

NAME: \_\_\_\_\_ PERIOD: \_\_\_\_\_ DATE: \_\_\_\_\_

LAB PARTNERS: \_\_\_\_\_ LAB #9

**ROCK IDENTIFICATION**

**\*\*NOTE TO TEACHERS: THIS LAB CAN BE DONE AS ONE BIG LAB OR DIVIDED INTO THREE SEPARATE LABS (9A, 9B, AND 9C)\*\***

**INTRODUCTION**

The three main types of rocks found on the Earth are Sedimentary, Igneous, and Metamorphic. Rocks remember their formation by recording it in the physical and chemical characteristics found in each sample. By looking very closely at these characteristics, you can unravel the history of rocks. Rocks from all over the world have certain things in common. This will allow you to identify rocks and compare them to others.

**OBJECTIVES**

You will determine the name of unknown rocks based on their physical characteristics using the Earth Science Reference Tables.

**MATERIALS**

Rock Samples and Earth Science Regents Reference Tables

**TIME** 2 – 3 Periods

**PROCEDURES**

1. For each unknown rock, identify the key physical characteristics. Using your Earth Science Reference Tables, determine the name of the rock based on the observed characteristics.

**IGNEOUS ROCKS**  
**PART 1 or LAB 9A**

**STATION/SAMPLE #1**

|                          |                          |  |   |  |  |
|--------------------------|--------------------------|--|---|--|--|
|                          |                          | <b>Color</b>                             | <input type="checkbox"/> Light Colored  | <input type="checkbox"/> Dark Colored  | <input type="checkbox"/> In Between      |
|                          |                          | <b>Composition</b>                       | <input type="checkbox"/> Felsic         | <input type="checkbox"/> Mafic         | <input type="checkbox"/> In Between      |
| <b>Grain Size</b>        |                          | <input type="checkbox"/> 10 mm or larger | <input type="checkbox"/> 1mm to 10mm    | <input type="checkbox"/> less than 1mm | <input type="checkbox"/> Non-crystalline |
| <b>Texture</b>           |                          | <input type="checkbox"/> Very Coarse     | <input type="checkbox"/> Coarse Grained | <input type="checkbox"/> Fine Grained  | <input type="checkbox"/> Glassy Texture  |
| <b>Yes</b>               | <b>No</b>                | <b>Key Identifying Feature</b>           |   |  |  |
| <input type="checkbox"/> | <input type="checkbox"/> | Are there visible interlocking crystals? |   |  |  |
| <input type="checkbox"/> | <input type="checkbox"/> | Vesicular (gas pockets)?                 |   |  |  |

In complete sentences state why this rock would be classified as an igneous rock. Include whether it is intrusive or extrusive and explain why.

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What is the name of this igneous rock?

**STATION/SAMPLE #2**

|                   |  |   |  |  |
|-------------------|--|---|--|--|
|                   | <b>Color</b>                             | <input type="checkbox"/> Light Colored  | <input type="checkbox"/> Dark Colored  | <input type="checkbox"/> In Between      |
|                   | <b>Composition</b>                       | <input type="checkbox"/> Felsic         | <input type="checkbox"/> Mafic         | <input type="checkbox"/> In Between      |
| <b>Grain Size</b> | <input type="checkbox"/> 10 mm or larger | <input type="checkbox"/> 1mm to 10mm    | <input type="checkbox"/> less than 1mm | <input type="checkbox"/> Non-crystalline |
| <b>Texture</b>    | <input type="checkbox"/> Very Coarse     | <input type="checkbox"/> Coarse Grained | <input type="checkbox"/> Fine Grained  | <input type="checkbox"/> Glassy Texture  |

| Yes                      | No                       | Key Identifying Feature                  |
|--------------------------|--------------------------|--|
| <input type="checkbox"/> | <input type="checkbox"/> | Are there visible interlocking crystals? |
| <input type="checkbox"/> | <input type="checkbox"/> | Vesicular (gas pockets)?                 |

In complete sentences state why this rock would be classified as an igneous rock. Include whether it is intrusive or extrusive and explain why.

