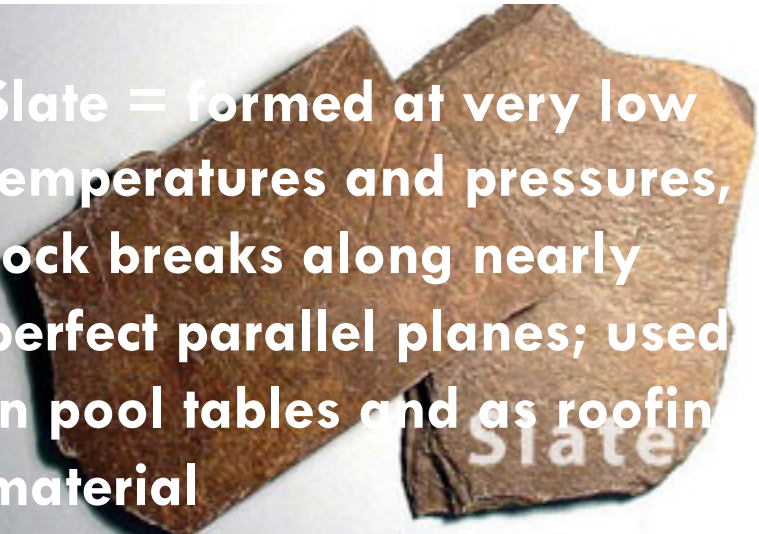
- Texture is a physical characteristic that can help you determine the classification of a rock.
- **When you hear the word texture, what do you think?**
- Texture differences in metamorphic rocks divide them into two main groups.
 - Foliated
 - Visible layers or elongated grains of minerals
 - The word foliated comes from foliatus, which means leafy
 - These minerals have been heated and squeezed into parallel layers or leaves.
 - Nonfoliated
 - No distinct layers
 - Any visible grains do not seem to line up in any particular direction.

Foliated

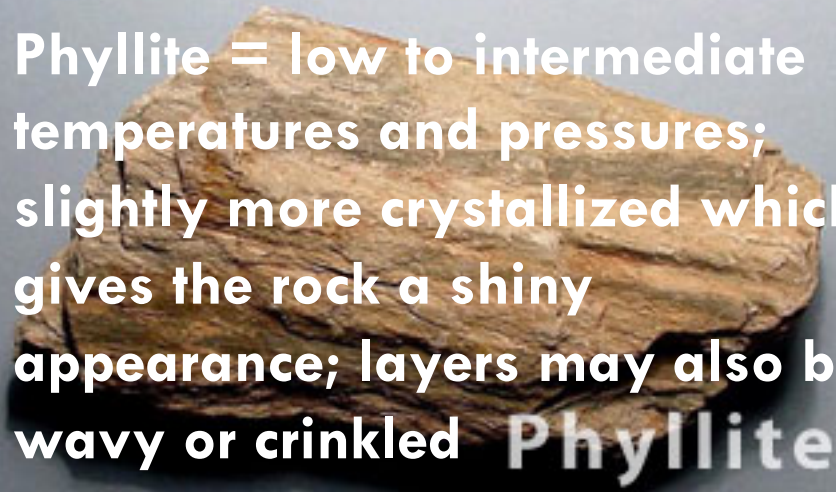


Foliated

Textures of Foliated Metamorphic Rocks (from lowest grade to highest)



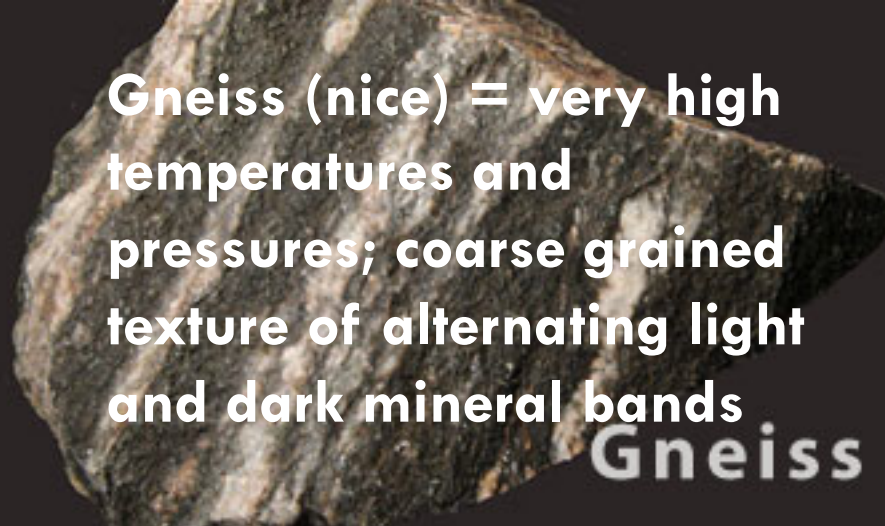
Slate = formed at very low temperatures and pressures, rock breaks along nearly perfect parallel planes; used in pool tables and as roofing material



