

MAPLEWOOD ROCK AND GEM CLUB

2020
AUGUST



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General meeting: August 17

We hope you will join us at our August meeting which will be Monday, August 17 at 7 pm on Zoom. Members will receive a Zoom link in an email. If you have never used Zoom, you might find [this video introduction](#) helpful.

Field Trips are happening again!

The COVID-19 restrictions have been lessened enough that some field trips are back on the calendar. Of course COVID-19 is still out there and is highly contagious, so if you go on a field trip, wear a mask and stay at least 6 feet away from others.

Details about the three field trips in August and September are described on [page 10](#).

About the banner photo

The banner image is natural red spinel in chondrodite (gold) and calcite (white). The photo was taken by [Géry Parent](#) and is reproduced here under the Creative Commons license, [CC BY-ND 2.0](#).

August Birthstones – peridot and spinel

Happy Birthday to all who were born in August! We hope your birthday is fantastic. You are lucky to have two birthstones: peridot and spinel. This month we will be looking into the less common of the two, spinel.



"Spinel in calcite" Photo by [Géry Parent](#), License: [CC BY-ND 2.0](#)

Spinel basics

Categories: oxide minerals and the Spinel group

Formula: $MgAl_2O_4$

Crystal system: cubic

Crystal habit: octahedra or flat triangular plates caused by twinning

Color: any color of the rainbow plus, clear, brown, and black

Mohs: 7.5 - 8.0

Cleavage: none

Fracture: conchoidal

Luster: vitreous

Streak: white

Diaphaneity: transparent to opaque

Weak to medium magnetic

sometimes fluorescent

Rarer than Rubies

The spinel color that is most highly valued is a deep red, and they are rarer than rubies of the same color. Because natural spinel is rare, jewelry distributors do not market spinel to consumers. This causes the demand to be less and thereby the price. Gem quality spinels cost about 30% less than similar rubies.

The largest deposits of gem-quality spinel are found in Myanmar, Sri Lanka, Madagascar, Nigeria, Afghanistan, Pakistan, Brazil, Australia, and Europe.

Little thorn

Spinel is derived from the Latin word, *spinella*, meaning "little thorn" or "arrow-shaped."




Flaws and enhancements

Gem quality spinels are nearly always without detrimental flaws, cracks and other imperfections. Thus, spinels are rarely treated to enhance their appearance.

However, they often include tiny spinel octahedral crystals, rutile needles (primarily titanium dioxide), and zircon "halo" crystals which enhance their appearance.

A rainbow of hues

Like corundum, pure spinel is colorless, and impurities give it color. Many of these color varieties have their own names. The right column in the table provide memory aids for those who want to do the Junior's puzzle later in this issue.

Color	Name	Impurities	Memory aids
deep red	ruby spinel	chromium	like the gem, ruby
pink to pale red	balas ruby	chromium	"fallacy ruby", not dark enough to be called ruby
orange to reddish orange	flame spinel	magnesia	the color of fire 
yellow to yellowish orange	rubicelle	iron	 rubik's cube
dark green (can also be black or dark yellowish brown)	gahnite	zinc	say "good night" to a dark forest 
violet	almandine	chromium	 purple candy almonds
brown	picotite	chromium	pikas are brown 
opaque black or dingy blue	pleonaste	iron	nasty dingy blue or black (Actually, it can be quite pretty, but we need a memory aid.)

Rutile – just about the opposite of “futile”

The mineral titanium dioxide, rutile, offers a diversity of uses from preventing skin cancer to enhancing the beauty of gemstones.

When ground to a fine powder, rutile is a bright white pigment used to color plastics, foods, paints, and paper.



Rutilated Quartz from Brazil
by [James St. John](#)
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Rutile’s nanoscale particles are transparent to visible light, but highly effective in absorbing ultraviolet radiation. This makes them excellent for blocking sun rays and UV frequencies of light in polarized lenses and sunscreen lotion.

Another beneficial characteristic of rutile is its adamantine luster. It’s high refractive index makes it sparkle like diamonds.

When rubies and sapphires have rutile crystals as inclusions, they can emit a shining star of light that reflects off the rutile from within the stone. This characteristic is called asterism.

The name, *rutile*, comes from the Latin word, *rutilus*, meaning *red*. Often, it is red, although it can be reddish brown, black, or golden.