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What is the name of this igneous rock?

**STATION/SAMPLE #3**

|                   |  |   |  |  |
|-------------------|--|---|--|--|
|                   | <b>Color</b>                             | <input type="checkbox"/> Light Colored  | <input type="checkbox"/> Dark Colored  | <input type="checkbox"/> In Between      |
|                   | <b>Composition</b>                       | <input type="checkbox"/> Felsic         | <input type="checkbox"/> Mafic         | <input type="checkbox"/> In Between      |
| <b>Grain Size</b> | <input type="checkbox"/> 10 mm or larger | <input type="checkbox"/> 1mm to 10mm    | <input type="checkbox"/> less than 1mm | <input type="checkbox"/> Non-crystalline |
| <b>Texture</b>    | <input type="checkbox"/> Very Coarse     | <input type="checkbox"/> Coarse Grained | <input type="checkbox"/> Fine Grained  | <input type="checkbox"/> Glassy Texture  |

| Yes                      | No                       | Key Identifying Feature                  |
|--------------------------|--------------------------|--|
| <input type="checkbox"/> | <input type="checkbox"/> | Are there visible interlocking crystals? |
| <input type="checkbox"/> | <input type="checkbox"/> | Vesicular (gas pockets)?                 |

In complete sentences state why this rock would be classified as an igneous rock. Include whether it is intrusive or extrusive and explain why.

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What is the name of this igneous rock?

**STATION/SAMPLE #4**

|                   |  |   |  |  |
|-------------------|--|---|--|--|
|                   | <b>Color</b>                             | <input type="checkbox"/> Light Colored  | <input type="checkbox"/> Dark Colored  | <input type="checkbox"/> In Between      |
|                   | <b>Composition</b>                       | <input type="checkbox"/> Felsic         | <input type="checkbox"/> Mafic         | <input type="checkbox"/> In Between      |
| <b>Grain Size</b> | <input type="checkbox"/> 10 mm or larger | <input type="checkbox"/> 1mm to 10mm    | <input type="checkbox"/> less than 1mm | <input type="checkbox"/> Non-crystalline |
| <b>Texture</b>    | <input type="checkbox"/> Very Coarse     | <input type="checkbox"/> Coarse Grained | <input type="checkbox"/> Fine Grained  | <input type="checkbox"/> Glassy Texture  |

| Yes                      | No                       | Key Identifying Feature                  |
|--------------------------|--------------------------|--|
| <input type="checkbox"/> | <input type="checkbox"/> | Are there visible interlocking crystals? |
| <input type="checkbox"/> | <input type="checkbox"/> | Vesicular (gas pockets)?                 |

In complete sentences state why this rock would be classified as an igneous rock. Include whether it is intrusive or extrusive and explain why.

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What is the name of this igneous rock?

**STATION/SAMPLE #5**

|                   |  |   |  |  |
|-------------------|--|---|--|--|
|                   | <b>Color</b>                             | <input type="checkbox"/> Light Colored  | <input type="checkbox"/> Dark Colored  | <input type="checkbox"/> In Between      |
|                   | <b>Composition</b>                       | <input type="checkbox"/> Felsic         | <input type="checkbox"/> Mafic         | <input type="checkbox"/> In Between      |
| <b>Grain Size</b> | <input type="checkbox"/> 10 mm or larger | <input type="checkbox"/> 1mm to 10mm    | <input type="checkbox"/> less than 1mm | <input type="checkbox"/> Non-crystalline |
| <b>Texture</b>    | <input type="checkbox"/> Very Coarse     | <input type="checkbox"/> Coarse Grained | <input type="checkbox"/> Fine Grained  | <input type="checkbox"/> Glassy Texture  |

| Yes                      | No                       | Key Identifying Feature                  |
|--------------------------|--------------------------|--|
| <input type="checkbox"/> | <input type="checkbox"/> | Are there visible interlocking crystals? |
| <input type="checkbox"/> | <input type="checkbox"/> | Vesicular (gas pockets)?                 |

In complete sentences state why this rock would be classified as an igneous rock. Include whether it is intrusive or extrusive and explain why.

