Maplewood Rock and Gem Club

2021 December

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General meeting: December 13

Our meeting is at the clubhouse at 7 pm on December 13. If you want to attend, please sign up by emailing Sandra (ask.sandra@yahoo.com) before the meeting. If you have not yet done so, you will need to show proof of vaccination before entering the building.

Winter bazaar - Dec. 11 & 12

The Winter bazaar is coming soon! You can shop for holiday gifts without the worry of encountering supply-chain delays. All guests must properly wear a mask and have no fever. Questions? Contact Eric Adams 206-940-1949.

Dues are due!

Please bring your 2022 dues to the meeting or mail it in. The fees are $20 for an individual and $45 for a family.

Banner photo

The turquoise mosaic mask was made by an Aztec artisan, and the mask represents Xiuhtecuhtli, the God of Fire. Photo © by Hans Hillewaert. CC BY-SA 4.0

WINTER BAZAAR

Saturday, Dec. 11
9 AM - 5 PM

Sunday, Dec. 12
10 AM - 5 PM

8802 196th St SW, Edmonds

Grab your hat and mittens and come to the Maplewood Rock and Gem Club Winter Bazaar. This is your chance to finish (or start) your holiday shopping.

Come to browse, to buy, or to be simply out of the house among friendly people and gorgeous rocks, stones, and whatever can be made with them.

Let's take care of each other. Please wear a mask.

Are you coming?

Our meeting is on December 13 at 7 pm.

This will be a regular meeting with added fun. If you would like to, wrap a small rock related gift for us to add to the raffle. Bring cash for the silent auction and raffle. You may also bring something for show and tell.

Before you come, please RSVP with Sandra: ask.sandra@yahoo.com If you have not yet shown us your Covid vaccination card, please bring it.

Measuring specific gravity

We look at many characteristics of a specimen to help identify it. For example, we consider the hardness, fracture, scratch color, color, and much more. One of these characteristics is its specific gravity. The Betts Method of calculating specific gravity is simple and easy to do at home.

Tools you will need

To do this Betts Method, you won't need fancy lab equipment. Here's what you will need to measure a small stone.

- stone to measure
- dental floss
- a tub of water large enough to submerge the stone without it touching the tub
- a digital kitchen scale
- calculater
- pencil and small piece of paper

How to measure

1. Weigh the stone and write down the dry weight in grams.
2. Tie a piece of dental floss around the stone so you can suspend it in the water.
3. Place the tub of water on the scale and tare it.
4. Suspend the stone in the water and record the suspended weight in grams.
5. Divide the dry weight by the suspended weight to get the specific gravity.
6. Go to mindat.org to search for minerals with a specific gravity close to the one you calculated.

Advanced mineral search at mindat.org

When filling out the Advanced Mineral Search form at mindat.org, fill in all the characteristics you can. Because the specific gravity calculation is not precise, use a small range for your search.

What is specific gravity?

The specific gravity of a solid substance is a ratio of the density of that substance to the density of water at 4° C, which is the temperature when water is most dense.

Specific gravity is also referred to as *relative density*.

Formula:

$$\frac{\text{density of a solid}}{\text{density of water}}$$

December Birthdays

Happy Birthday to everyone born in December! Hopefully, you like blue gems, because all three of your birthstones — tanzanite, zircon, and turquoise — are favorites in blue.

Zircon is found in many colors, but blue ones are favored and most expensive in jewelry.

These stones are also special because of their status as “firsts” and “lasts”.

Turquoise was one of the first stones that was mined for jewelry.

Of all the individual stones on earth today, some of the first ones to have formed are zircon, primarily because it is resilient and doesn’t not easily break down over millennia.

Tanzanite is one of the last minerals discovered, probably due to its extremely limited geographical home base: Tanzania.

Blue Zircon crystal from Ratanakiri, Cambodia by [Martin Heigan](#)
License: [CC BY-NC-ND 2.0](#)

“Big Blue” turquoise from the copper mine at Cananea Sonora, Mexico by [Mike Beauregard](#)
License: [CC BY 2.0](#)

Tanzanite, graphite crystals, and laumontite crystals from Tanzania by Parent Géry; [CC BY-SA 3.0](#)

Zircon basics

Category: Nesosilicate

Formula: zirconium silicate ($ZrSiO_4$)

Crystal system: Tetragonal

Crystal class: Ditetragonal dipyramidal (4/mmm)

Crystal habit: tabular to prismatic crystals, irregular grains, massive

Color: red, reddish brown, yellow, green, blue, gray, colorless

Cleavage: dodecahedral and octahedral

Fracture: conchoidal to uneven

Tenacity: brittle

Mohs: 7.5

Luster: vitreous to adamantine

Streak: white

Diaphaneity: transparent to opaque

Specific gravity: 4.6 - 4.7

Refractive index:
n_ω = 1.925–1.961
n_ε = 1.980–2.015

Solubility: insoluble

Pleochroism: weak

Fluorescent and radioactive.

