

# The Lake George Gem and Mineral Club -

**Club News,**  
**April, 2012**



## Regular Meeting of the Lake George Gem & Mineral Club

Saturday, April 14, at 9:00AM (NOTE TIME CHANGE)

Denny's Restaurant, Woodland Park

The April 14th Club business meeting will be held at Denny's Restaurant in Woodland Park at 9:00AM (thanks to **Dan Alfrey** for making the arrangements). Following the business meeting, a seminar will be held at the Lap Shop, located in the Mountain Aspen Granite building, across from Safeway. **Sharon Holte** from the Colorado Springs Mineralogical Society and our own coordinators **Dick Lackmond** and **Richard Kawamoto** will present a program on the "Fun of Lapidary Arts". We will learn what can be accomplished using the various saws, the cab machine, polishing equipment and tumblers. Ideas will be shared on what to do with all those rocks most of us have accumulated thru the years. Dick is donating sunstones that have been tumbled but still have some rough on them, so we can practice polishing and take home a souvenir. All members are encouraged to join in this opportunity to learn more about the art and fun of lapidary work.

### Coming Events

- USGS Rocky Mountain Area Seminar Series:** "Conservation Paleobiology: Mining the Past to Plan for the Future", by Dr. Paul Koch; and: ... April 10
- "Discovery, Science, and Interpretation at the Snowmastodon Site, Snowmass Village, Colorado", by Jeff Pigati; 10:30AM, Bldg. 25 Auditorium, Denver Federal Center. ... April 24
- Columbine Gem & Mineral Society** monthly meeting, 6:30PM, Mt. Shavano Manor, 525 W. 16<sup>th</sup> (at J St.), Salida. ... April 12
- Flatirons Mineral Club Annual Silent Auction**, West Boulder Senior Center, 909 Arapahoe Ave., Boulder (just west of Boulder Main Public Library) ... April 12
- Gem, Jewelry, and Mineral Silent Auction**, North Jeffco Gem & Mineral Club, APEX Community Rec. Center, 6842 Wadsworth Blvd., Arvada. Starts 6:45; ends 9:15PM. For info: [linumas@gmail.com](mailto:linumas@gmail.com) . ... April 13
- Colorado Springs Mineralogical Society** monthly meeting, 7:30PM, Colorado Springs Senior Center, 1514 N. Hancock. ... April 19
- Pueblo Rockhounds** monthly meeting, 7:30PM, Westminster Presbyterian Church, 10 University Circle. ... April 19
- Colorado Mineral and Fossil Spring Show**, Ramada Plaza Hotel (formerly Holiday Inn), 4849 Bannock St. (frontage road on west side of I-25, north of I-70), Denver, 10-6 Fri., 10-5 Sun.; free admission and parking. ... April 20-22

- Mineral-Specimen Sale**, by Ray Berry, 9AM-4PM, 7513 Tudor Rd., Colorado Springs, ([rayber@q.com](mailto:rayber@q.com) for information). ... **May 5-6**
- Dinosaur Discovery Day** (first free public tour day of 2012), Dinosaur Ridge, Morrison (go to the website for more information). ... **May 5**
- Colorado Mineral Society Annual Auction**, Holy Shepherd Lutheran Church, 920 Kipling St., Lakewood. Contact Richard Nelson ([rsnelso@gmail.com](mailto:rsnelso@gmail.com)) for info. ... **May 5**
- Friends of Mineralogy, Colorado Chapter Silent Auction**, Clements Community Center, 1580 Yarrow St., Lakewood (just northwest of Colfax & Wadsworth) ... **May 12**
- Pikes Peak Gem & Mineral Show and Rock Fair**, Western Museum of Mining and Industry (<http://www.csms.us> for info) ... **June 22-24**
- Field Trip to Cripple Creek/Victor Mining District**, including a tour of the CC&V Cresson mine, led by Steven Veatch. Register (fee) at Cripple Creek Parks & Rec., phone 719-689-3514. ... **June 30**
- Lake George Gem & Mineral Club Annual Show**, Details to follow. ... **Aug. 17-19**
- Friends of the Florissant Fossil Beds 25<sup>th</sup> Anniversary Celebration**, with talks, tours, and banquet. Go to their website for details. ... **Aug. 18**

