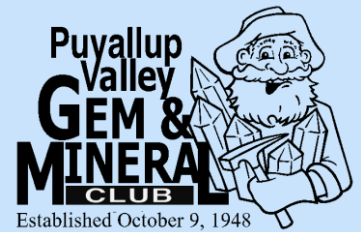


ROCK-A-TEER



Newsletter of the Puyallup Valley Gem & Mineral Club

Jillian Higgins

Issue 75

Volume 127

April

2024

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PVGAMC@GMAIL.COM
(253) 987-6751

President's Perspective

Tony Johnson

Thank you to everyone who helped out at the Gem Faire. It was very successful and we were able to reach a lot of people and give out a lot of rocks to give to kids. The set up and takedown went well and we had volunteers in the booth the entire time.

Welcome to all the new members who signed up at the Gem Faire!

Even though it seems like a long time in the future, the State Fair will be here before we know it. We will need to have a lot of tumbled material to give free rocks to kids, so if you can, please get your tumblers going. We like to keep the rocks to $\frac{3}{4}$ " or bigger so they are not a choking hazard for the littler kids. If you have rocks that are partially tumbled, and you don't want to finish them, bring them to the next meeting and we will get them finished. I guess what I am saying is tumble, tumble, tumble.

Field Trip Report

April 20th - Saddle Mountain

Meeting place - 10:00AM at the Shell Station at 723 Government Way, Mattawa, WA

Hunting for - Petrified Wood

Tools you need - Shovel and Rockhammer and a backpack/bucket for your treasures

Access - this area is fairly easy to access, walking down 300 feet on a slight incline (more important for when you come back up)

Additional items - lunch/snacks and water, water, water. Dress in layers. After done, if there is interest, we can go to the diomaceous earth and common opal sight

May 18th – Skagit River

Meeting place – 9:00 at Covington Fred Meyer

Hunting for – Jade, Serpentine, & Jasper

Tools you need – Rock hammer, shovel, pry bar, hammer, chisel, hip waders, rubber boots for in the river and a backpack/bucket for your treasures

Access – Easy access, limited parking

Additional items - lunch/snacks and water, water, water. Dress in layers. **A Discover Pass.**

Please remember that even though we love to meet new people, fieldtrips are a member benefit and part of your membership dues covers you for injury liability.

Though injuries are rare, and we do everything we can to avoid them, we are going out into nature, and uncontrollable environment.

All individuals attending field trips will have to sign a release of liability, and if you are bringing guests, we will try to entice them into join the club by having Membership applications available.