Natural rutile is most often found as inclusions in gemstones. Rutile crystals have an acicular crystal habit, which means that the crystals tend to form in slender needles. These can be in dense parallel bundles, in layers of parallel threads (as shown in the image at the top right), or scattered like a handful of dropped sticks, as you see in the dark rutilated quartz above on the left.

Without the protection of the surrounding stone, the acicular crystals are brittle. Still there are several places in the world with deposits of this mineral. Most often rutile is found as an inclusion in a host gem, like quartz.

Arkansas is the only place in the US where rutile is found. Other places in the world where natural rutile deposits are found are the Swiss Alps, Brazil, and the largest supplier, Sierra Leone which offers 30% of the world’s supply.



Rutilated Quartz
by [James St. John](#)
license: [CC BY 2.0](#)

Spinel origins: Metamorphic or Igneous

Spinel is sometimes a metamorphic mineral and other times an igneous rock. When mafic magma (contains iron) is somewhat devoid of alkalis, aluminum oxide can become corundum or it can combine with magnesia to become spinel. Often spinel and ruby are found together.

Black Prince's Ruby



The most famous and the largest uncut red spinel is called the Black Prince's Ruby. If that gem could talk, the tales it told would be exciting stories of war and kingdoms.

Abū Sa'īd, the Arab Prince of Granada

In the mid-14th Century the Moors were losing territory in the Iberian peninsula as the Castilian people took over control. Abū Sa'īd, the Arab Prince of Granada could see the writing on the wall and tried to surrender to the rising power, Peter of Castile (a.k.a. Don Pedro the Cruel). Living up to his name, Don Pedro executed Abū Sa'īd when he came to negotiate a surrender. Afterward, Don Pedro found a red spinel weighing 170 carats on Sa'īd's corpse.

Don Pedro the Cruel

In 1366 Don Pedro's illegitimate brother, Henry of Trastámara, led a revolt against Don Pedro who did not have sufficient resources to defeat his brother. Don Pedro asked the Black Prince, Edward of Woodstock (Britain) to help, and together they defeated the uprising in 1367. The Black Prince asked for the red spinel as a thank-you gift, and Don Pedro complied, probably unhappily. The gem became known as the Black Prince's Ruby.

Helmet Decor

Henry V of England wore a gem-encrusted helmet that included the Black Prince's Ruby when he traipsed off to war in France. In the 1415 Battle of Agincourt the French Duke of Alençon swung his battleaxe and hit poor Henry on the head. The English won the battle, and the "ruby" was saved. Before we jump to ascribing powers of good luck to the gem, we should note that Richard III also wore the gem on his helmet, this time at the Battle of Bosworth, but he died.

Oliver Cromwell

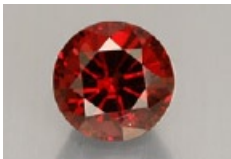
During Oliver Cromwell's war, he disassembled the crown jewels and sold the gold and gems. The history of the famous spinel is a mystery until 1660 when the monarchy was restored under Charles II.

Queen Victoria

For her coronation in 1838 Queen Victoria commissioned a new crown, the Imperial State Crown of the British Empire. The gem is still in that crown.

Juniors — Can you name the colors of spinel?

Spinel comes in many colors and gemologists have given names to many of the colors. Can you match the names to the colored spinel gemstones?



☐ Blue Spinel

☐ Picotite Spinel

☐ Balas Ruby

☐ Pleonaste Spinel

☐ Almandine

☐ Flame Spinel

☐ Gahnite

☐ Rubicelle Spinel

☐ Ruby Spinel

This puzzle is challenging, so we recommend you study the memory aids on page 3 before you try this puzzle.

The first name is pretty easy to find among the pictures. Can you match the rest?

