

## Re: Extra Credit Opportunity for Physical Geology Lab - Minerals

Berry, Sarah Emily <berrys10@mailbox.winthrop.edu>

Wed 9/7/2016 3:38 PM

To: Quarles, William A. <quarlesw@winthrop.edu>

1. There are several different ways to tell the difference (direction of the cleavage, luster, hardness scale) but one of the easiest ways to the human eye is simple the shade of color. Calcite is colorless, white, with very faint shades of orange, yellow, red, pink, brown, black, green and gray. Quartz is white and cloudy, purple, pink, gray, brown and black (these are not faint shades like Calcite, but the actual color of the quartz).
2. Quartz is used as a gemstone and feldspar is used more commonly in such things like plates and tiles. Quartz is harder than feldspar.
3. Muscovite is clear and silvery. Fresh biotite is black and when weathered becomes a dark golden color. Both pieces are thin and can break into thin sheets, but the easiest way to tell it apart is by the color of the minerals.
4. Mineral Cleavage is the tendency to split along planes of weakness in correspondence to weaker chemicals. It is present in all minerals but does not have the same strength in all minerals.
5. Because the color can change in different minerals. Color is the characteristic for some minerals, but is ultimately useless for most. For example, Spinel is a dark colored mineral but can be cooked clear.
6. Olivine, Pyroxene, Amphibole, Biotite, K-Feldspar, Muscovite, Quartz, Plagioclase

On Sat, Sep 3, 2016 at 9:01 AM, Quarles, William A. <quarlesw@winthrop.edu> wrote:

For up to 2 points (20% of 10 points, so it is not insignificant), reply to this email (be sure you reply only to me) with **your** answers to the following questions, **before** 5:30 P.M., Wednesday, September 7 (next lab, but for both Monday and Wednesday labs).

Do your own work on this, that is, do not just cut and paste from an internet/digital source or from the digital version of the manual. Do not share or discuss with others, or blind copy your email to others. This is for you to learn and benefit from, not to help someone else's grades. We can do that during lab.

For full credit, your answers must be in the form of a complete sentence with correct grammar, spelling, and punctuation, except for #6 which you can just list.

I will email my answers to the group sometime between 5:31 and 6:00 P.M. on the due date, or present them during lab.

Al Quarles

1. What is the best way to tell the difference between quartz and calcite? explain
2. What is the best way to tell the difference between quartz and feldspar? explain
3. What is the best way to tell the difference between muscovite and biotite? explain
4. Describe mineral cleavage.
5. Why is color not an ideal property to use for identifying silicate minerals?
6. Name the eight major igneous rock-forming silicate minerals (hint, see the Bowen's Reaction Series).