**Welcome New Member**  
**Bob Carlson**

**Club News**

♥♥ About 30 members and guests met for the March 10 program at the Lake George Community Center. **Dick Lackmond** talked about the program for April 14 (see above), and **Richard Kawamoto** passed around a polished amethyst, showing what can be done in the Lapidary Workshop. Dick also noted that advertising is out for the August 17-19 mineral show, with dealer reservations trickling in. Members agreed to contribute \$500 toward supporting an intern at the Florissant Fossil Beds this summer. **Beth Simmons** has agreed to serve as our proxy at the Rocky Mountain Federation meeting in Albuquerque later in March. The business meeting was followed by a program by **Bob Hickey**, a volunteer at Mueller State Park, who talked about "Western Geomorphology".

♥♥ Speaking of the RMFMS meeting in Albuquerque, it was announced at that meeting that **Andy Weinzapfel** received both the 2<sup>nd</sup>- and 3<sup>rd</sup>-place awards for an adult newsletter article. His 3<sup>rd</sup>-place award was for the article on blue quartz that was published in this newsletter in September, 2011. Congratulations on a job well done, Andy!!

♥♥ **Dick Lackmond** sent a link for a great website specializing in agates. It's the first volume of an e-book, this one on southwestern agates; Dick has a couple of images in it:  
[http://www.4shared.com/office/kXSw\\_m8-/2012\\_Agate\\_Index\\_Vol\\_1\\_Southwe.html](http://www.4shared.com/office/kXSw_m8-/2012_Agate_Index_Vol_1_Southwe.html)

♥♥ New Trip Coordinator **Richard Kawamoto** has booked two (2) early trips with local miner, LGGMC member, and mineral dealer **Joseph L. Dorris**; he has several others in the works (see below); and is seeking leaders and ideas for new localities! He can be contacted at [kawahome@wildblue.net](mailto:kawahome@wildblue.net).

♥♥ **Steve Veatch, John Rakowski, and Bob Carnein** are involved in a long-term project to number, photograph, label, and catalogue the mineral specimens at the Cripple Creek District Museum. The Museum has many truly superb examples of rare minerals found in the Victor

and Cripple Creek mines and elsewhere, and it is hoped that this effort will make those specimens more available for study by scientists and other Museum visitors.

♥♥ **Bob Carnein, Steven Veatch**, and Colorado Springs Mineralogical Society Junior Member **Zach Sepulveda** made up, administered, and graded the rock and mineral test given to high school and junior high school students at the Southern Colorado Science Olympiad. The test, which was given on March 3, was held at UCCS in Colorado Springs. Over 100 students from all over southern and central Colorado competed in this test, with several hundred participants overall.

♥♥ **Here are this month's "Bench Tips" from Brad Smith:**  
**NEWS ITEMS** ~~~ Two recent news items you may find interesting:

#### **Charles Lewton-Brain.**

Charles Lewton-Brain is one of the most popular writer-innovators in the jewelry/metalworking field. In this video he shares some of the principles that shape his philosophy.  
[http://www.youtube.com/watch?v=Hq\\_OTqF3u3k](http://www.youtube.com/watch?v=Hq_OTqF3u3k).

#### **Gold, Silver & Gemstone Motor.**

Hans Meevis shows off a miniature, working motor he built from scratch. It's about 60mm tall and contains 50 grams of silver and 12 grams of gold. Major parts of the assembly are cut and faceted from cubic zirconia. Hans and his wife Anne run Meevis Jewelry in Simpson Bay, St Maarten where he creates unique, fine designer jewelry.  
<http://ganoksin.com/blog/meevis/2012/02/19/minature-cz-motor-finished-and-running/>.

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### **BENCH TIP ITEMS**

#### **Drilling Small Items.**

Small pieces need to be held securely while drilling or burring, to prevent them from spinning if the drill catches. A quick solution is to hold the work piece with a pair of pliers or your ring clamp. Another alternative is to clamp your piece to the bench pin or a thin board. If using pliers, you can avoid scratches by putting a little tape over the jaws.