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What is the name of this igneous rock?

**STATION/SAMPLE #6**

|                   |  |   |  |  |
|-------------------|--|---|--|--|
|                   | <b>Color</b>                             | <input type="checkbox"/> Light Colored  | <input type="checkbox"/> Dark Colored  | <input type="checkbox"/> In Between      |
|                   | <b>Composition</b>                       | <input type="checkbox"/> Felsic         | <input type="checkbox"/> Mafic         | <input type="checkbox"/> In Between      |
| <b>Grain Size</b> | <input type="checkbox"/> 10 mm or larger | <input type="checkbox"/> 1mm to 10mm    | <input type="checkbox"/> less than 1mm | <input type="checkbox"/> Non-crystalline |
| <b>Texture</b>    | <input type="checkbox"/> Very Coarse     | <input type="checkbox"/> Coarse Grained | <input type="checkbox"/> Fine Grained  | <input type="checkbox"/> Glassy Texture  |

| Yes                      | No                       | Key Identifying Feature                  |
|--------------------------|--------------------------|--|
| <input type="checkbox"/> | <input type="checkbox"/> | Are there visible interlocking crystals? |
| <input type="checkbox"/> | <input type="checkbox"/> | Vesicular (gas pockets)?                 |

In complete sentences state why this rock would be classified as an igneous rock. Include whether it is intrusive or extrusive and explain why.

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What is the name of this igneous rock?

**STATION/SAMPLE #7**

|                   |  |   |  |  |
|-------------------|--|---|--|--|
|                   | <b>Color</b>                             | <input type="checkbox"/> Light Colored  | <input type="checkbox"/> Dark Colored  | <input type="checkbox"/> In Between      |
|                   | <b>Composition</b>                       | <input type="checkbox"/> Felsic         | <input type="checkbox"/> Mafic         | <input type="checkbox"/> In Between      |
| <b>Grain Size</b> | <input type="checkbox"/> 10 mm or larger | <input type="checkbox"/> 1mm to 10mm    | <input type="checkbox"/> less than 1mm | <input type="checkbox"/> Non-crystalline |
| <b>Texture</b>    | <input type="checkbox"/> Very Coarse     | <input type="checkbox"/> Coarse Grained | <input type="checkbox"/> Fine Grained  | <input type="checkbox"/> Glassy Texture  |

| Yes                      | No                       | Key Identifying Feature                  |
|--------------------------|--------------------------|--|
| <input type="checkbox"/> | <input type="checkbox"/> | Are there visible interlocking crystals? |
| <input type="checkbox"/> | <input type="checkbox"/> | Vesicular (gas pockets)?                 |

In complete sentences state why this rock would be classified as an igneous rock. Include whether it is intrusive or extrusive and explain why.

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What is the name of this igneous rock?

**STATION/SAMPLE #8**

|                   |  |   |  |  |
|-------------------|--|---|--|--|
|                   | <b>Color</b>                             | <input type="checkbox"/> Light Colored  | <input type="checkbox"/> Dark Colored  | <input type="checkbox"/> In Between      |
|                   | <b>Composition</b>                       | <input type="checkbox"/> Felsic         | <input type="checkbox"/> Mafic         | <input type="checkbox"/> In Between      |
| <b>Grain Size</b> | <input type="checkbox"/> 10 mm or larger | <input type="checkbox"/> 1mm to 10mm    | <input type="checkbox"/> less than 1mm | <input type="checkbox"/> Non-crystalline |
| <b>Texture</b>    | <input type="checkbox"/> Very Coarse     | <input type="checkbox"/> Coarse Grained | <input type="checkbox"/> Fine Grained  | <input type="checkbox"/> Glassy Texture  |

| Yes                      | No                       | Key Identifying Feature                  |
|--------------------------|--------------------------|--|
| <input type="checkbox"/> | <input type="checkbox"/> | Are there visible interlocking crystals? |
| <input type="checkbox"/> | <input type="checkbox"/> | Vesicular (gas pockets)?                 |

In complete sentences state why this rock would be classified as an igneous rock. Include whether it is intrusive or extrusive and explain why.