APRIL 2024 CLUB HOUSE SCHEDULE

DATE	DAY	TIME	ACTIVITY	LOCATION	INSTRUCTOR
1	Monday	10:00AM-2:00PM	Members Open Access	Club House	Tasha Parker
2	Tuesday	4:00PM-8:00PM	Members Open Access	Club House	Wes Ames
3	Wednesday	10:00AM-2:00PM	Members Open Access	Club House	Dennis Batchelor
		4:00PM-8:00PM	Members Open Access	Club House	Tony Johnson
4	Thursday	4:00PM-8:00PM	Members Open Access	Club House	Tony Johnson
5	Friday				
6	Saturday	10:00AM-2:00PM	Members Open Access	Club House	Tony Johnson
7	Sunday				
8	Monday	10:00AM-2:00PM	Members Open Access	Club House	Tasha Parker
		7:00PM-8:00PM	Opal Club Business Meet.	Club House	Tony Johnson
9	Tuesday	4:00PM-8:00PM	Members Open Access	Club House	Wes Ames
10	Wednesday	10:00AM-2:00PM	Members Open Access	Club House	Dennis Batchelor
		4:00PM-8:00PM	Wire Wrapping	Club House	Tony Johnson
11	Thursday	4:00PM-8:00PM	Members Open Access	Club House	Tony Johnson
12	Friday	6:00PM	Club Board Meeting	Fruitland Grange	Nate White
		7:30PM	Club Business Meeting	Fruitland Grange	Tony Johnson
13	Saturday	10:00AM-2:00PM	Wire Weaving -	Club House	Jillian Higgins
14	Sunday				
15	Monday	10:00AM-2:00PM	Members Open Access	Club House	Tasha Parker
16	Tuesday	4:00PM-8:00PM	Members Open Access	Club House	Wes Ames
17	Wednesday	10:00AM-2:00PM	Members Open Access	Club House	Dennis Batchelor
		4:00PM-8:00PM	Opal Cutting	Club House	Tony Johnson
18	Thursday	4:00PM-8:00PM	Members Open Access	Club House	Tony Johnson
19	Friday				
20	Saturday	See Fieldtrip Report	Saddle Mountain	Field Trip	Nate White
		10:00AM-2:00PM	Members Open Access	Club House	Tony Johnson
21	Sunday				
22	Monday	10:00AM-2:00PM	Members Open Access	Club House	Tasha Parker
23	Tuesday	4:00PM-8:00PM	Members Open Access	Club House	Wes Ames
24	Wednesday	10:00AM-2:00PM	Members Open Access	Club House	Dennis Batchelor
		4:00PM-8:00PM	Members Open Access	Club House	Tony Johnson
25	Thursday	4:00PM-8:00PM	Members Open Access	Club House	Tony Johnson
26	Friday	6:00PM	Club Auction & Potluck	Fruitland Grange	Tony Johnson
27	Saturday	10:00AM-2:00PM	Precious Metal Clay	Club House	Sonora Hauser
28	Sunday				
29	Monday	10:00AM-2:00PM	Members Open Access	Club House	Tasha Parker
30	Tuesday	4:00PM-8:00PM	Members Open Access	Club House	Wes Ames

For questions about a specific class or event, contact the instructor

Dennis Batchelor (360) 870-8741	Wes Ames (253) 376-7871	Tony Johnson (253) 753-5938
Tasha Parker (206) 291-8068	Nate White (206) 349-7054	Jillian Higgins (253) 355-3146

*** **Membership Workshop** is the time when members can use the saws and cabbng machines

This schedule is subject to change. Please check the club website for updated information.

MEET THE MEMBERS

Name: **Pamala Labrum**

Favorite Quote: "If you are not learning something new everyday you are not living."

What are your skills/past experience with the rock Club or rock hounding?

My father would take us kids down to the rivers and show us how to look for agates. He would also take us up in the woods to old abandoned mines and have us look for agates around the mine opening while he went inside the mine and checked it out.

What is your favorite rock, mineral or gem? Labradorite and Petwood come to mind.

What is your favorite thing to do with rocks, minerals or gems?

I love to display them for a while and then give them away, especially to little kids who love them. Got to get the rock bug in them early.

What are your three favorite books/podcasts?

- Christian End Time Fiction
- History Books
- Geology Books

What is your favorite memory surrounding rockhounding/rocks in general?

Going over to my dad's friend Norman Dean who's house, sheds, and yard was filled with any kind of rocks you could think of and all the equipment to cut and tumble rocks.

In your opinion, what is the best thing about the Puyallup Valley Gem & Mineral Club?

They have a good program for kids and they always have something on their schedule for people to do at the clubhouse. The field trips are awesome! So much for everyone of all ages to do.

In your opinion, where/how does the club need to improve?

To be able to get equipment in the club fixed in a timely manner.

What are three (3) things people might not know about you?

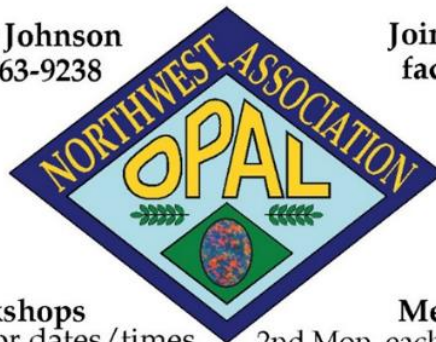
- God is first in my life
- I used to do clock and watch repair
- I am curious about everything

What is your greatest accomplishment?

Beside belonging to this club, going back to college at the age of 66.