Juniors' Page — Cleavage

What is cleavage?

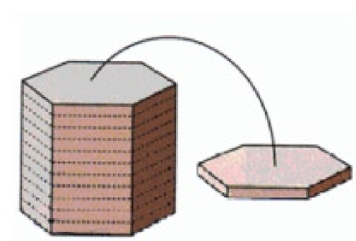
One of the ways we identify a rock or mineral is by how it breaks. When parts of a stone tend to break off in flat surfaces (called planes) we say the stone has cleavage Cleavage happens along planes of weakness in the chemical bonds that hold the atoms together. You can learn more from the excellent illustrations from Brooklyn College. When all the bonds are equally strong, the mineral will not cleave, but it can still break.

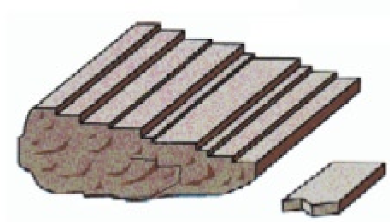
Cleavage is like slicing a cake

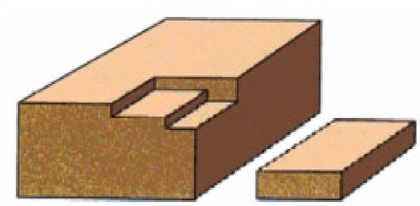
You can think of cleavage like a knife slicing into a cake. Normally, we slice from the top to the bottom of the cake, and then move the knife a little and slice again from the top to the bottom. That represents two cleavage planes (flat slices). Now, imagine slicing that piece of cake three times: from top to bottom, at a diagonal from the top to the bottom, and at a diagonal from half way down to the bottom. We would have an odd piece of cake that was cut with three cleavages.

How is it useful?

Each mineral has a tendency to break with a certain number of cleaves and with those cleaves in particular angles. Because the number of cleaves and angles is always the same for a particular mineral, they can help us identify the mineral. The likelihood of a particular mineral to cleave depends on how its atoms are arranged and how strongly they are bonded together.


One direction - basal


Two directions - prismatic


Three directions - cubic

Cleavage can be seen by just looking at the rock and also with a microscope. A lot of time it's not easy to see the planes until you have examined a lot of stones and built up experience. To find a cleavage plane on a stone, look for a flat shiny surface.

Cleavage rating

The tendency to cleave is rated as

- **perfect:** It cleaves easily and is easy to spot.
- **good:** It cleaves, but the planes are not as regular, so it's harder to see.
- **poor:** The cleavages are hard to see.
- **none:** It doesn't cleave.

Types of cleavage

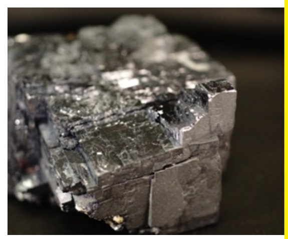
Cleavage is described by the number of cleavage planes. These pictures show how hard it is to see the cleavage planes. It is easier when you are holding a stone, but it still can be pretty hard to do. Try working with a friend to puzzle it out. Or, ask a geologist or an experienced rockhounder.

No cleavage

Some minerals simply don't cleave. Amethyst is one of these.

Cubic cleavage

Cleavage is along 3 planes. Galena has cubic cleavage. Rhombohedral cleavage also has 3 planes but the cleavage is not at right (L-shaped) angles.



Galena by Tjflex2
CC BY-ND 2.0

Dodecahedral cleavage

Cleavage along 6 planes forming a 12-sided shape. Sphalerite has this cleavage.

Sphalerite crystals by Ivar Leidus
CC BY-SA 4.0

Prismatic cleavage

Cleavage happens on 2 planes. The angle between the planes can often reveal the type of mineral. For example, quartz has perfect prismatic cleavage with angles of 124° and 56°.

Smoky quartz
by Géry Parent
License: CC BY-ND 2.0

Octahedral cleavage

Cleavage is along 4 planes. Each cleaved piece has the shape of an octagon. Diamonds have octahedral cleavage.

