Maplewood Rock and Gem Club

2021 January

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General meeting: January 24

Our meeting is at the clubhouse at 7 pm on January 24. If you want to attend, please sign up by emailing Sandra before the meeting. If you have not yet done so, you will need to show proof of vaccination before entering the building.

Bring a rock or mineral for our Show and Tell. Also, bring cash or a check to buy raffle tickets and to bid in our silent auction. You can acquire beautiful or interesting specimens at our silent auction and from the raffle where we have many winning tickets each month.

Thunderegg for Show and Tell

Winter Bazaar

Thanks to everyone who helped with the Winter Bazaar. You helped many of us get a start on our holiday shopping.

Banner photo

The photo of the garnets were taken by Andrew Gustar and is published here under the Creative Commons license
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Dues for 2022

In the myriad facets of our lives, we join together with others in clubs, teams, congregations, and other organizations to support the various communities that we appreciate for making our lives richer. At Maplewood Rock Club our members support the club by paying annual dues which help us pay the bills.

If you have not yet paid your dues for 2022, please mail a check or bring one to the January meeting.

Individual: $20 per year
Family: $45 per year

Mailing address

Maplewood Rock and Gem Club
8802 196th St SW
Edmonds, Washington 98026

Cleaning the shop

Every once in a while the saws in the shop need to be cleaned. It's a dirty job because the volunteers replace the oil which cools the saws while they operate.

At a shop cleaning party this month seven members toiled for three hours to clean the saws. These generous volunteers are worthy of our most heartfelt praise: Paul S., Paul A., Rich, Bruce, Gary, Marjorie, and Michele. Thank you!

All of us who use the tools are grateful.

January Birthdays

Happy Birthday to everyone born in January! Your birthday starts off the year with a beautiful gemstone, garnet. Although garnets are most often red, they are found in a variety of colors.

Grossular garnet
Shows a distinct rhombic dodecahedron crystal
by Rob Lavinsky, iRocks.com
License: CC BY-SA 3.0

Named for a pome–granate

The Latin word for seed, *granatum*, spawned a word that became *gernet* by the time people were speaking Middle English. *Gernet* meant *dark red* in reference to the dark red seeds of a pomegranate. By the time people were speaking Modern English *garnet* referred to the dark red gem.

Isomorphous minerals

You can see by the formula that garnet is not a single mineral with a universal chemical formula, but rather a group of isomorphous minerals. This means they have the same crystal form and have different elements but with the same arrangement and number. For example, here are the formulas for the main garnet family members:

Pyrope: $Mg_3Al_2Si_3O_{12}$
Almandine: $Fe^{2+}{}_3Al_2Si_3O_{12}$
Spessartine: $Mn_3Al_2Si_3O_{12}$
Grossular: $Ca_3Al_2Si_3O_{12}$
Andradite: $Ca_3Fe^{3+}{}_2Si_3O_{12}$
Uvarovite: $Ca_3Cr_2Si_3O_{12}$

Garnet basics

Category: Nesosilicate

Formula: $X_3Y_2(SiO_4)_3$
X is Ca, Fe^{2+}, Mn, or Mg
Y is Al, Cr, or Fe^{3+}

Crystal system: Isometric

Crystal habit: Rhombic dodecahedron or cubic

Color: Red, brown, black, green, yellow, orange, pink, white, and colorless

Cleavage: indistinct

Fracture: conchoidal to uneven

Tenacity: brittle

Mohs: 6.5 - 8.0

Luster: vitreous, dull, or adamantine

Streak: colorless

Diaphaneity: transparent to opaque

Specific gravity: 3.5 - 4.3

Refractive Index: 1.72 - 1.94

Birefringence: none

Pleochroism: none

Ultraviolet fluorescence: variable

Magnetism: variable

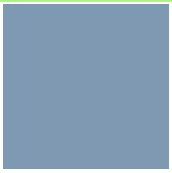
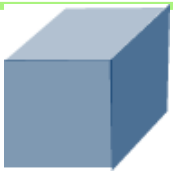
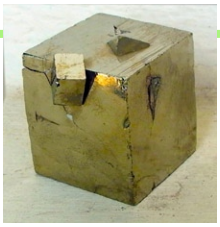
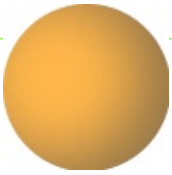
Rock types: metamorphic, igneous, sedimentary