Tony Johnson
253-863-9238

**Join us on
facebook**



Workshops
call for dates/times

Meetings
2nd Mon. each month

Associations Director Report

Hello all fellow rockhounds and pebblepups. I don't know about the rest of you but I'm chomping at the bit to get back into rockhounding mode.

Not much is happening on a federal level due to the ramping up for the upcoming election. As for state legislation nothing was changed before this year's legislative session ended.

As for the Washington State Mineral Council they are going to elect a new slate of officers on April 16th. Unless someone else runs I will be the council's next vice-president. The lease at Walker Valley will hopefully be renewed by May 31st. A bond is being posted and insurance is being renewed.

This is all I have for now, if anything changes, I will keep you posted.

Respectfully submitted by

Mark Baumann

Associations Director

Field Trip Recap

Nate White

It was a beautiful day out at Damon point. We had about 23 members show up for the field trip. The beach was the best I've ever seen for gravel beds. Weather was kind of windy in the morning but the wind died down a little bit later in the afternoon.

It got to be about 75 in the late afternoon. A lot of the members that I spoke with, were finding at least a piece or more of poppy Jasper. One of the members found quite a few pieces of carnelian agate.

In all it was a great day for Rock Hounding and beach combing for rocks.

Clubhouse report

Tony Johnson

We are always looking for new instructors at the club house, not that any of our current instructors are going anywhere, but sometimes they need a break or have things in life pop up.

You do not need to be able to cut a perfect cab or understand the complete ins and outs of the equipment. You just need to be able to talk to people and help them. Open up the club house, turn on the heater or A/C, and maybe make a pot of coffee. We will teach you all the other things so that you are comfortable.

If you are at all interested in volunteer your time to the club in this much need way, please contact Tony Johnson at (253) 863-9238 or by email at ynotopal@outlook.net.

Chalcopyrite

The world's most important ore of copper for at least five thousand years.

Article by: [Hobart M. King](#), PhD, RPG

Auriferous Chalcopyrite: A specimen of chalcopyrite with [pyrrhotite](#) from the Rouyn District, Quebec, Canada. Some chalcopyrite contains enough gold or silver that it can be an ore of those metals without considering the copper content. This specimen is about ten centimeters across.



Chalcopyrite is a brass-yellow [mineral](#) with a chemical composition of CuFeS_2 . It occurs in most sulfide mineral deposits throughout the world and has been the most important ore of [copper](#) for thousands of years.

The surface of chalcopyrite loses its metallic [luster](#) and brass-yellow color upon weathering. It tarnishes to a dull, gray-green color, but in the presence of acids the tarnish can develop a red to blue to purple iridescence.



The iridescent colors of weathered chalcopyrite attract attention. Some souvenir shops sell chalcopyrite that has been treated with acid as "peacock ore." But, "peacock ore" is a more appropriate name for the mineral [bornite](#).

Treated Chalcopyrite: These specimens of chalcopyrite were treated with acid to give them a blue and purple iridescence, which enhances their visual appeal and marketability.

The most obvious physical properties of chalcopyrite are its brassy yellow color, metallic luster, and high specific gravity. These give it a similar appearance to [pyrite](#) and [gold](#). Distinguishing these minerals is easy. Gold is soft, has a yellow [streak](#) and has a much higher specific gravity. Chalcopyrite is brittle and has a greenish gray streak. Pyrite is hard enough that it cannot be scratched with a nail, but chalcopyrite is easily scratched with a nail.

The name "[fool's gold](#)" is most often associated with pyrite because it is more common and more often confused with gold. Chalcopyrite is also confused with gold, so the name "fool's gold" is also applied and appropriate.

Chalcopyrite on Dolomite: Tetragonal crystals of chalcopyrite on dolomite from Baxter Springs, Kansas. This specimen is about 10 centimeters across.



