Name:__KEY_____ Class Period:___ Lab #: _

Date:__/__/__

Lab Title:

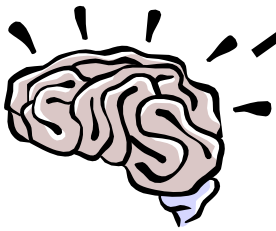
Learn about Meta***morphic*** Rocks - USING your >>>>>>>>>>>

Intro: Metamorphic Rocks form wherever enough heat and/or pressure exist to ***morph*** (change) available rock types into another type of rock. The heat and/or pressure compresses and recrystallizes other rock types and changes their characteristics. They form in the depths of the Earth at great pressure from compression generated by tectonic plate motion. This pressure can also be generated by the weight of overlying rock. The heat often comes from the Earth's internal heat – the geothermal gradient states that heat increases with depth (see ESRT pg. 10) OR the heat can come from nearby magma or lava. Sometimes metamorphic rocks formed over very large areas by the process called regional metamorphism. Other times metamorphic rocks are formed over smaller areas by the process called contact metamorphism. Texture in metamorphic rocks falls into 2 main categories foliated or non foliated. Foliation is best described as obvious layering, striping or bands of minerals that result from a parallel alignment of minerals in the rock giving it a striped appearance.

Procedure:

First gather what you need:

Your ESRT and a pencil or pen
And your



Then:

1. Read the explorations carefully.
2. Use your ESRT (especially page 7) to help explore for the answer.
3. Hand in completed lab for grading.

Explorations:

1. Determine the name of a metamorphic rock that is foliated, HAD some mica which has changed into feldspar, and has medium to coarse grain size_____. **gneiss**

2. There is one metamorphic rock with variable composition, it is nonfoliated and forms from contact metamorphism, it is _____. **Hornfels**

3. Part of its name comes from a sedimentary rock formed from glacier deposits, it is formed by regional or contact metamorphism. This rock is _____. **Metacoglomerate**

4. Another metamorphic rock with composition similar to a mineral AND a bioclastic sedimentary rock, also bubbles with acid, and is non foliated. Name it _____. **marble**

5. This silicate based metamorphic rock is non foliated with fine to coarse grain size. It is known by the name _____. **Quartzite**

6. A foliated rock showing mineral alignment and formed from regional metamorphism. It can contain mica, feldspar, quartz, garnet and amphibole. The ESRT names it _____**Phyllite or Schist**

7. With a fine grain size, it has undergone regional metamorphism, it can split easily into flat surfaces partly due to its mica content. You should call it _____. **slate**

8. All metamorphic rocks are formed by one of two general types of metamorphism, these are _____ and _____ metamorphism **regional & contact**

9. This rock shows a kind of foliation described as 'mineral alignment' and does not contain pyroxene. _____. **Phyllite or slate**

10. How does contact metamorphism change rocks? _____ _____ **by heat from nearby magma/lava**

11. This metamorphic rock can have various mineral particles in it, and does have a coarse grain size with particles in a matrix. It is also called _____ . **metaconglomerate**

12. One particular specimen starts as a clastic sedimentary rock with a grain size of 0.04 cm called _____. **Sandstone** It undergoes metamorphosis to become _____ **quartzite**

13. Name 5 minerals that can be found in schist

a. _____ d. _____

b. _____ e. _____

c. _____

Mica quartz, feldspar, amphibole, garnet, pyroxene

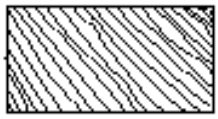
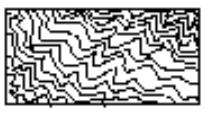
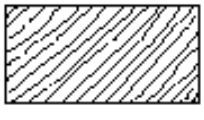
15. What other metamorphic rock also has the above 5 minerals in it? _____ **gneiss (also Phyllite if no garnet in above)**

16. Is there a metamorphic rock, that is foliated, has a fine texture, composed mainly of mica and is formed from contact metamorphism? Yes or No (circle answer) **NO**

17. Metamorphic rock texture is described by two major characteristics. Metamorphic rocks are either _____ or _____. **Foliated or nonfoliated**

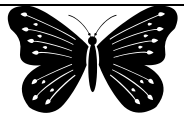
18. Provide the latitude and longitude of one location in New York state where there is a large area of gneiss, quartzite & marble. Give your answer to the closest minute (remember there are 60' in 1°). Don't forget to put directions (N, S, E, or W) on your answer. **43° - 44°45'N latitude 73°20' - 76°W** longitude

19. Write the name of each metamorphic rock type below its map symbol.

					
marble	**quartzite**	**hornfels**	**gneiss**	**schist**	**slate**





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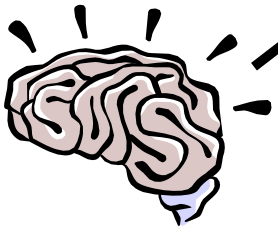

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