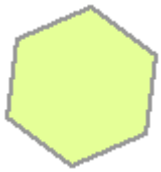
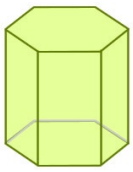
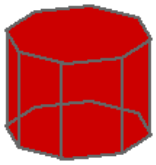
Juniors' Page — Crystal shapes

You probably learned the names of some shapes as a little kid, before you started school. Preschoolers might be taught triangles, squares, and circles. There are less common shapes that young kids are not always taught, and we will talk about them in this article.

Those shapes and others are the basic building blocks of crystal shapes. But, crystals are not flat like a square; they have depth, like a wooden building block. Flat shapes are called 2-dimensional (2D) shapes or planes. You can draw a 2D shape with a marker. Your eyes can see the 2D shape on the paper, but your fingers can't feel a 2D shape.

Solid shapes are called 3-dimensional (3D) shapes, and you can feel them with your fingers. Here are some 2D and 3D shapes.

2-dimensional (2D)		3-dimensional (3D)		Example	
square 4-sided right angles equal sides		**cube** 6-sided		**pyrite crytal**	
triangle 3-sided		**pyramid** base can be a triangle, square, or other 2D shape sides are triangles		**Egyptian pyramid**	
		triangular prism sides are rectangles ends are triangles			
circle		**sphere**		**earth**	

2-dimensional (2D)	3-dimensional (3D)	Example
hexagon 6-sided 	**hexagonal prism** sides are rectangles ends are hexagons 	**hexagonal prism** Aquamarines have a habit of growing in hexagonal prisms.  *Aquamarine by* James H. CC BY-SA 2.0
octogon 8-sided 	**octagonal prism** sides are rectangles ends are octogons 	**Octahedron** Diamond crystals tend to grow in 8-sided shapes that look like two pyramids stuck together at their bottoms. 
dodecagon 12-sided 	**dodecahedron prism** sides are rectangles ends are dodecahedrons 	**rhombic dodecahedron** This garnet has 12 sides. On the top you see 3 kite-shaped sides forming a pyramid. Rhombic shapes have acute and obtuse angles like kites.  *Garnet by* Jmmcbeth CC BY 2.0

Wrong angles and Cute angles

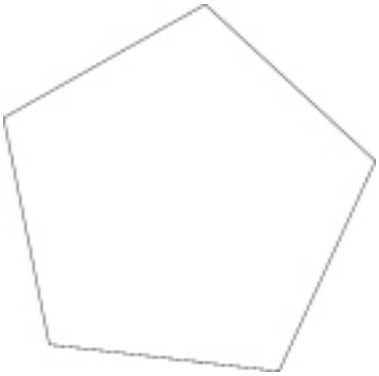
Squares have corners that are right angles, which means each corner is like a capital L. When a corner is not shaped like an L, is it a wrong angle? That might be fun, but no, corners can't be *wrong*.

You can have a cute angle; well, actually, *acute* angles are ones that are smaller than right angles. Of course mathematicians also have a name for angles larger than an L: they are obtuse angles.

Juniors' Activity – Craft a Dodecahedron

If you like crafts, you might enjoy making a dodecahedron. A what?! We can guess what a dodecahedron is if we know what the parts of the word mean:

dodeca	means 12 (from an ancient Greek word)
hedron	refers to a 3D shape with flat sides



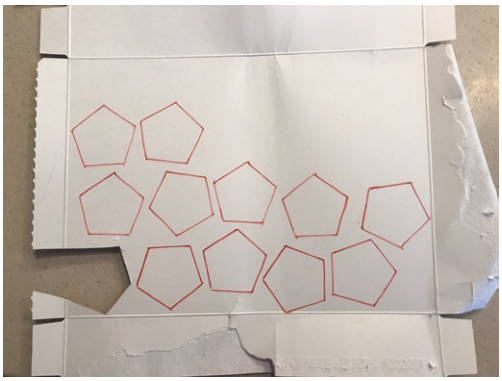
When we put those word bits together we get a 3D shape with 12 sides. Dodecahedrons are easy to make — you just need 12 pentagons.