Physical Properties of Chalcopyrite

Chemical Classification	Sulfide
Color	Brass yellow. Tarnishes to gray green, sometimes iridescent.
Streak	Greenish black
Luster	Metallic
Diaphaneity	Opaque
Cleavage	Poor
Mohs Hardness	3.5 to 4
Specific Gravity	4.1 to 4.3
Diagnostic Properties	Color, greenish streak, softer than pyrite, brittle.
Chemical Composition	Copper iron sulfide, CuFeS_2 .
Crystal System	Tetragonal
Uses	The most important ore of copper for thousands of years.



Chalcopyrite: Chalcopyrite from Ajo, Arizona. Specimen is approximately 10 centimeters across.

Chalcopyrite: Specimen of chalcopyrite from Rouyn District, Quebec, Canada. Specimen is approximately 10 centimeters across.

Chalcopyrite forms under a variety of conditions. Some is primary, crystallizing from melts as accessory minerals in [igneous rocks](#). Some forms by magmatic segregation and is in the stratified rocks of a [magma chamber](#). Some occurs in [pegmatite dikes](#) and contact [metamorphic](#)

[rocks](#). Some is disseminated through [schist](#) and [gneiss](#). Many volcanogenic massive sulfide deposits containing chalcopyrite are known.

The most significant chalcopyrite deposits to be mined are hydrothermal in origin. In these, some chalcopyrite occurs in veins and some replaces country rock. Associated ore minerals include [pyrite](#), [sphalerite](#), [bornite](#), [galena](#), and chalcocite.

Chalcopyrite serves as the copper source for many secondary mineral deposits. Copper is removed from chalcopyrite by weathering or solution, transported a short distance, then redeposited as secondary sulfide, oxide, or carbonate minerals. Many [malachite](#), [azurite](#), covellite, chalcocite, and cuprite deposits contain this secondary copper.

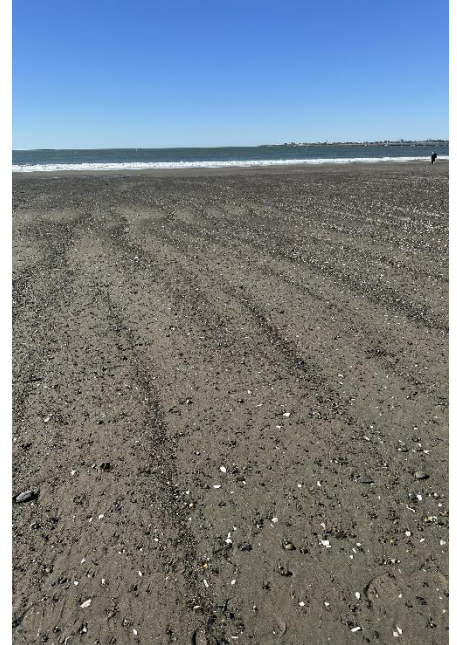


The best way to learn about minerals is to study with a collection of small specimens that you can handle, examine, and observe their properties. Inexpensive mineral collections are available in the [Geology.com Store](#). Image copyright iStockphoto / Anna Usova.

The only important use of chalcopyrite is as an ore of copper, but this single use should not be understated. Chalcopyrite has been the primary ore of copper since smelting began over five thousand years ago.

Some chalcopyrite ores contain significant amounts of [zinc](#) substituting for iron. Others contain enough [silver](#) or [gold](#) that the precious metal content more than pays the costs of mining.

Field Trip Photos



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503-647-2418
Info@ricenorthwestmuseum.org
www.ricenorthwestmuseum.org

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Yankees_Diesel@comcast.net

FROM THE BENCH

Let's talk about Solder. What is solder used for? You use solder when you want to join two different pieces of metal together. It acts like glue and helps to hold the metal pieces together, or it can be used as an embellishment. There are so many types of solder, it can get really confusing.

Modes:

- Liquid, Rod, Chip, Sheet, Paste

Hardness:

- Soft, Medium, Hard

Temps:

- Low temp, Medium temp, High temp

Metal Types:

- They come in every type of metal imaginable, maybe even some you don't

What does all this mean and how do you use it? The answers are really dependent on the types of metal you are looking to join together. All metals have a specific temperature at which they turn liquid, so typically, you want your solder to be softer (turn liquid at a lower temp) than the metals you want to join together. This can be tricky if you are looking to join multiple types of metal together, like copper and bronze or copper and silver. You always want to err on the side of the metal with the lower melting temp, like in the examples above, silver melts at a lower temp than copper, and bronze has a lower temp still. To Be Continued next month....