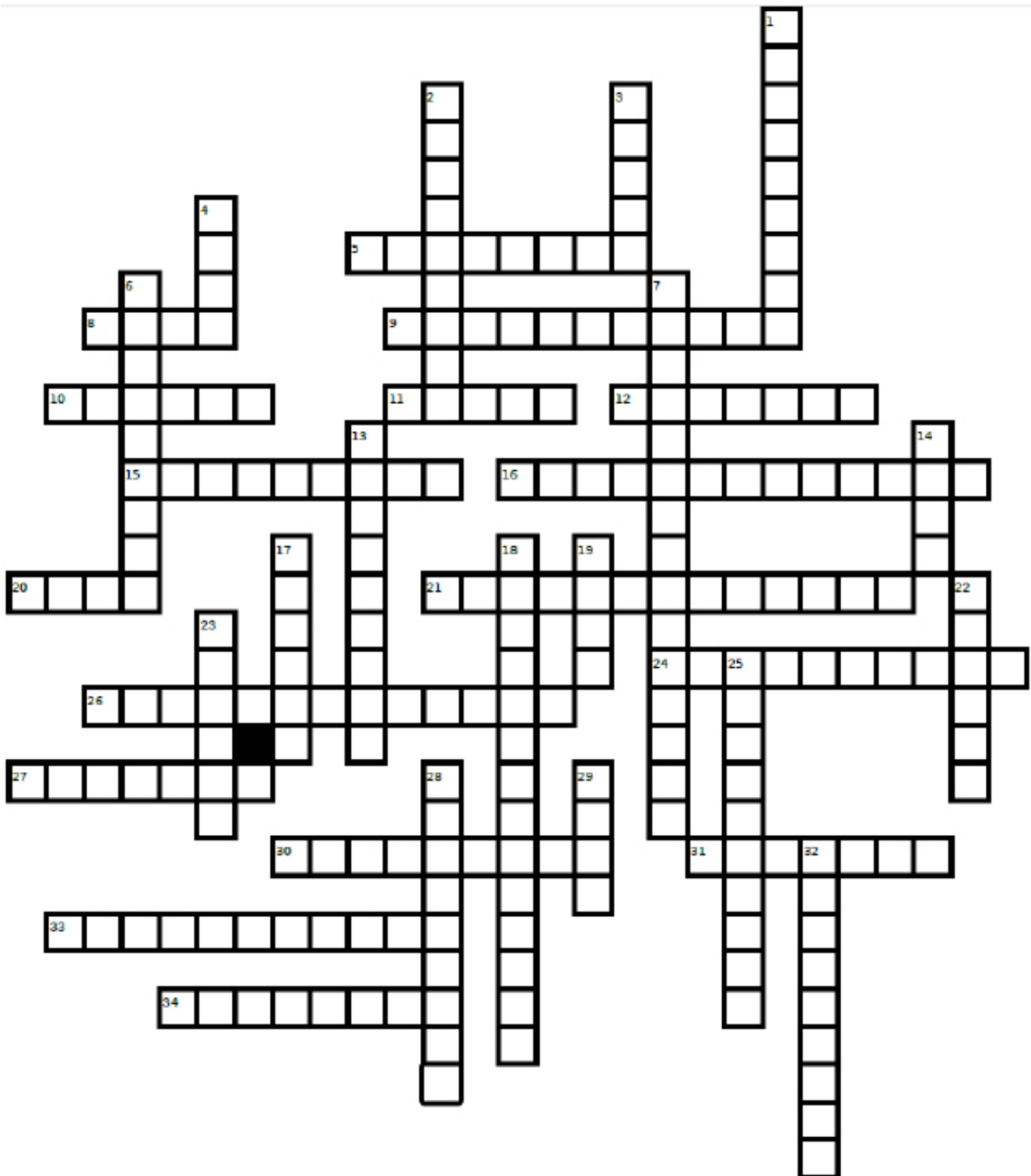
You will find the answers on page 15.

Oops!

Centuries ago, red spinel gems were thought to be the same as rubies. Sometimes red garnets were also mistaken for rubies. Now, gemologists can differentiate similar looking gems.

In 1367 when the Black Prince acquired his large spinel, he likely thought it was a ruby, and so it was called, *The Black Prince's Ruby*.

Rockin' It - Crossword Puzzle



Rockin' It - Crossword Puzzle Clues

Across

5. brown spinel
8. what you wear over your mouth and nose to protect others from COVID-19
9. royal nickname for Edward of Woodstock who in 1367 acquired the largest uncut red spinel
10. silicon dioxide (SiO_2) which is a common host rock for rutile needle inclusions
11. a round rock containing a hollow cavity lined with crystals
12. dark green spinel
15. someone who enjoys searching for and collecting rocks, gems, and minerals
16. rocks formed from trees that lived millions of years ago
20. a deep red gem that can look like red spinel
21. an opaque chalcedony variety with polka dots throughout, reminiscent of a pond with water plants
24. the shape of a spinel crystal having 8 faces
26. long thin crystal strands of titanium dioxide
27. the distance we stay from people to prevent the transmission of coronavirus
30. the first word in the name of our club
31. an August birthstone which is a green semi-precious mineral and a variety of olivine
33. the Latin meaning of "spinella"
34. The only state in the US where rutile deposits are found. Its capitol city sounds like a great place for rockhounds to hang out.