Supplies

- printer
- cereal or food box made from thin cardboard
- scissors
- markers
- tape

Trace and cut

1. Open up a cardboard box, like a cereal box. You want thin cardboard, not thick cardboard used in shipping boxes.
2. Print the pentagon on this page and cut it out.
3. On the unprinted side of the cardboard use the paper pentagon to trace one pentagon near a corner of the cardboard. Avoid the folds in the cardboard.
4. Cut out the cardboard pentagon.
5. Use the cardboard pentagon to trace 11 more pentagons on the cardboard. Cut those out.



6. Decorate the pentagons with things you like. You can draw, write words, use stickers, or paste small pictures.

Make two flowers

1. Place one pentagon face down on the table. Put 5 more pentagons face down forming a flower shape.
2. Tape the touching edges together. In the picture at the right, the pieces were taped on the back and then the "flower" was turned face up.
3. Make another flower with your other 6 pentagons.

Make two bowls

4. Put a flower face down on the table.
5. Pull two petals up and tape them together at the edges. In the photo #1 below you can see me beginning this step.
6. Tape all the petals to their neighbors so you end up with a bowl.

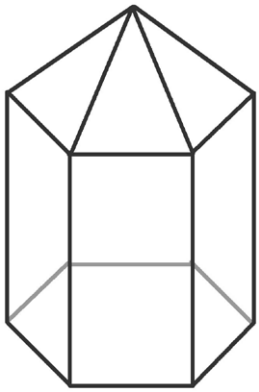
Finish

Put one bowl on top of the other, and tape them together. You now have a dodecahedron.

Crystals are habit forming

A mineral tends to grow in a particular crystal shape which is primarily determined by its chemical (atomic) structure. The *crystal habit* of a mineral is the shape in which a single crystal or a group of crystals typically grows. We can use the crystal shape to help identify a mineral.

However, nature doesn't make it that easy. Some minerals do not have a predictable shape; those are given the crystal habit of *massive*. Most specimens we find do not reveal a characteristic shape.



Left: *crystal habit of a hexagonal prism with a hexagonal pyramid on top*
Right: *amethyst crystal with the crystal habit shown at the left*

In "Crystal Habits and Forms of Minerals and Gems" Hobart M. King, PhD, RPG lists numerous types of crystal habits. Wikipedia lists even more. There does not seem to be a definitive comprehensive list. On the next pages are descriptions and photo illustrations of 25 habits:

acicular	cubic	fibrous	hopper	radiating
banded	dendritic	filiform	massive	rosette
bladed	dodecahedral	foliated	nodular	stalactitic
botryoidal	doubly terminated	geodic	octahedral	tabular
columnar	drusy	granular	prismatic	tetrahedral

Acicular

Acicular crystals are shaped like needles that taper to a sharp or rounded point. The needles are often arranged like a fan or circle. Examples: gypsum, rutile, and tourmaline

Acicular rutile
James St. John; CC BY 2.0

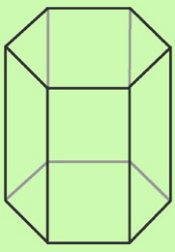
Banded

Banded crystals have narrow layers of different colors or textures. The photo at the right shows banded picture jasper. Examples: quartz (e.g. agate), malachite, rhodochrosite, and fluorite

Prism

A 3D shape with flat sides and ends that are identical and paraallel polygons. The sides can be rectangles, squares, or parallelograms.

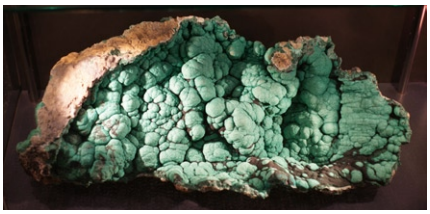
A hexagonal prism (shown below) has a hexagon shape on each end and 6 rectangles as sides.