#### **Drilling a Stone.**

One of the things my students often ask to do is drill a hole through a piece of gemstone. The usual thought is to get a diamond drill, but I've found these often break or burn up. The reason, I

think, is that the drill pivots on the piece of diamond on the drill tip. By pivoting, the diamond does not cut. When it doesn't cut, you tend to add more force, and the drill is damaged by excess heat.

A much better approach is to use a core drill (see picture above). This is a small hollow tube with a coating of diamond grit at the business end. The diamonds easily carve out a circular arc without undue pressure or heat buildup. Core drills are readily available from lapidary and jewelry-supply companies. They come in sizes as small as 1mm and are reasonable in price, for instance \$6 for 2mm diameter.

Chuck up the core drill in a drill press or a Foredom, and be sure to keep the drilling zone wet to cool the tool and to flush out debris. Also, if you're drilling a through hole, go very easy on the pressure as the drill is about to break through. Otherwise, you will usually chip off some of the stone surface around the hole.

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More BenchTips by Brad Smith are at: [groups.yahoo.com/group/BenchTips/](http://groups.yahoo.com/group/BenchTips/) or [facebook.com/BenchTips](https://www.facebook.com/BenchTips).

♥♥ Field-trip coordinator **Richard Kawamoto** has the following trips lined up more or less firmly; **check the website for updates:**

**April 28:** Holcim quarry, jointly with DGMG (backup date is May 5)

**May 6:** Baculite Mesa

**May 19:** Topaz Mountain Gem mine

**June 2:** Hartsel barite locality

**June 9:** Smoky Hawk mine (after Club meeting)

**Sept. 15:** Picket Wire dinosaur trackways (requires registration by

Richard is also looking at possible visits to Two Creeks (barite/calcite); Buffalo Creek (peridot); North Table Mountain (zeolites); Spruce Grove; the Alma Placer; Creede; New Hope (amethyst) and/or Custer, SD area.

### ***Pebble Pups Corner***

At the April 17 meeting, Pebble Pups will learn "**Basic Map Skills**" from **Dan Alfrey**: How to use maps, why they're important, and how to be sure you can get back to the place where you found those great specimens on last year's field trips. This will be a fun, "hands on" program!

### **Colorado Springs School District 11 Honors Juniors in the CSMS Program**

By Steven Wade Veatch

The Colorado Springs School District 11 Board of Education honored the Colorado Springs Mineralogical Society's (CSMS) Junior Division for their work on an article about semiprecious gemstones used in ancient Egyptian artifacts, during a regular board meeting on February 21, 2012. The Superintendent of District 11 presented each student with a citation for their work and excellence in producing a publishable article that combined Earth science and archaeology. This was a joint effort with students from the Lake George Gem and Mineral Club, a student from Castle Rock, and an Internet student from Denver. The article won first place in the Rocky Mountain Federation of Mineralogical Societies (RMFMS) bulletin-editors' contest and third place in the national bulletin-editors' contest (American Federation of Mineralogical Societies). The article the students wrote, in collaboration with the Lake George Gem and Mineral Club and a Internet student, was published by *Deposits* magazine, an international, glossy type, rock, gem, and mineral magazine.

Lake George Gem and Mineral Club

**April, 2012**

The District 11 board room was filled with parents and grandparents taking pictures of the junior members of the CSMS during the presentation of citations from the superintendent. A reception was later held where Steven Veatch, leader of the CSMS Pebble Pup and Junior program, presented the students with their RMFMS and AFMS plaques. The students honored by the Superintendent of School District 11 were: Krystal Arnold, Victoria Arnold, Victor Gordillo, Kyle Helmick, Cameron Jesse, and Kurt Lahmers.

Several of these students continue to work with Steven Veatch and are writing original research papers that will be published in a literary magazine for teens. Victor Gordillo recently had one of his articles on a petrified tree cone published in a local newspaper. The members of the RMFMS and the AFMS are very proud of the accomplishments of these students.