Down

1. purple spinel
2. yellow or yellowish orange spinel
3. a common stone made primarily of chalcedony and quartz, often with bands of different colors
4. a rockhounding tool used to break hard soil
6. pink or light red spinel
7. the primary component of rutile needles with the chemical formula TiO_2
13. having inclusions of long slender titanium dioxide crystals
14. a scale for identifying the hardness of a rock or mineral
17. an opaque variety of chalcedony that is usually red, green, or yellow
18. the British usurper who dismantled the crown jewels and sold the gems and gold causing the location of the Black Prince's Ruby to be unknown until 1660
19. a semitransparent gemstone usually with many small points of shifting color called "fire"
22. a rockhounding tool used for digging
23. August birthstone with a Mohs 8 rating and can be any color of the rainbow
25. a roundish rock, similar to a filled geode, that is formed within volcanic ash layers
28. opaque black or dirty blue spinel
29. a mineral that is usually green and comes in two types, one of which is called "nephrite"
32. impurity, such as rutile needles, in a gemstone

Upcoming field trips

Agate, jasper, opal, petrified wood

August 15 and 16

If you would like to join Dennis Bachelor's field trip to hunt for agate, jasper, opal, and petrified wood, meet at the Enumclaw Ranger Station at 9 am on either day. If you come on Saturday, you can camp with the group near Greenwater. Dennis is providing spaghetti for dinner on Saturday, so please bring a side dish to share. The rockhounding will involve digging with light and hard rock, so bring your tools. If you have questions, call Dennis at 360-870-8741.



Jasper
by [James St. John](#)
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Geodes, agate, jasper, and jade

September 12 and 13



Nephrite jade
by [James St. John](#)
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Larry Vess from All Rockhounds Pow Wow is leading field trip to search for geodes, agate, [jasper](#), and jade. Meet at Teanaway Campsite (47.254700, -120.893502) by 7:30 am on September 12. The rockhounding excursion begins at 8 am.

Bring your camping gear and spend the night at this free and newly improved campground in the Teanaway Community Forest. Google maps does not show the road into the campground from West Fork Teanaway Road. The turnoff is just west of the fire station and before you cross the Teanaway River.

You will need a shovel, long pick, and hand pick.

Please call Larry to let him know you are coming by September 11. Normally, Larry provides a BBQ for everyone, but this year the pandemic restrictions will probably make that impossible, so Larry is waiving the fees for this field trip.

Thunder eggs, Washington lilypad, and fossils

September 19

Tony Johnson is leading a field trip to look for thunder eggs, Washington lilypad jasper, and fossils on September 19. If you would like to go meet at 10 am at the intersection of Hwy 410 and FR 19 (46.989482, -121.096270). The meeting place is near the Little Naches Campground. Bring your tools for digging and excavating from both light and hard rock: shovel, long pick, and a hand pick. If you have questions, call Tony at 253-863-9238.

Field trips in 2020

The [Washington State Mineral Council](#) offers many field trips. The trips were cancelled in the last few months, but with Washington state opening up again, the field trips are resuming. However, people must stay 6 feet apart when possible and wear masks when closer than 6 feet.

Contact the host a week before the trip

At least a week before the trip, please contact the host and ask about

- New or updated details about the scheduled trip
- Whether you will need a Discover Pass, Trailhead Pass, or Forest Pass
- Fees
- Maps and directions

Club contact information

Marysville Rock Club and Darrington Rock Club
Ed Lehman wsmced@hotmail.com
home: 425-334-6282
cell: 425-760-2786

NOA club: Tony Johnson 253-863-9238

Puyallup Valley Gem and Mineral Club: Dennis Bachchelor 360-870-8741

All Rockhounds Pow Wow
Larry Vess vessel3755@gmail.com
253-473-3908

Bring with you on the trip

Arrive at the meeting place 30 minutes before the start time, and bring

- Mask to protect from COVID-19 transmission
- Food and drinks for the day
- Appropriate clothing for any possible weather
- Cash if there are fees
- Tools
- Map and directions
- First aid kit

Get inspired for a rockhounding adventure

The Washington State Department of Natural Resources offers a plethora of [rockhounding](#) information. If you are curious where gems, fossils, and petrified wood can be found, check out their [map](#).