Basal cleavage

When a crystal cleaves a slice off its base, the cleaved piece has the shape of the base. Mica has perfect basal cleavage which makes it possible to peel off thin sheets.

Muscovite mica
by James St. John
License: CC BY 2.0

Superpower of Zircon

Tiny zircon crystals are known to have a valuable superpower: they can reveal the age of the earth, moon rocks, and meteorites.

As zircon crystals (ZrSiO4) form they trap uranium atoms in the crystal structure while they also repel lead. Once the crystal structure has formed, the Uranium cannot escape. Although the uranium cannot break free, it can and will transmutate.

Transmutation begins immediately in a long process known as a decay chain. In the first few billion years, the uranium atoms change into thorium atoms. But, thorium is not stable, so the decay continues, and in less than a month it has turned into protactinium which sticks around for less than a minute before decaying.

Brown zircon crystal from Madagascar by Martin Heigan; License: CC BY-NC-ND 2.0

Eventually, this decay chain ends with the uranium converted to lead (Pb) which is stable and lasts forever.

The decay process is predictable and the rate is constant from one crystal to another. This fact coupled with the fact that zircon crystals are tough fortresses holding the uranium (or its decayed element) within makes zircon crystals excellent sources for employing Radiometric U-Pb (Uranium-Lead) dating to determine the ages of zircon crystals.

Scientists have used zircon crystals to calculate that the earth is 4.54 billion years old with a margin of error of 50 million years.

Maplewood membership

While the world around us seems in a state of confusion, we have the unique opportunity of having a nice place to meet with friends that we enjoy and the harmony of fellowship.

~ Merle DeGarmo, President 1974

Donate to the club

Our club is a 501(c)(3) organization, so if you itemize deductions, you might receive a tax deduction. Ask your tax expert.

Checks can be made out to *MRGC* if you don't want your hand to cramp from writing the entire club name, *Maplewood Rock and Gem Club*. The club address is

8802 196th Street SW
Edmonds, WA 98026

Buy grit for your rock tumbler

Contact Sandra to buy grit: ask.sandra@yahoo.com

Nature's magic

Lapidary is an art, mineralogy is a science, and collecting is — collecting.

What do they have in common? The love of nature and natural beauty, the desire to explore and find the treasures of the earth.

There is magic in an agate as surely as in an emerald.

~ Lillian Haddock 1975

Facebook

Our facebook page has up to date information about what is happening at our club. When we have online auctions, they happen on our page.

We also have a Facebook group — MRGC Sales and Trades — which is open to members of our club.

Board meeting

If you have questions for the board or if you'd like to attend a meeting, please email our Board President, Sandra: ask.sandra@yahoo.com

Connect with us

Website: http://www.maplewoodrockclub.com/

Facebook page: Maplewood Rock & Gem Club

Facebook group for members: MRGC Sales and Trades

Address: 8802 196th St SW, Edmonds, Washington 98026

Washington State Mineral Council

Our club, along with many other rock and gem clubs in the state, is a member of the Washington State Mineral Council.

This organization helps us by

- advocating for access to public lands
- advocating for beneficial land use policies
- compiling and sharing maps and other information
- publicizing shows and field trips so members learn about and can participate in events at other clubs

Read their latest Newsletter.

Image licenses

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CC: Creative Commons license

BY: attribute the author, link to the license, and indicate if changes were made.

SA: share alike - If you publish the image, you must use the same license.

ND: no derivatives - You may not alter the image.

NC: non-commercial use - You may not use the image for commercial use.

3.0 or other number: version of the license

Sister club in Australia

Our sister club in Australia is the Atherton-Tableland Mineral & Lapidary Club in Tolga, Queensland. Connect to them on Facebook:

www.facebook.com/groups/197340266987276

One hundred million years ago the eastern edge of the Australian continent extended much farther to the east. Tectonic forces broke off and submerged into the ocean the eastern section while a rising mantle caused the remaining land to lift.

Beginning 4 million years ago large basalt flows filled river valleys and formed a relatively flat landscape. Following that period the volcanoes became more gaseous spewing lava in violent eruptions. This landscape is now called the Atherton Tablelands. You can learn more on Wikipedia.

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Maplewood Rock and Gem Club News

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News to share? A suggestion? A correction?

Please send news ideas and images you'd like to share to the newsletter editor, Nancy Samuels at mrgc@nancysamuels.com.