During a reception following the formal recognition from the District 11 Board of Education, the students were presented with their AFMS and RMFMS plaques. Photo by J. Gordillo.



**Bob Carnein** is looking for one or more Pebble Pup or Junior members to take over the Pebble Pups Corner column of our newsletter. This fun activity will give you a chance to exercise your writing skills, and Bob will help with editing the column and suggestions about content. Contact Bob at [ccarnein@gmail.com](mailto:ccarnein@gmail.com).

**Steve Veatch** sent the following note about the Pebble Pups Poetry Initiative: "Today I just received word that *Deposits International Magazine* is very interested in the new thing we have started, and that is poetry. They are now going to run a column in every quarterly issue of the magazine. This column will include pebble pup/junior poetry from the CSMS and Lake George Gem and Mineral Club. This puts a big responsibility on all of the students and me, but it ensures the poems will be published and circulated internationally. This will be very exciting for all of our young poets.

Now, to that end, I will either have a workshop independent of the regular meetings or do it during our regular meetings. I am not sure yet."

Remember, parents and other guests are welcome to attend Pebble Pups meetings, which are normally held at **6PM on the third Tuesday** of the month in the **Lake George Community Center**.

## NOTES FROM THE EDITOR

Bob Carnein, Editor  
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719-687-2739



Sometime last year, **Beth Simmons**, Editor of the Denver Gem & Mineral Guild's "*Tips and Chips*" asked me to write an article on why quartz crystals come in different shapes. Here it is.

## A Quartz Quandary

by Bob Carnein

Newsletter Editor, Lake George (Colorado) Gem & Mineral Club  
(ccarnein@gmail.com)

Although quartz crystals come in various shapes, every mineral collector knows what a "typical" one looks like. It has vertical faces (called **prism** faces by crystallographers) and "pointy" terminations (Figure 1). The prism faces usually have horizontal striations, and the terminal faces are often unequally developed (Figures 1 and 2).



Figure 1. Quartz showing unequal development of terminal faces. (Carnein collection and photo).



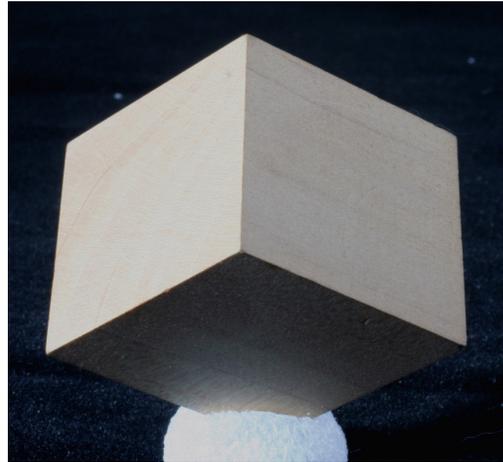
Figure 2. Quartz showing horizontal striations on prism faces and unequal development of terminal faces (Carnein collection and photo).

To a crystallographer, the terminal faces are grouped into two 6-faced forms, called the **positive** and **negative rhombohedron** (Figures 3 and 4). Rarely, only one

rhombohedron is present, in which case the crystal will have only 3 faces at the tip (Figure 5).



**Figure 3. Model of a + rhombohedron.**



**Figure 4. Model of a - rhombohedron.**

If a quartz crystal is doubly terminated, both rhombohedrons may be present, for a total of 12 faces: 6 on each termination (Figure 6). Occasionally, on a doubly terminated crystal, the two rhombohedrons can be distinguished on the basis of etching, coating by other minerals, a difference in luster, or pitting. In the example shown in Figure 6, one rhombohedron has etch lines while the other is smooth.