SUNSHINE REPORT

With everything going on, we have started meeting again, but our attendance at the meetings is still low as members are staying safe. As a group we need to bring to eachother's attention members who need healing thoughts or prayer sent their way.

If you know of anyone else who needs to be recognized in next months Sunshine Report , please email or call

You Know You are Having an Interesting Rockhounding Experience When...

1. You think you remembered to pack it all, get halfway to your destination, and —“Oh my gosh! I forgot the stupid—” (It's amazing how those inanimate objects get the blame sometimes!)
2. That one of the harsher twists of fate is when you get home and realize you left a one only tool back at the digs and that it will easily set you back ten bucks. It just aches to know some lucky dog after you is the richer for it.
3. You discover the freeway exit was several miles back and the field trip group is leaving in less than ten minutes. (Variable speed limits are great solutions.)

Local Area Shows for 2023

DATE & TIME	CLUB	SHOW	LOCATION
April 2023 1st 10am—6pm 2nd 10am - 5pm	Sweet Home Rock & Mineral Society	73rd Annual Rock & Mineral Show	Sweet Home HS Activity Gym 1641 Long St. Sweet Home, OR
April 2023 1st 10am—5pm 2nd 10am - 5pm	Maplewood Rock and Gem Club	Maplewood Rock and Gem Show	Maplewood Rock and Gem Clubhouse 8802 196th ST SW Edmonds WA
April 2023 14th 9am - 5pm 15th 9am - 5pm 16th 10am - 4pm	Willamette Agate & Mineral Society	66th Annual Rock and Gem show \$5, 11 & under free/adult	Polk County Fairgrounds 520 S. Pacific Hwy Rickreall, OR
April 2023 15th 10am - pm 16th 10am - 5pm	Idaho Falls Gem & Mineral Society	57th Annual Show \$3 adults, 12 & under free	Idaho Falls Recreation Center Corner of Memorial Drive and B St Idaho Falls, ID
April 2023 15th 10am - 5pm 16th 10am - 5pm	North Seattle Lapidary And Mineral Club	Annual show	Crown Hill Center 9250 14th Ave NW Seattle
April 2023 21st 10am - 4pm 22nd 10am - 5pm 23rd 10am—4pm	Yakima Rock & Mineral Club	59th Sparkling Parade of Gems Adults—\$6 Students—\$2.00 12 & under free	Central Washington State Fair Ground Modern Living Building 1301 South Fair Avenue Yakima ,WA 98901
April 2023 29th 10am - 5pm 30th 10am - 4pm	Lakeside Gem & Mineral Club	26th Annual Rock & Mineral Show \$5 adults, 12 & under free	Benton Franklin County Fairgrounds Building 2, 1500 S. Oak Kennewick, WA
April 2023 29th 10am - 5pm 30th 10am - 5pm	West Seattle Rock Club	55th Annual Rock Show	Alki Masonic Temple 4736 40th Ave. SW. Seattle, WA
April 2023 29th 10am - 5pm 30th 10am - 4:30pm	Grays Harbor Geology and Gem Society	55th Annual show	Grays Harbor Fair Grounds 43 Elma-McCleary Road Elma, WA
May 2023 6th 9am—5pm 7th 10am—4pm	Umpqua Gem & Mineral Club	Carnival of Rocks Annual Show	Douglas County Fairgrounds 2110 Frear Ave, I-5 Exit 123 Roseburg, OR
May 2023 12th 10am-8pm 13th 10am -6pm 14th 1-am-5pm	BC Lapidary Society	The BC Rock & Gem Show Admission—\$6 or \$12 3 day pass Students 6-17 \$2 Children under 6 free	Chilliwack Heritage Park 44140 Luckakuck Way Chilliwack, BC Exit 116 (Lickman Rd) off Hwy 1
May 2023 13th 10am - 5pm 14th 10am - 4pm	Hatrockhounds Gem & Mineral Society	\$3, 12 and under free	Eastern Oregon Trade & Event Center 1705 East Airport Road Hermiston OR
May 2023 13th 10am - 6pm 14th 10am - 4pm	Bozeman Gem & Mineral Club	Annual Rock Show \$3 adults, 12 & under free w/adult	Gallatin County Fair Grounds 901 N. Black, Bldg. #1 Bozeman, MT
May 2023 19h 10am - 5pm 20h 10am - 5pm 21st 10am—3pm	Mt Hood Rock Club	Mt Hood Rock Club's Rock And Gem Show	Kliever Memorial Armory 10000 NE 33rd Dr. Portland, OR., 97211
May 2023 20th 9am—5pm 21st 10am—4pm	Butte Mineral and Gem Club	Annual Show \$3 adults, 12 & under free w/ Adult	Butte Civic Center Annex 1340 Harrison Avenue Butte MT
May 2023 27th 10am—6pm 28th 10am—5pm	Everett Rock and Gem Club	68th Annual show	Evergreen State Fairgrounds 18359 Cascade View Drive Monroe, WA.

