

TAR HEEL



ROCKHOUND

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SEPTEMBER 2026

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Catawba Valley Gem & Mineral Club, Inc.

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2026 Officers and Committees

|                 |                                 |                |                                |
|-----------------|---------------------------------|----------------|--------------------------------|
| President:      | Ben Houston<br>704-284-2565     | Education:     | George Max<br>828-328-9107     |
| Vice President: | Joan Glover<br>828-446-7633     | Show Chairman: | Amanda Redfern<br>704-450-2273 |
| Treasurer:      | Terry Russell<br>828-303-1563   | Scholarship:   | George Max<br>828-328-9107     |
| Secretary:      | Dean Russell<br>828-303-1448    | Field Trip:    | Cindy Wechter<br>828-514-2142  |
| Editor:         | Tracie Jeffries<br>828-430-1341 |                |                                |

Club Address: PO Box 2521, Hickory NC 28603-2521  
Regular Meetings: Second Tuesday, 7:00 PM  
St. Luke's United Methodist Church 52 16th Avenue NW, Hickory NC 28601  
In the Family Life Center  
Annual Dues: Family, \$25, Individual, \$18

The purpose of the Club is to increase the individual's knowledge of the earth sciences and to aid in the development of lapidary and related arts and skills; to promote fellowship and exchange of ideas; to hold exhibitions, contests, lectures and demonstrations for educational purposes; to help interest more people in the gem and mineral hobby; and to capture and preserve the beauty of nature, the arts, and the works of man.

**CATAWBA VALLEY GEM AND MINERAL CLUB,  
INC.**

**Web Master: Mike Streeter**

<http://www.cvgmc.com>

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## **CVGMC MINUTES FOR AUGUST 11, 2026**

The August 11, 2026 meeting of the CVGMC was called to order by club member Amanda R. at 7:00 PM.

**Visitors:** Krista C., Lenora C.

**Program:** "Recent experience at Wild Acres" by Norma R.

**Minutes:** A motion was made by Harry P. and seconded by Rick G. to accept the July 14, 2026 minutes. Motion was passed by the Club membership.

**Treasurer Report:** Bank balance was reported.

**Education Committee:** Newton-Conover Library: A presentation on volcano's was presented to over 50 children and parents by Tracie J.

### **Show Committee:**

1. The CVGMC Annual Show for next year is April 9-11, 2027. We will be using the Hickory Room again.
2. There will be a membership table at the show with information about our club and members will be available to answer questions.
3. There was discussion about a theme for the show and several ideas were presented:
  - A) The amazing world of Silicates
  - B) Minerals we use in our daily lives.
  - C) Minerals that end in "ites"
4. Harry P. recommended that we dedicate the show to Wayne B.

### **Field Trip Report:**

1. Raleigh Museum of Science on July 18th – no one attended from the CVGMC.
2. August 1st Black Light Tour – 3 people from the club attended. It lasted about an hour and Cindy mentioned that it was definitely worth it.
3. Annual KY trip over Labor Day weekend. Harry said that if you've never attended it's worth going.
4. Aug 31st – Winston Club is going to the Knightdale Quarry in Raleigh. Starts at 10am until 2 or 3pm. Jeff S. said it is open to the Catawba Valley Club.
5. Oct. 24 and/or 25 Diamond Hill Mine, look for more information in September newsletter.

6. Oct 8-10 Crystal Grove - Herkimer diamond mine (possible)
7. Harry P. made a suggestion to meet in Hickory and car pool for field trips.

**Old Business:** none

**New Business:** none

**Announcements:**

1. Terry R. gave an update on Dean R. who had open heart surgery at the end of July.
2. Warren H. mentioned that the Hiddenite Museum is opening a Geology experience on the 2nd floor. He made a suggestion that if anyone is interested they can attend to see if there is a way the club can support this.
3. Tracie J. mentioned that Dan and Helen T., who used to be members, are moving and need to sell their collection. There will be an open house the weekends of 8/21-8/22 and 8/28-8/29 from 9am – 12pm. She will send out an email with more information.
4. Jeff S. suggested that we contact the Raleigh Museum about doing presentations for the Club.

**Closing of Business:** The meeting was adjourned at 8:14 PM

Respectfully submitted,  
Terry Russell, Treasurer

## **SEPTEMBER PROGRAM**

**TBA**

### **GEOLOGY MADE EASY: UNIQUE PROPERTIES FOR MINERAL ID**

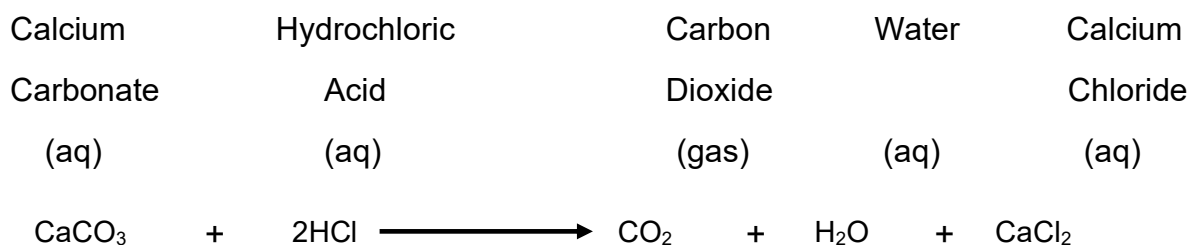
**By Tracie J.**

Over the last several months, the newsletter has focused on basic characteristics used to help describe and identify minerals such as cleavage, hardness, and luster. This article will cover some of the more unusual properties such as:

- Acid tests,
- Specific gravity,
- Magnetic properties,
- Taste, and
- Smell.