**Figure 5. Quartz with single Rhombohedron termination. A second, steeper rhombohedron underlies the termination. (Carnein photo and collection)**



**Figure 6. A beautiful, doubly terminated quartz crystal from Tibet. Notice that one rhombohedron shows etch lines. (Carnein photo and collection)**

Quartz is in the hexagonal crystal system. Within the hexagonal system, some minerals have much greater symmetry than others. "Ordinary" quartz is at the low end of the hexagonal symmetry scale, having a vertical 3-fold axis (meaning that, in a perfect crystal, everything repeats 3 times in a 360° rotation around the vertical axis). Quartz also lacks a mirror plane perpendicular to the vertical axis (meaning faces on the top of the crystal are not "mirror images" of faces on the bottom). This explains why, even if

the top and bottom of a quartz crystal look identical, there have to be 2 rhombohedrons (one + and one -) if there are 12 terminal faces. In each rhombohedron, the faces on the top alternate with those on the bottom (see, again, Figures 3 and 4).

Occasionally, the observant collector is likely to encounter a doubly terminated quartz crystal with 6 equally developed terminal faces on the top and 6 on the bottom, but lacking the "typical" vertical prism faces (Figure 7). Crystallographers call these "quartzoids" or say they exhibit "Cumberland habit" (so named because they are common at Egremont, Cumbria [aka Cumberland], in northern England) (Figure 8). At many localities, such crystals occur in gas cavities or as phenocrysts (relatively coarse grains) in silica-rich porphyritic rocks that formed at or near the Earth's surface. One can find them, for example, in the porphyritic rocks near Fremont pass, north of Leadville.

Explaining Cumberland habit involves what may be some new concepts. The first is that there are several minerals whose formulas are  $\text{SiO}_2$ . Ordinary quartz, called  $\alpha$ -quartz (aka "low" quartz), forms at temperatures below  $573^\circ\text{C}$  under a pressure of 1 Atmosphere (the temperature varies with the pressure, so scientists have to specify both). If the temperature is above  $573^\circ\text{C}$ , a different variety of quartz, called  $\beta$ -quartz (aka "high" quartz), is stable. These two minerals are dimorphs—they have the same



Figure 7. Model of a quartz crystal showing "Cumberland habit". (Carnein photo)



Figure 8. Quartz with hematite from Egremont, Cumbria, UK, showing typical "Cumberland habit". (Carnein photo and Collection)

composition but different internal structure. Both are made of the same molecules put together in nearly the same way. The important word is "nearly".

A subtle change in structure occurs when one crosses the temperature boundary. Quartz that crystallizes above  $573^\circ\text{C}$  has different (higher) symmetry than its low-temperature, lower symmetry, dimorph. Instead of a 3-fold vertical axis, it has a 6-fold axis. Unlike  $\alpha$ -quartz,  $\beta$ -quartz has a horizontal mirror plane, meaning the faces on the top are mirror images of those on the bottom (see Figure 7). This means that, instead of 2 sets of rhombohedrons making up the pointed terminations,  $\beta$ -quartz has a single

12-faced form called a hexagonal dipyramid (or bipyramid in some circles). Although the 2 rhombohedrons of  $\alpha$ -quartz may look identical to the dipyramid of  $\beta$ -quartz, they don't belong to the same **form**. [Def.: Essentially, a **form** is a group of faces that are interchangeable (e.g. the 6 faces of a cube, the 8 faces of an octahedron, the 6 faces of a positive rhombohedron, or the 12 faces of a dipyramid)]. What you see in Figure 7 could be a dipyramid (if it's  $\beta$ -quartz) or 2 equally developed rhombohedrons (in  $\alpha$ -quartz).

Another complication occurs when quartz crystallizes above 573°C but then cools to "normal" temperatures (i.e., temperatures at which you could handle it without asbestos gloves!). When  $\beta$ -quartz cools, it automatically converts to  $\alpha$ -quartz at the boundary temperature. However, the *apparent* symmetry of  $\beta$ -quartz is preserved—it doesn't change its shape. Thus, the collector ends up with a pseudomorph of  $\alpha$ -quartz after  $\beta$ -quartz. This is what those crystals from Fremont pass and Egremont are.