Phyllite = low to intermediate temperatures and pressures; slightly more crystallized which gives the rock a shiny appearance; layers may also be wavy or crinkled



Schist = intermediate to high temperatures and pressures; crystals are larger with the grains aligned in parallel to subparallel layers



Gneiss (nice) = very high temperatures and pressures; coarse grained texture of alternating light and dark mineral bands

Schist

Gneiss

Nonfoliated

- No distinct layers
- No obvious banding
- Can be even in color
- If mineral grains are visible, not lined up in a particular direction
- Examples: quartzite, marble, or soapstone

Nonfoliated

- **Fine-grained** can be “sugary” with fine grained crystals or “massive”, in which individual intergrown crystals are hard to discern.
- **Medium to coarse-grained** may be “sandy” with crystals that are sand-sized, or coarser depending on the protolith.

Nonfoliated



Quartzite = composed of the mineral quartz;
metamorphosed sandstone

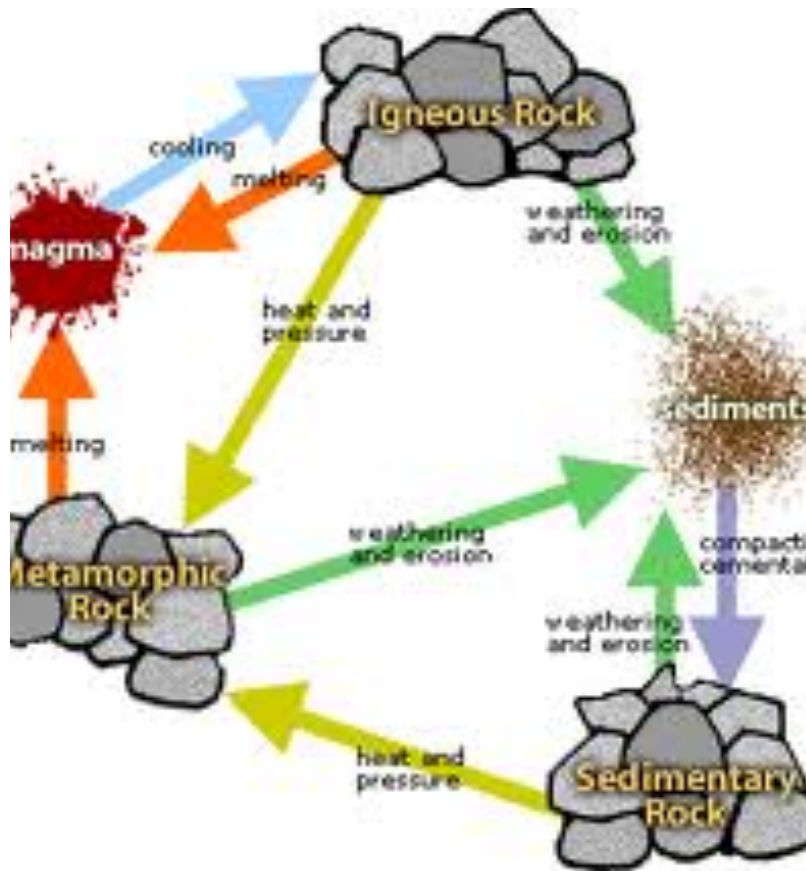


Marble = composed of the mineral calcite;
metamorphosed limestone

Metamorphic Rock

- <https://www.youtube.com/watch?v=UrimDbTUalg>

Rock Cycle



- The rock cycle describes how different kinds of rocks are related to one another.
- Also, how each one changes from one type to another.

The Journey of a Rock

- First, lava oozes to the surface and cools.
 - ▣ Igneous Rocks
- Wind, Rain and Ice wear away at rock-breaking off small pieces.
 - ▣ Sediments
- Streams & rivers carry sediment to the ocean and it piles up. It compresses together due to weight and mineral rich water seeps it and glues it
 - ▣ Sedimentary rock
- Sedimentary rock is buried and pressure and heat inside Earth changes it
 - ▣ Metamorphis Rock.

Exit Ticket

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