

Name \_\_\_\_\_ Lab \_\_\_\_\_

**Laboratory Homework Assignment #2 - Minerals and Rocks Search**

Assigned: Week of Feb. 25 Due: Week of Mar. 24 MY DUE DATE: \_\_\_\_\_

**This is a 3-part assignment. READ THE DIRECTIONS FOR EACH PART CAREFULLY!**Questions for **Part 1** will require you to visit the Greene Geological Gallery in Lapham 168.Questions for **Part 2** will require you go online to the UWM Dept of Geo Sci website <http://www.uwm.edu/Dept/Geosciences/> to take a 'virtual tour' of downtown Milwaukee.Questions for **Part 3** will require you to visit a few locations on campus.**Part 1: Greene Geological Gallery (10 pts.)**

Go to the Greene Geological Gallery (Lapham 168). There you'll notice that minerals are generally displayed to the left (east) and fossils are to the right (west). Minerals on display in the wall cabinets are generally grouped into 'classes' that are readily identified by labels above each shelf (e. g., native elements, oxides,...). The floor cabinet displays feature specific collections, such as different minerals from one mine site, or different varieties of one mineral (e. g., quartz). Take a look around the gallery to orient yourself, but also to appreciate the variety and types of minerals (and fossils) on display and how they compare to the samples that you have seen in lab class. Then, search the mineral (and fossil displays) to answer the following questions.

East wall:

- 1-1) Name two elements on display (of 12 possible) that are found in their native form (as the pure element, not combined with other elements) in nature. \_\_\_\_\_
- 1-2) Garnet, topaz, and zircon are all members of what class of minerals? \_\_\_\_\_
- 1-3) Identify one of the two *oxide* minerals that are a major ore of zinc. \_\_\_\_\_  
Identify the *hydroxide* mineral that is a major ore of aluminum. \_\_\_\_\_
- 1-4) The *oxide* mineral on the bottom shelf to the left (of the *oxides* display) is a major ore of iron. It is displayed in its many varieties. Name this mineral. \_\_\_\_\_ You should know from lab that this mineral (all varieties) always has a streak color of \_\_\_\_\_.

Mineral Properties floor display cabinet:

- 1-5) Which (*tasty*) mineral on display in this cabinet (that you have also seen in lab) exhibits three perfect (cubic) directions of cleavage? \_\_\_\_\_
- 1-6) Which common mineral on display in this cabinet (that you have also seen in lab) exhibits two direction of cleavage at nearly 90°? \_\_\_\_\_ What mineral from lab is essentially identical to this mineral, except for its commonly gray color and its composition (Na & Ca instead of K)? \_\_\_\_\_

Central floor display cabinets:

1-7) The gem stones opal, citrine and amethyst are all forms of what common mineral? \_\_\_\_\_

1-8) One of the central floor display cabinets features fossils of a unique fish that was present in the Milwaukee area during the Devonian Period. What was is so unique about this Devonian-age fish?

\_\_\_\_\_

South wall:

1-9) What is the Wisconsin State rock? \_\_\_\_\_ State fossil? \_\_\_\_\_

Thomas A. Greene’s collection, assembled in the late-1800s and early 1900’s, is actually comprised of more than 70,000 specimens, of which the majority are Silurian and Devonian-age fossils. (Obviously, they are not all on display!) Greene’s collection is often touted by many collectors as one of the best of its kind because of its unique and complete assemblage of local fossils, and unique minerals that are no longer available anywhere because of quarry locations that are closed or ‘mined out’. After visiting (and hopefully appreciating) Greene’s collection, please tell us:

1-10) Which mineral on display is your favorite? and why? \_\_\_\_\_

\_\_\_\_\_

**Part 2: Downtown Milwaukee ‘virtual tour’ (12 pts)**

Go to the Dept. of Geosciences website, *Virtual Field Trips/ Tours* link, *Downtown Geology Virtual Tour* tab, to take a virtual tour of the building and decorative stones used in some of downtown Milwaukee’s architecture. Click on the specific *Walks* and *Buildings* to answer the following questions. Note that questions that ask for the type of rock are asking for the specific geologic rock name (e. g., granite), not the trade name or quarry name (e. g., *Bethel White*).