2024 SHOW & TELL THEMES and PROGRAM NIGHT EVENTS

MEETING	DATE	SHOW & TELL THEME	PROGRAM NIGHT EVENT
January - 1st Meeting	January 12, 2024	Crystals or any field trip finds	
January - 2nd Meeting	January 26, 2024	Last Years Purchase or any field trip finds	Field Trips
February - 1st Meeting	February 9, 2024	Red & Pink or any field trip finds	
February - 2nd Meeting	February 23, 2024	Hearts Made of Stone or any field trip finds	Carl Carlson
March - 1st Meeting	March 8, 2024	Green or any field trip finds	
March - 2nd Meeting	March 22, 2024	Geodes any field trip finds	Jerry's Rock Shop
April - 1st Meeting	April 12, 2024	Obsidian or any field trip finds	
April - 2nd Meeting	April 26, 2024	No Show & Tell	Auction/Potluck
May - 1st Meeting	May 10, 2024	Thundereggs or any field trip finds	
May - 2nd Meeting	May 24, 2024	No Show & Tell	Fluorescent Minerals
June - 1st Meeting	June 14, 2024	Any Agates or any field trip finds	
June - 2nd Meeting	June 28, 2024	No Show & Tell	Tailgate Party @ Grange Parking Lot
July - 1st Meeting	July 12, 2024	Metals or any field trip finds	
July - 2nd Meeting	July 26, 2024	No Show & Tell	Jerry's Rock Shop
August - 1st Meeting	August 9, 2024	Jaspers or any field trip finds	
August - 2nd Meeting	August 24, 2024	No Show & Tell	Picnic & Tailgate Party at club house on Saturday
September - 1st Meeting	September 13, 2024	Gemstones or any field trip finds	
September - 2nd Meeting	September 27, 2024	No Show & Tell	Mini Demonstration Day
October - 1st Meeting	October 11, 2024	Opals or any field trip finds	
October - 2nd Meeting	October 25, 2024	No Show & Tell	Auction/Potluck
November - 1st Meeting	November 8, 2024	Serpentine/Jade or any field trip finds	
November - 2nd Meeting	November 22, 2024	No Show & Tell	BINGO Night
December - 1st Meeting	December 14, 2024	No Show & Tell	Holiday Banquet/Officer Installation on Saturday
December - 2nd Meeting	No Meeting	No Show & Tell	

2024 Elected Officers

Title	Name	Phone	Email
President:	Tony Johnson	(253)863-9238	ynotopals@outlook.net
Vice President:	Nathan White	(206)349-7054	nate.white77@gmail.com
Secretary:	Patti Dailey-Shives	(253)678-0029	pattidailey28@gmail.com
Treasurer:	Jillian Higgins	(253)355-3146	J.Y.Higgins@gmail.com
Association Director:	Mark Baumann	(253-310-5891	rocksnreptiles4me@gmail.com
1 Year Director:	Richard Yang	(208)596-8340	ryang0711@gmail.com
2 Year Director:	Tasha Parker	(206)291-8068	surfange1830@gmail.com
1 Year Trustee:	Dennis Batchelor	(360)870-8741	hobbyhorse51@gmail.com
2 Year Trustee:	Glenn Rodrick	(253)531-4062	gtrodi@comcast.net