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What is the name of this igneous rock?

**LABORATORY QUESTIONS FOR PART 1 or 9A**

1. Describe how the rate at which molten rock material cools effects the size of the crystals formed in an igneous rock.

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2. How can you tell if an igneous rock has had an *intrusive or extrusive* origin? Explain fully.

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3. List the mineral that make a light colored, low density, felsic rock:

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4. Describe the difference between lava and magma.

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5. What are the two environments of formation for igneous rocks (where do igneous rocks form, use your ESRT)?

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6. List all the minerals that can be found in basalt.

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7. Where are pumice and obsidian formed?

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8. What does a vesicular texture mean?

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9. Igneous rocks with a felsic composition contain which elements?

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10. Igneous rocks with a mafic composition contain which elements?

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11. Which of the following rocks has the highest content of iron: granite, obsidian, basalt, or pumice?

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**SEDIMENTARY ROCKS**  
**PART 2 or LAB 9B**

**STATION/SAMPLE #9**

| Yes                      | No                       | Key Identifying Feature         | Questions  |
|--------------------------|--------------------------|---------------------------------|--|
| <input type="checkbox"/> | <input type="checkbox"/> | <b>Clastic (pieces of rock)</b> | <b>If you checked yes, are the clasts angular or rounded?</b><br><input type="checkbox"/> <b>Angular</b> <input type="checkbox"/> <b>Rounded</b> |
| <input type="checkbox"/> | <input type="checkbox"/> | <b>Bioclastic</b>               | <b>Can you see pieces of shells cemented together?</b><br><b>Is it dark in color and made of compacted plant remains?</b>                        |
| <input type="checkbox"/> | <input type="checkbox"/> | <b>Fossils</b>                  | <b>Can you see fossils in this sample?</b>   |
| <input type="checkbox"/> | <input type="checkbox"/> | <b>Crystalline</b>              | <b>Can you see a crystalline structure in this sample?</b>   |

In COMPLETE SENTENCES state why this rock would be classified as a sedimentary rock.

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What is the name of this sedimentary rock?

**STATION/SAMPLE #10**

| Yes                      | No                       | Key Identifying Feature         | Questions  |
|--------------------------|--------------------------|---------------------------------|--|
| <input type="checkbox"/> | <input type="checkbox"/> | <b>Clastic (pieces of rock)</b> | <b>If you checked yes, are the clasts angular or rounded?</b><br><input type="checkbox"/> <b>Angular</b> <input type="checkbox"/> <b>Rounded</b> |
| <input type="checkbox"/> | <input type="checkbox"/> | <b>Bioclastic</b>               | <b>Can you see pieces of shells cemented together?</b><br><b>Is it dark in color and made of compacted plant remains?</b>                        |
| <input type="checkbox"/> | <input type="checkbox"/> | <b>Fossils</b>                  | <b>Can you see fossils in this sample?</b>   |
| <input type="checkbox"/> | <input type="checkbox"/> | <b>Crystalline</b>              | <b>Can you see a crystalline structure in this sample?</b>   |

In COMPLETE SENTENCES state why this rock would be classified as a sedimentary rock.

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What is the name of this sedimentary rock?

**STATION/SAMPLE #11**

| Yes                      | No                       | Key Identifying Feature  | Questions   |
|--------------------------|--------------------------|--------------------------|---|
| <input type="checkbox"/> | <input type="checkbox"/> | Clastic (pieces of rock) | If you checked yes, are the clasts angular or rounded?<br><input type="checkbox"/> Angular <input type="checkbox"/> Rounded |
| <input type="checkbox"/> | <input type="checkbox"/> | Bioclastic               | Can you see pieces of shells cemented together?<br>Is it dark in color and made of compacted plant remains?                 |
| <input type="checkbox"/> | <input type="checkbox"/> | Fossils                  | Can you see fossils in this sample?   |
| <input type="checkbox"/> | <input type="checkbox"/> | Crystalline              | Can you see a crystalline structure in this sample?   |

In COMPLETE SENTENCES state why this rock would be classified as a sedimentary rock.