2-1) The *Milwaukee Public Library*, *Milwaukee County Courthouse* and the *Northwestern National Insurance Co. Bldg. at 526 E. Wisconsin Ave.* are constructed of a very common building stone from Indiana.

What specific type of rock is it? \_\_\_\_\_

How old is the rock (in millions of years)? \_\_\_\_\_

What is this rock almost entirely composed of? \_\_\_\_\_

What makes this rock such a preferred building stone? \_\_\_\_\_

\_\_\_\_\_

2-2) The *Milwaukee Club* and the *Button Block Building* (and Holton Hall on campus) are constructed of a red sedimentary rock quarried from here in Wisconsin.

What specific type of rock is it? \_\_\_\_\_

What dominant **mineral** in the rock gives it its unique red color? \_\_\_\_\_

(This same rock is used for building stone here on campus in Mitchell and Holton Halls!)

2-3) The historic *Pfister Hotel* is constructed of a sedimentary rock from a former quarry in Wauwatosa. This rock’s trade name is a bit of a misnomer. What specific type of rock is it actually? \_\_\_\_\_

This rock formation is found throughout much of eastern Wisconsin. What does the presence of numerous fossils and fossilized coral reefs in this rock formation suggest about the geologic history of eastern Wisconsin? \_\_\_\_\_

\_\_\_\_\_

2-4) The *Milwaukee Journal-Sentinel Building*, located at 333 West State Street, was built in 1924. It is a steel frame building clad in pinkish-yellow *Mankato-Kasota Limestone*.

What state is the *Mankato-Kasota Limestone* from? \_\_\_\_\_

Compared to other limestone, the *Mankato-Kasota Limestone* is relatively resistant to weathering. What characteristic gives it this quality? \_\_\_\_\_

How old is this limestone (in millions of years)? \_\_\_\_\_

2-5) Part of the facing stone at the *Marcus Center for Performing Arts* was originally clad in 1969 with marble from Italy. However, differential weathering and warping of the marble panels lead to their replacement in 1994 with panels of two different rock types from Minnesota, a dolomite known as *Winona Travertine* and a granite known as *Diamond Pink Granite*. Despite its trade name, *Diamond Pink Granite* does not contain diamonds. Instead, the unique appearance of this decorative stone lends itself to its porphyritic texture and large phenocrysts of what mineral? \_\_\_\_\_

### **Part 3: UWM campus 'tour' (8 pts.)**

Go to the locations or buildings on campus, as noted in each question, to identify the rocks or building stones, and answer questions about each. Note that samples for questions 3-3 and 3-4 are also on the front table in the lab classroom. (*Note: There are lots more uses of natural building stone, decorative stone and landscape stone around campus other than these four quick stops, so take notice of other uses of rock right here on campus!*)

3-1. Identify one of the two types of the large landscaping rocks located near the stairs between the soccer field and the northwest entrance to Lapham Hall.

What is the primary color of the rock you chose to identify? \_\_\_\_\_

What kind of rock is it? \_\_\_\_\_

3-2. Identify the shiny rock used for decorative stone in the wall along the sidewalk in front of the Physics Building (on Kenwood Blvd).

What kind of rock is it? \_\_\_\_\_

Is this rock igneous, metamorphic, or sedimentary? \_\_\_\_\_

3-3. Identify the light-colored sedimentary rock used for the columns and wall facade at the southeast entrance to Lapham Hall. It is not concrete! There is a sample of this building stone in lab class, too!

What kind of rock is it? \_\_\_\_\_

What is the rock's primary mineral? \_\_\_\_\_

3-4. Identify the small red or black igneous rocks used for landscape stone around the trees in front of the library (along Hartford Ave.), or other places on campus. There is a sample of this rock in lab class, too!

What kind of rock is it? \_\_\_\_\_

What primary characteristic did you use to identify this rock? \_\_\_\_\_