Many of the sites on the map are not places you can collect specimens. Their site warns us:

"Before you set out, determine land ownership of your area of interest, learn the permissible collection activities and that owner's rules governing where you can collect, what you can and cannot collect, and how it may legally be collected."

Still, the map is fun to explore while searching for your favorite rocks, gems, or fossils.

Date	Rock or Mineral	Location	Details
8/15 -8/16	Agate, jasper, opal, and petrified wood	Greenwater	Host: Dennis Bachchelor 360-870-8741 BBQ on Saturday 9 am Enumclaw Ranger Station Tools: dig and light hard rock
9/12 -9/13	Geodes, agate, jasper, and jade	Red Top/ Teanaway	Host: All Rockhounds Pow Wow 8 am Teanaway at Middle Fork Campground Tools: dig and hard rock
9/19	Thunder eggs, WA Lilypad, and fossils	Little Naches	Host: Tony Johnson 253-863-9238 10 am Hwy 410 and Forest Road 19 Tools: dig and light hard rock
10/24	Picture jasper	Money Creek Skykomish	Host: Marysville Rock Club 9 am Money Creek Campground Tools: dig and river bar pick
11/21	WA dalmatian stone, chert	Blanchard Hill	Host: Darrington Rock Club 9 am I-5 exit 240, Gas Mart Tools: hard rock

Calendar

Date	Event
Aug. 17 at 7 pm	Meeting on Zoom (the BBQ and potluck are cancelled)
Sept. 21 at 7 pm	Meeting
Oct. 19 at 7 pm	Meeting
Nov. 14 – 15	Annual Fall Show
Nov. 16 at 7 pm	Meeting
Dec. 5 – 6	Annual Winter Bazaar
Dec. 14 at 6:30	Meeting: Holiday Party

Looking for a party venue?

The Maplewood Clubhouse is a great venue for gatherings. If you are planning a family reunion or a party that would overflow your home, consider renting the Clubhouse for a day. Members get 50% off the daily rate of \$350. For more information or to schedule a date, contact Mary Ann Collins at 650-383-7625.

Rock of the Month

Now is a good time to think about giving a Rock of the Month presentation when our meetings resume. Do you have expertise in geology, rock hounding, or some other topic that would interest our members? It might be fun to take some time now and plan a presentation. Contact a Board member to propose your idea.

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 and for beneficial land use policies compiling and sharing maps and other information publicizing shows and field trips so members learn about events at other clubs.

Word of the Month

Apatite

Apatite is a group of phosphate minerals which are often mistaken for other minerals. The name reflects this problem as it is derived from the Greek word ἀπατεῖν (apatein), which means *to deceive*. The most common use is for making fertilizer.



by [Didier Descouens](#)
Own work, CC BY 3.0

The Council has a new website address:

<https://mineralcouncil.wordpress.com>

Their email address has also changed. You can contact them at mineralcouncil@zoho.com.

Show and Tell

Do you have a couple rocks or minerals you'd like to share with us? They might be interesting rocks you found on a rock hounding trip or specimens you saved long ago because they were beautiful or interesting.

You may share your Show and Tell stories during the zoom meeting or here in the newsletter. Send a photo and a short blurb about what makes these rocks interesting to newsletter editor, Nancy Samuels at mrgc@nancysamuels.com.



Board meeting

The board is holding email meetings until it is safe for them to meet again. If you have questions for the board, you are invited to ask our Board President, Sandra.

Connect with us



Rockhounding Coordinates Needed

The Washington State Mineral Council needs the GPS coordinates of the collecting sites in the state.

In an effort to make the map booklets as accurate as possible the Mineral Council is asking for everyone to record GPS readings while on field trips

The data can also be used to help in our efforts to keep the collecting areas open.