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What is the name of this sedimentary rock?

**STATION/SAMPLE #12**

| Yes                      | No                       | Key Identifying Feature  | Questions   |
|--------------------------|--------------------------|--------------------------|---|
| <input type="checkbox"/> | <input type="checkbox"/> | Clastic (pieces of rock) | If you checked yes, are the clasts angular or rounded?<br><input type="checkbox"/> Angular <input type="checkbox"/> Rounded |
| <input type="checkbox"/> | <input type="checkbox"/> | Bioclastic               | Can you see pieces of shells cemented together?<br>Is it dark in color and made of compacted plant remains?                 |
| <input type="checkbox"/> | <input type="checkbox"/> | Fossils                  | Can you see fossils in this sample?   |
| <input type="checkbox"/> | <input type="checkbox"/> | Crystalline              | Can you see a crystalline structure in this sample?   |

In COMPLETE SENTENCES state why this rock would be classified as a sedimentary rock.

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What is the name of this sedimentary rock?



**STATION/SAMPLE #13**

| Yes                      | No                       | Key Identifying Feature  | Questions   |
|--------------------------|--------------------------|--------------------------|---|
| <input type="checkbox"/> | <input type="checkbox"/> | Clastic (pieces of rock) | If you checked yes, are the clasts angular or rounded?<br><input type="checkbox"/> Angular <input type="checkbox"/> Rounded |
| <input type="checkbox"/> | <input type="checkbox"/> | Bioclastic               | Can you see pieces of shells cemented together?<br>Is it dark in color and made of compacted plant remains?                 |
| <input type="checkbox"/> | <input type="checkbox"/> | Fossils                  | Can you see fossils in this sample?   |
| <input type="checkbox"/> | <input type="checkbox"/> | Crystalline              | Can you see a crystalline structure in this sample?   |

In COMPLETE SENTENCES state why this rock would be classified as a sedimentary rock.

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What is the name of this sedimentary rock?

**STATION/SAMPLE #14**

| Yes                      | No                       | Key Identifying Feature  | Questions   |
|--------------------------|--------------------------|--------------------------|---|
| <input type="checkbox"/> | <input type="checkbox"/> | Clastic (pieces of rock) | If you checked yes, are the clasts angular or rounded?<br><input type="checkbox"/> Angular <input type="checkbox"/> Rounded |
| <input type="checkbox"/> | <input type="checkbox"/> | Bioclastic               | Can you see pieces of shells cemented together?<br>Is it dark in color and made of compacted plant remains?                 |
| <input type="checkbox"/> | <input type="checkbox"/> | Fossils                  | Can you see fossils in this sample?   |
| <input type="checkbox"/> | <input type="checkbox"/> | Crystalline              | Can you see a crystalline structure in this sample?   |

In COMPLETE SENTENCES state why this rock would be classified as a sedimentary rock.

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What is the name of this sedimentary rock?

**LABORATORY QUESTIONS FOR PART 2 or LAB 9B**

1. Draw a picture (an actual oval shape) of a pebble of **maximum** size.

2. What are the maximum and minimum dimensions (size range) for the following particles:
  - a. sand:
  - b. pebble:
  - c. cobble:

3. Explain how a clastic sedimentary rock such as sandstone formed differently than a chemically formed sedimentary rock such as gypsum.

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4. How would the particles that make up a conglomerate differ from the particles in a sandstone or shale?

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5. Sandstone is made of what mineral(s)?

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6. In what way is the overall appearance of a breccia different from that of conglomerate?

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7. What chemical test could be used to identify limestone? Explain.