## ACID TEST

An acid test is used to test for carbonate ions ( $\text{CO}_3^{2-}$ ) in a rock/mineral. The most commonly used acid is a five to ten percent solution of hydrochloric acid (HCl). Vinegar may also be used, but it is weak and may not give accurate results. To test a sample, place a drop of acid on a dry, clean, and fresh surface. If the sample contains carbonate, it will effervesce or bubble (See Image 1). The bubbles are carbon dioxide produced when the acid reacts with the carbonate ions (See equation below).



Reactions are rated as strong, weak, very weak, or negative (no reaction) (See Table 1). This is important to note because it can help differentiate between similar rocks such as Limestone (strong reaction) and Dolostone (weak reaction). Some reactions are so weak that the sample may need to be crushed for testing, and a hand lens is needed to view the bubbles. Reactions may also be affected by impurities, acid strength, and temperature.

### NOTE:

- When using acid, wear gloves, protect your eyes, and avoid fumes.
- Keep the acid in a squeeze bottle and use it a drop at a time.
- Always test more than one spot to be sure.
- When finished testing, wash off the sample.



MAGE 1: A piece of Limestone showing the characteristic effervescence (bubbling) result when tested by acid. Source: Karla Panchuk (2020) CC BY-NC-SA 4.0.

| ROCK/MINERAL<br>NAME | COMPOSITION                                                                                                 | REACTION TO ACID  |
|----------------------|-------------------------------------------------------------------------------------------------------------|-------------------|
| Calcite              | Mineral - $\text{CaCO}_3$                                                                                   | Strong            |
| Limestone            | Sedimentary rock - $\text{CaCO}_3$                                                                          | Strong            |
| Aragonite            | Mineral - $\text{CaCO}_3$                                                                                   | Strong            |
| Marble               | Metamorphic rock – mainly $\text{CaCO}_3$                                                                   | Strong            |
| Dolomite             | Mineral - $\text{CaMg}(\text{CO}_3)_2$<br>Dolomite (and Dolostone) may need to be crushed to see a reaction | Weak to very weak |
| Siderite             | Mineral - $\text{FeCO}_3$                                                                                   | Very Weak         |
| Quartz               | Mineral – $\text{SiO}_2$                                                                                    | No Reaction       |
| Muscovite Mica       | Mineral                                                                                                     | No Reaction       |

TABLE 1: Examples of some common rocks and minerals and how they react to an acid test.

## SPECIFIC GRAVITY

What is specific gravity? The terms ‘density’ and ‘specific gravity’ are often used interchangeably but they are not exactly the same. Density is mass/volume with units such as

grams/cubic centimeter (gm/cm<sup>3</sup>). Specific gravity is the ratio of a matter's density to a standard substance, usually water or air (See Table 2 and Image 2), and it has no units. But why do geologists use specific gravity instead of density? To calculate density, you need to know volume, and it's difficult to calculate the volume of an irregularly shaped mineral specimen. Therefore, geologists use specific gravity, also known as relative density. However, at room temperature, the density and specific gravity of most minerals are virtually identical. Specific gravity is just easier to measure! Most collectors have digital scales and can easily calculate specific gravity at home following the steps below.

1. Weigh the mineral in air (basically weigh it on a scale)
2. Suspend the mineral in water and reweigh
3. Plug the values into the equation below and calculate the specific gravity

$$\text{Specific Gravity} = \frac{\text{Weight of Mineral in Air}}{(\text{Weight of Mineral in Air} - \text{Weight of Mineral in Water})}$$

| MINERAL   | SPECIFIC GRAVITY |
|-----------|------------------|
| Borax     | 1.7              |
| Halite    | 2.16             |
| Quartz    | 2.65             |
| Fluorite  | 3.18             |
| Barite    | 4.5              |
| Magnetite | 5.18             |
| Galena    | 7.4 – 7.6        |
| Gold      | 15 – 19.3        |

TABLE 2: The table above shows the specific gravity for several minerals. As expected, metals have a higher specific gravity compared to common minerals such as quartz. FYI - The specific gravity of water is one and objects with a specific gravity greater than one sink, and less than one float.



IMAGE 2: Historically there was an instrument, the Jolly Balance, used to calculate specific gravity. Today's technology makes it easier and more accurate. Note the set-up above.