2024 Committee Chairs

Title	Name	Phone	Email
Clubhouse Coordinator	Tony Johnson	(253)863-9238	ynotopals@outlook.net
Club Show Coordinator	Jillian Higgins	(253)355-3146	J.Y.Higgins@gmail.com
Field Trips Coordinator	Nathan White	(206)349-7054	nate.white77@gmail.com
Web Master	Jillian Higgins	(253)355-3146	J.Y.Higgins@gmail.com
Editor/Communications	Jillian Higgins	(253)355-3146	J.Y.Higgins@gmail.com
Membership	Jillian Higgins	(253)355-3146	J.Y.Higgins@gmail.com
Sunshine	Tony Johnson	(253)863-9238	ynotopals@outlook.net
Newsletter	Jillian Higgins	(253)355-3146	J.Y.Higgins@gmail.com
Mineral Council	Mark Baumann	(253-310-5891	rocksnreptiles4me@gmail.com



WASHINGTON STATE MINERAL COUNCIL

The Puyallup Valley Gem & Mineral Club is a member of the American Lands Access Association and the Washington State Mineral Council. You can find more information about the ALAA at: amlands.org or the WA Mineral Council at:

HAPPY BIRTHDAY

April 2024

- Nathan Dyson – 2nd
- Pam Labrum – 2nd
- Victorious Fryer – 5th
- Erike Eriksen – 5th
- Diane Stangland – 5th
- Rachel Bjorklund – 7th
- Amanda Gregory – 7th
- Joshua McVey – 7th
- Jack Peckewham – 8th
- Apryl Benson – 10th
- Kyle Bostick – 10th
- Nate White – 10th
- Marsha Crane – 12th
- Jason Fabbi – 12th
- Cynthia Walsh – 13th
- Tamara Crane – 14th
- John Trivette – 14th
- Elizabeth Eriksen – 17th
- Tracy Orvis – 19th
- Del Crawford – 20th
- Molly Bender – 21st
- Matthew McVey – 23rd
- Aimee Wilson – 23rd
- Larry Rubida – 24th
- Martha Collins – 25th
- Mya Luguette – 25th
- Larry Hoffman – 25th
- Eric Loughmiller – 25th
- Brandon Stickney – 28th
- Tony Johnson – 30th
- Randie Welcher – 30th

THE UNIVERSE OF GEOLOGY

M I N E R A L S H T I L O H T A B
 E O S M P T I H S B Y O L N H E N
 T N C P L A T E S T E G T O S T O
 A S O R Y C I C I S L R C T P I I
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 P C R P G F R E A C Y D I U L F R
 U C B A S A L T A N T I C L I N E

- | | | |
|----------------|--------------------|-----------------|
| 1. ANTICLOINE | 11. FAULT | 21. MINERALS |
| 2. BASALT | 12. FLUID | 22. PEGMATITE |
| 3. BATHOLITH | 13. GEOLOGY | 23. PLATES |
| 4. COMPOSITION | 14. GLACIER | 24. PRESSURE |
| 5. CONTINENT | 15. HEAT | 25. SEDIMENTARY |
| 6. CORE | 16. INTRUSION | 26. SEISMIC |
| 7. CRUST | 17. KARST | 27. SUBDUCT |
| 8. CRYSTAL | 18. MANTLE | 28. TECTONIC |
| 9. ERODE | 19. METAMORPHIC | 29. UPLIFT |
| ERUPT | 20. MINERALIZATION | 30. WEATHERING |



ROCK-A-TEER

Newsletter of Puyallup Valley

Gem & Mineral Club

P.O. Box 134

Puyallup, WA 98371