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**METAMORPHIC ROCKS**

**PART 3 or LAB 9C**

**STATION/SAMPLE #15**

| Yes                      | No                       | Key Identifying Feature   | Questions   |
|--------------------------|--------------------------|---------------------------|---|
| <input type="checkbox"/> | <input type="checkbox"/> | Foliated                  | Do you notice any mineral alignment and/or banding?<br>If you checked yes and it is banded: <i>If yes then it's gneiss</i>                |
| <input type="checkbox"/> | <input type="checkbox"/> | Microscopic Mica Crystals | Does the rock appear <i>slightly</i> shiny with slight mineral alignment? <i>If yes then it's phyllite</i>                                |
| <input type="checkbox"/> | <input type="checkbox"/> | Platy Mica Crystals       | Do you notice larger shiny mica crystals with some mineral alignment? <i>If yes then it's schist</i>                                      |
| <input type="checkbox"/> | <input type="checkbox"/> | Nonfoliated               | If you checked no for all of the above, then your rock is nonfoliated. Please use the ESRT comments and rock map symbols to help identify |

What was the parent rock? The type of rock it was before it was changed due to heat and pressure? Use ESRT!

In COMPLETE SENTENCES state why this rock would be classified as a metamorphic rock.

What is the name of this metamorphic rock?

**STATION/SAMPLE #16**

| Yes                      | No                       | Key Identifying Feature   | Questions   |
|--------------------------|--------------------------|---------------------------|---|
| <input type="checkbox"/> | <input type="checkbox"/> | Foliated                  | Do you notice any mineral alignment and/or banding?<br>If you checked yes and it is banded: <i>If yes then it's gneiss</i>                |
| <input type="checkbox"/> | <input type="checkbox"/> | Microscopic Mica Crystals | Does the rock appear <i>slightly</i> shiny with slight mineral alignment? <i>If yes then it's phyllite</i>                                |
| <input type="checkbox"/> | <input type="checkbox"/> | Platy Mica Crystals       | Do you notice larger shiny mica crystals with some mineral alignment? <i>If yes then it's schist</i>                                      |
| <input type="checkbox"/> | <input type="checkbox"/> | Nonfoliated               | If you checked no for all of the above, then your rock is nonfoliated. Please use the ESRT comments and rock map symbols to help identify |

What was the parent rock? The type of rock it was before it was changed due to heat and pressure? Use ESRT!

In COMPLETE SENTENCES state why this rock would be classified as a metamorphic rock.

What is the name of this metamorphic rock?

**STATION/SAMPLE #17**

| Yes                      | No                       | Key Identifying Feature          | Questions  |
|--------------------------|--------------------------|----------------------------------|--|
| <input type="checkbox"/> | <input type="checkbox"/> | <b>Foliated</b>                  | Do you notice any mineral alignment and/or banding?<br><b>If you checked yes and it is banded: <i>If yes then it's gneiss</i></b>                |
| <input type="checkbox"/> | <input type="checkbox"/> | <b>Microscopic Mica Crystals</b> | Does the rock appear <i>slightly</i> shiny with slight mineral alignment? <i>If yes then it's phyllite</i>                                       |
| <input type="checkbox"/> | <input type="checkbox"/> | <b>Platy Mica Crystals</b>       | Do you notice larger shiny mica crystals with some mineral alignment? <i>If yes then it's schist</i>   |
| <input type="checkbox"/> | <input type="checkbox"/> | <b>Nonfoliated</b>               | <b>If you checked no for all of the above, then your rock is nonfoliated. Please use the ESRT comments and rock map symbols to help identify</b> |

What was the parent rock? The type of rock it was before it was changed due to heat and pressure? Use ESRT!

In COMPLETE SENTENCES state why this rock would be classified as a metamorphic rock.

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What is the name of this metamorphic rock?