Please email coordinates you have to the Mineral Council:
mineralcouncil@zoho.com



Visit our web site:

<http://www.maplewoodrockclub.com/>

Connect with us on Facebook:

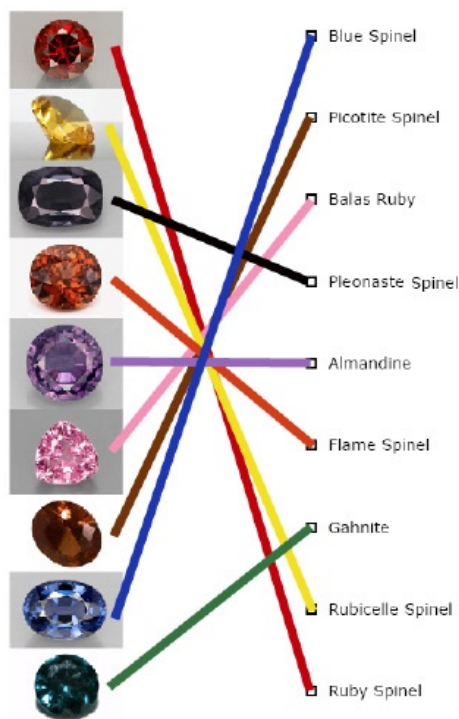
<https://www.facebook.com/MaplewoodRCG>

Our address is
8802 196th St SW,
Edmonds, Washington
98026

Join our two new Facebook groups

Join us in a new group:
[MRGC Sales and Trades](#)

[MRGC Zoom](#)



Answers to the Puzzles

Spinel color matching game

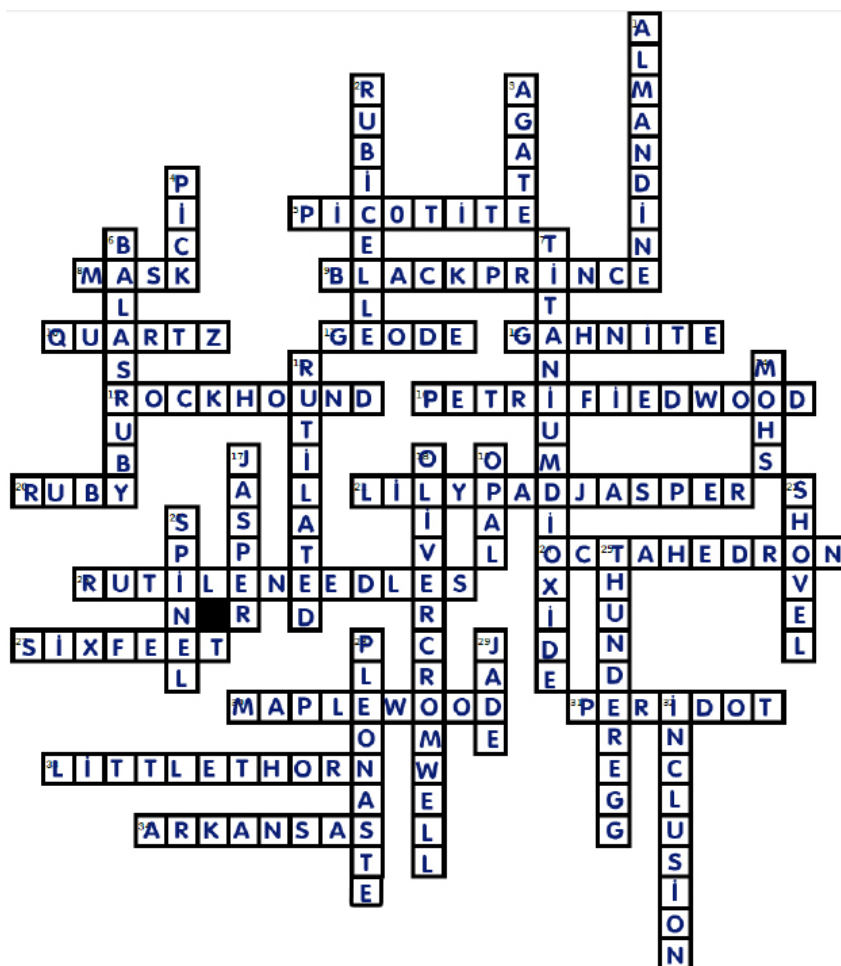
How did you do? This was a challenging game because the color names seemed to have little to do with the color. Hopefully the memory aids helped.

If your score was

You achieved this level

8 - 9	Diamond
6 - 7	Spinel
4 - 5	Apatite
2 - 3	Calcite
1	Talc

Crossword puzzle



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

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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.