Which forms appear on a crystal depend on many variables. However, one of the most important is the speed at which the faces of a form grow. Where 2 forms develop on a crystal at the same time, the slower growing one controls the one that grows faster. This seems counterintuitive at first, but I think you'll understand what I mean if you look at Figure 9. The diagram represents a cross section of a growing crystal. In Figure 9a, the crystal has just begun to grow and has faces (the lines) belonging to 2 forms (we'll call them x and y). Suppose the diagonal lines in the diagrams are "y"; the vertical and horizontal lines are "x". Note that, as one "grows" the crystal from Figure 9a to Figure 9b, the crystal growth is slower perpendicular to the x faces. Usually, this would occur where there are more lattice points, per area, parallel to x than there are parallel to y—therefore, it takes longer to "fill in" an x layer than a y layer as the crystal grows. As the crystal continues to grow (Figure 9c), the x faces gradually "take over", at the expense of form y, until, in Figure 9d, form y has disappeared entirely.

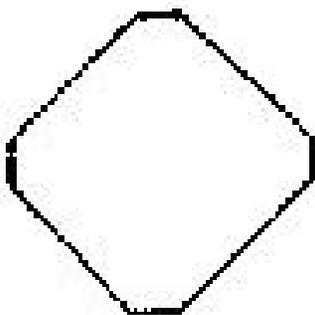


Figure 9a. "x" faces are vertical and horizontal; "y" faces are diagonal.

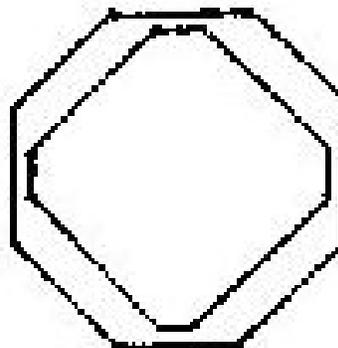
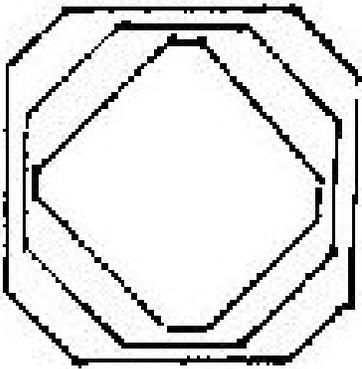
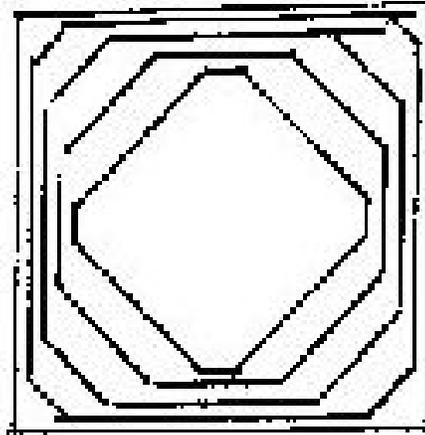


Figure 9b. "x" faces grow outward more slowly than "y" faces but get bigger as growth proceeds.



**Figure 9c. "x" faces continue to expand as "y" faces get smaller.**



**Figure 9d. Eventually, "y" faces disappear as slower-growing "x" faces expand.**

Now, remember that, in  $\beta$ - and  $\alpha$ -quartz, the terminal faces belong to 2 entirely different forms (a hexagonal dipyrmaid and 2 rhombohedrons, respectively). Using the principle developed in the previous paragraph, one can hypothesize that the hexagonal dipyrmaid of  $\beta$ -quartz grows significantly more slowly than the prism. As a result, the prism disappears (if it was ever present), leaving a crystal with a quartzoid or Cumberland habit. This habit is preserved when the crystal cools. A corollary of this hypothesis is that the rhombohedrons and prism in  $\alpha$ -quartz that formed below  $573^{\circ}\text{C}$  grow at more nearly the same rate, so that, rather than one out-competing the other, both are found on the final crystal.

Another possibility has to do with differences in the fluids surrounding growing crystals of high and low quartz. Low quartz commonly forms in hot, water-rich solutions (hydrothermal fluids), in which dissolved ions migrate relatively freely, resulting in high crystal-growth rates. It's interesting that, when "quartzoid"-type crystals occur in hydrothermal deposits, those deposits generally contain other minerals or metals typical of high-temperature hydrothermal deposition (e.g., tin, tungsten). However, such fluids probably never reach temperatures required for the formation of true high quartz. High quartz, on the other hand, forms in viscous, silica-rich magmas, where ions can only move about slowly. Forces attracting ions to dipyrmaid faces may be stronger than those attracting them to prism faces, resulting in preferred growth of dipyrramids.