**STATION/SAMPLE #18**

| Yes                      | No                       | Key Identifying Feature          | Questions  |
|--------------------------|--------------------------|----------------------------------|--|
| <input type="checkbox"/> | <input type="checkbox"/> | <b>Foliated</b>                  | Do you notice any mineral alignment and/or banding?<br><b>If you checked yes and it is banded: <i>If yes then it's gneiss</i></b>                |
| <input type="checkbox"/> | <input type="checkbox"/> | <b>Microscopic Mica Crystals</b> | Does the rock appear <i>slightly</i> shiny with slight mineral alignment? <i>If yes then it's phyllite</i>                                       |
| <input type="checkbox"/> | <input type="checkbox"/> | <b>Platy Mica Crystals</b>       | Do you notice larger shiny mica crystals with some mineral alignment? <i>If yes then it's schist</i>   |
| <input type="checkbox"/> | <input type="checkbox"/> | <b>Nonfoliated</b>               | <b>If you checked no for all of the above, then your rock is nonfoliated. Please use the ESRT comments and rock map symbols to help identify</b> |

What was the parent rock? The type of rock it was before it was changed due to heat and pressure? Use ESRT!

In COMPLETE SENTENCES state why this rock would be classified as a metamorphic rock.

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What is the name of this metamorphic rock?

**STATION/SAMPLE #19**

| Yes                      | No                       | Key Identifying Feature          | Questions  |
|--------------------------|--------------------------|----------------------------------|--|
| <input type="checkbox"/> | <input type="checkbox"/> | <b>Foliated</b>                  | <b>Do you notice any mineral alignment and/or banding?</b><br><b>If you checked yes and it is banded: <i>If yes then it's gneiss</i></b>         |
| <input type="checkbox"/> | <input type="checkbox"/> | <b>Microscopic Mica Crystals</b> | <b>Does the rock appear <i>slightly</i> shiny with slight mineral alignment? <i>If yes then it's phyllite</i></b>                                |
| <input type="checkbox"/> | <input type="checkbox"/> | <b>Platy Mica Crystals</b>       | <b>Do you notice larger shiny mica crystals with some mineral alignment? <i>If yes then it's schist</i></b>                                      |
| <input type="checkbox"/> | <input type="checkbox"/> | <b>Nonfoliated</b>               | <b>If you checked no for all of the above, then your rock is nonfoliated. Please use the ESRT comments and rock map symbols to help identify</b> |

What was the parent rock? The type of rock it was before it was changed due to heat and pressure? Use ESRT!

In COMPLETE SENTENCES state why this rock would be classified as a metamorphic rock.

What is the name of this metamorphic rock?

**STATION/SAMPLE #20**

| Yes                      | No                       | Key Identifying Feature          | Questions  |
|--------------------------|--------------------------|----------------------------------|--|
| <input type="checkbox"/> | <input type="checkbox"/> | <b>Foliated</b>                  | <b>Do you notice any mineral alignment and/or banding?</b><br><b>If you checked yes and it is banded: <i>If yes then it's gneiss</i></b>         |
| <input type="checkbox"/> | <input type="checkbox"/> | <b>Microscopic Mica Crystals</b> | <b>Does the rock appear <i>slightly</i> shiny with slight mineral alignment? <i>If yes then it's phyllite</i></b>                                |
| <input type="checkbox"/> | <input type="checkbox"/> | <b>Platy Mica Crystals</b>       | <b>Do you notice larger shiny mica crystals with some mineral alignment? <i>If yes then it's schist</i></b>                                      |
| <input type="checkbox"/> | <input type="checkbox"/> | <b>Nonfoliated</b>               | <b>If you checked no for all of the above, then your rock is nonfoliated. Please use the ESRT comments and rock map symbols to help identify</b> |

What was the parent rock? The type of rock it was before it was changed due to heat and pressure? Use ESRT!

In COMPLETE SENTENCES state why this rock would be classified as a metamorphic rock.

What is the name of this metamorphic rock?

**LABORATORY QUESTIONS FOR PART 3 or 9C**

1. What happens to the grain size in a rock as it goes from low to high grade metamorphism?

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2. How could hydrochloric acid be used to tell quartzite from marble?

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3. Why are fossils not usually found in metamorphic rocks?

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4. Explain how foliation occurs in metamorphic rocks.

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5. On what basis can metamorphic rocks be identified?

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6. Many types of gneiss have formed from granite. How is gneiss different in appearance from granite?

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7. What sedimentary rock does slate most closely resemble?

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