Bladed

These crystals are shaped like sword blades with a proportionally very long length and more width than depth. Sometimes multiple crystals are parallel or radiating. Examples: kyanite, actinolite, and stibnite

Kyranit crystals with a bladed habit by Aelwyn; CC BY-SA 3.0



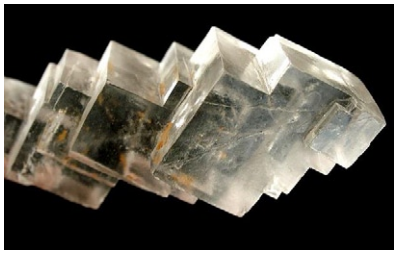
Malachite with botryoidal habit by Sailko*;* CC BY 3.0

Botryoidal

The name comes from the Greek word *botrys*, meaning *a cluster of grapes*. This crystal habit applies to crystals that grow in rounded bulbous shapes. This crystal habit is also called mamillary. Examples: hematite, malachite, grape agate, and chrysocolla

Columnar

Column shaped crystals are wide enough that they would not be described as needles. Each column might be comprised of multiple parallel crystals. The photo at the right shows tourmaline that grew with a columnar habit. Examples: calcite, tourmaline, and gypsum



Cubic

As you can guess from the name, crystals growing in a cubic habit are shaped like cubes. The halite cubes at the left are a good example. This photo is by Rob Lavinsky, iRocks.com, and is republished with license CC BY-SA 3.0. Examples: pyrite, fluorite, and halite

Dendritic

Crystals that grow in a branching pattern similar to a plant are dendritic. The photo here shows dendritic ice crystals. Examples: copper, manganese oxides, pyrolusite, and snowflakes

Dodecahedral

Crystals that grow with 12 flat faces, sharp corners, and straight edges have a dodecahedral habit as you can see in the photo at the left. This image is by Jmmcbeth, and is published under the Creative Commons license BY 2.0. Example: garnet

Doubly terminated

A crystal that grows as a prism with both ends terminating in pyramids. Usually a prismatic crystal is terminated on one end because the other end is attached to a rock. Doubly terminated crystals form in cavities where they can grow at both ends. The photo of the Herkimer diamond is by James St. John and is published under the Creative Commons license BY 2.0. Example: quartz crystals called Herkimer diamonds

Drusy

When the surface of a rock or cavity is covered with small crystals, the crystal habit is drusy. The most common druse is quartz. The photo at the left is a geode with drusy quartz covering the inside. The image is by James St. John and is published under the Creative Commons license BY 2.0. Examples: quartz, garnet, malachite, and azurite

Fibrous

When you see a mineral that looks like clumps of fur growing on a rock, that fur is likely to be fibrous crystals. These thin prism fibers often grow in parallel or radial patterns. One type of asbestos is fibrous tremolite as shown in the image at the right. Examples: actinolite, chrysotile, serpentine, and tremolite

Filiform

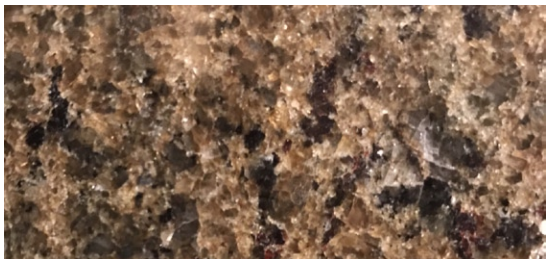
Filiform (or capillary) crystals are very fine threads. The photo at the left is by James St. John and is published under the Creative Commons license, BY 2.0. Examples: zeolites, millerite, star sapphires, and any stone with asterism

Foliated

Crystals that grow in layered thin sheets have a foliated (or micaceous) habit. Mica is possibly the most common foliated mineral. The crystals can be separated into thin sheets. At the right is a photo by Mauro Cateb of foliated mica. The photo is published here under the license, CC BY 2.0. Examples: mica, muscovite, biotite, and chlorite

Geodic

This crystal habit describes the aggregate crystallization within some geodes. Near the shell of the geode minerals first form rounded masses. Later infusions of minerals deposits encase the globules in layers. This agate is by James St. John and is published her under the Creative Commons license, BY 2.0. Example: agatized geode