Caution: there may be other reasons for the morphological difference between high and low quartz. As far as I know, the hypotheses I've proposed above have not been tested. However, they are consistent with what we know about how crystals grow and why a few simple forms dominate on most crystals, this being especially true of large ones. If you know of another explanation, please let me know!

For more information on quartz, and especially on quartz crystal habits, I recommend The Quartz Page: <http://www.quartzpage.de> .

**DUES ARE DUE! DUES ARE DUE! DUES ARE DUE! DUES ARE DUE!**

**Lake George Gem and Mineral Club**

Box 171

Lake George, Colorado 80827

LGGMClub.org

**2012 MEMBERSHIP APPLICATION**

Name(s) \_\_\_\_\_

Address \_\_\_\_\_ City \_\_\_\_\_ State \_\_\_ Zip \_\_\_\_\_

Telephone ( ) \_\_\_\_\_ - \_\_\_\_\_ E-mail \_\_\_\_\_

Names and ages of dependent members: \_\_\_\_\_

\_\_\_\_\_

Annual membership - dues Jan. 1 through Dec. 31 are as follows:

- Individual (18 and over) ..... \$15.00
- Family (Parents plus dependents under age 18) ..... \$25.00

Annual dues are due on or before March 31. Members with unpaid dues will be dropped from the roster after this date. **Any new member joining on/after August 30 shall pay one half the annual dues.**

I hereby agree to abide by the constitution and by-laws of this club.

Signed \_\_\_\_\_ Date: \_\_\_\_/\_\_\_\_/\_\_\_\_

I have previously been a member of Lake George Gem & Mineral Club. Yes \_\_\_ No \_\_\_

My interest areas include:

Minerals \_\_\_ Fossils\_\_\_ Lapidary \_\_\_ Micromounts \_\_\_  
Other \_\_\_\_\_

I would be willing to demonstrate any of the above for a club program or educational activity? If yes, which: \_\_\_\_\_

Please indicate which of the following activities you might be willing to help with:

Writing \_\_\_\_\_ Editor \_\_\_\_\_ Mailing \_\_\_\_\_ Local shows \_\_\_\_\_

Club Officer \_\_\_\_\_ Programs \_\_\_\_\_ Field trips \_\_\_\_\_ Refreshments \_\_\_\_\_

**Questions about the club or club activities? Contact John Rakowski (719) 748-3861**

Rev. Jan. 2011

**Lake George Gem and Mineral Club**  
**P.O. Box 171**  
**Lake George, CO 80827**

**The Lake George Gem and Mineral Club** is a group of people interested in rocks and minerals, fossils, geography and history of the Pikes Peak/South Park area, Indian artifacts and the great outdoors. The club's informational programs and field trips provide an opportunity to learn about earth sciences, rocks and minerals, lapidary work and jewelry making, and to share information and experiences with other members. Guests are welcome to attend, to see what we are about!

The club is geared primarily to amateur collectors and artisans, with programs of interest both to beginners and serious amateurs. The club meets the second Saturday of each month at the Lake George Community Center, located on the north side of US Highway 24 on the east edge of town, sharing a building with the county highway shops. **In the winter we meet at 10:00 AM. From April through September, we meet at 9:00 AM, to allow more time for our field trips.**

Our organization is incorporated under Colorado law as a nonprofit educational organization, and is a member of the Colorado, Rocky Mountain and American Federations of Mineralogical Societies. We also sponsor an annual Gem and Mineral show at Lake George, where collectors and others may purchase or sell rocks, minerals, fossils, gems or jewelry. Annual membership dues (Jan. 1 through Dec. 31) are \$15.00 for an individual (18 and over), and \$25.00 for a family (Parents plus dependents under age 18).

**Our Officers for 2012 are:**

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