Granular

An aggregate of anhedral (shapeless) crystals exhibits a granular habit. The crystals are similarly sized and might be in a matrix or devoid of interstitial material. Examples: bornite, marble, olivine, granite (shown in photo), and scheelite

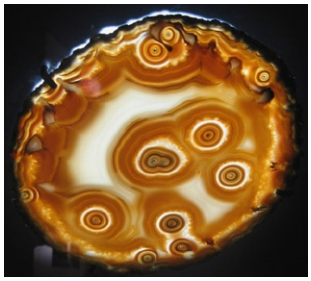
Hopper

Cubic crystals that grow rapidly and form well on their outer edges and develop slower and less well in their centers exhibit the hopper habit. The center is concave or partially missing. Examples: halite (photo), galena, calcite, and ice

Massive

This is the *none* category of crystal habits. Perhaps, it's named massive because of all the specimens found most of them have no discernible externable shape or internal structure.

Nodular



A mineral has a nodular mineral habit when crystals form rounded or bulbous shapes often with banding around them. Sometimes the nodules are in a concentric pattern. Examples: quartz (agate as shown here), azurite, hematite, realgar, and variscite

Octahedral

This is the crystal shape of a diamond, like the one pictured here. Octahedrons are 8-sided with triangular faces.

Prismatic

A prismatic habit has crystals in the shape of a prism. The photo is tourmaline by Fine Mineral Show. Examples: tourmaline and beryl

Radiating

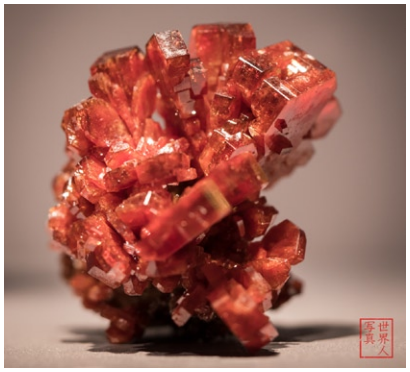
When crystals, usually of different lengths, grow in radiating patterns, we call the habit radiating, radial, or divergent. The crystals can be in an aggregate or not. The photo from Fine Mineral Photography shows radiating crystals of stribnite with baryte lining the edges. Examples: pyrite, rutile, stibnite, and kyanite

Rosette

Some crystals grow in tabular form with a radial arrangement giving them the look of a rose. The photo by Arkenstone of iRocks.com shows barite crystals that grew in sand incorporating the sand as it developed. Examples: barite, pyrite, marcasite, and gypsum

Stalactitic

When crystals form standing out in a cavity like stalactites or stalagmites, they are in a stalactitic habit. Examples: malachite (as seen in the photo), calcite, and quartz



Tabular

A flat tablet or plate shaped crystal with a thickness much less than its length and width has a tabular habit. The photo is vanadinite by World Citizen Pix and is published here under the license, CC BY-NC-ND 2.0. Examples: feldspar, topaz, barite, and corundum

Tetrahedral

You can guess from the name, that for this habit, crystals form in the shape of tetrahedrons. The spinel crystals here are by Géry Parent is published under the license, CC BY-ND 2.0. Examples: tetrahedrite, spinel, magnetite

Crystal form

A crystal form is a solid crystalline object with flat symmetrical faces and sharp (not rounded) angles like cubes, octahedrons, dodecahedrons, and hexagonal prisms.

Usually, these forms do not develop as magma cools but rather as minerals seep into a cavity of a formed rock where they slowly form crystals.

Pyrite in a cubic form
by Echozcrystals

Habits can't always be followed

Although a mineral has a habit of growing in a certain crystal shape, it cannot always do so. Sometimes the cavity where it is forming is too tight.

Most specimens of a mineral do not follow their known habits due to environmental constrictions or other impediments.

Pyrite has a habit of growing in cubes as shown above. Here is a pyrite sun that was created as pyrite grew in a radiating manner. This pyrite was constricted between tightly spaced layers of shale.

Pyrite Sun
by Gregory Phillips
Creative Commons license: BY-SA 3.0

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 our President Emeritus 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 President Emeritus at 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 license attributions

We use abbreviations in the license attributions. Here are the definitions.

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.

This issue

Maplewood Rock and Gem Club News

Volume 1

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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.