## MAGNETIC PROPERTIES

Some metallic minerals react to magnetic fields, and this property can be helpful in identification. A mineral's reaction (or non-reaction) to a magnetic field depends on chemical composition, crystal structure, electron arrangement, temperature, and the type of magnet being used. Minerals that contain metals such as Nickel (Ni), Cobalt (Co), Chromium (Cr), Copper (Cu), and especially Iron (Fe) are more likely to react to a magnetic field. The topic of magnetism is quite complex and involves a lot of chemistry and physics. This article will discuss magnetism in a general and practical way useful for mineral identification.

The force of attraction to a magnetic field is measured along a continuum. But generally minerals are described as having a strong, moderate, or weak attraction to magnets. Note that the type of magnet used can influence test results; there is a large difference in the magnetic force between ceramic and neodymium magnets.

Some minerals have strong attractions and will move towards a nearby magnet. Magnetite ( $\text{Fe}_2\text{Fe}_3\text{O}_4$ ) is one of the few minerals that strongly reacts to a magnetic field and can also become permanently magnetized, hence its name. (See Image 3). Magnetized Magnetite is commonly referred to as loadstone. In ancient times, loadstones were highly prized

and used as primitive compasses for navigation. Other minerals may have moderate to weak responses. Some responses are so weak that special equipment, such as a magnetometer, is needed to measure the force.

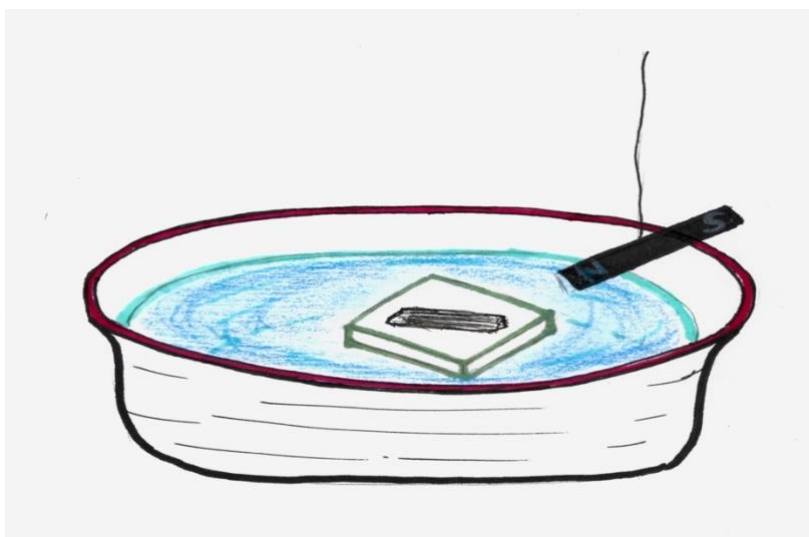
There are several ways to test for magnetic properties.

1. Take a magnet and slowly slide it closer and closer to a sample and observe what happens.
2. Freely hang a magnet from a string and observe the reaction as you pass the magnet over a specimen.
3. Place a small mineral sample on a piece of foam and float it in a bowl of water. Then hold a magnet close to the sample and observe the reaction. The water reduces friction, making it easier to observe weaker responses (Image 4).
4. To test if a mineral is magnetized, see if lightweight metal objects, such as small nails, paper clips, and staples, will cling to the specimen.

In reality, samples of the same mineral may vary greatly in their reaction to a magnetic field due to impurities, temperature, type of magnet used, and other factors. This variation is obvious when comparing different sources on mineral magnetic properties. Fortunately, simply knowing if a sample reacts to a magnet and/or if it's magnetized is usually enough to aid in identification.



IMAGE 3: This photo demonstrates two properties of Magnetite. One, Magnetite is strongly attracted to magnetic fields. Note the Magnetite crystals clinging to the magnet. Two, Magnetite is one of the few minerals that can become permanently magnetized. Notice how some Magnetite crystals are hanging from other crystals. Also note the paperclip attracted to a crystal. Photo by Tracie J.



MAGE 4: Schorl (Black Tourmaline) is weakly magnetic. To test Schorl, or other weakly reactive minerals:

- Fill a glass bowl with water.
- Float the sample on a small piece of foam. Let the water settle.
- This reduces friction that may prevent the sample from moving when placed on a solid surface.
- Hold a magnet in front of the sample and see if the foam floats towards the magnet (positive attraction), away from the magnet (repulsion), or if there is no movement (no reaction).

I have tried this, and it works. The foam raft with the Tourmaline slowly followed wherever I moved the magnet!

**TASTE**

There are some rocks and minerals that have distinctive tastes. However, licking specimens is not recommended since many rocks and minerals are toxic. But if tempted, it is best to wet a finger, touch the sample, and then taste your finger. This is safer than using your tongue directly on a rock/mineral. When I taught Earth Science, students could not resist licking the Halite samples (See Image 5). Over time my samples would slowly dissolve away and I would have to purchase new ones. Everything you taste must first be dissolved in water (saliva). Therefore, it is not surprising that easily soluble minerals such as borates, halides, and sulfates are the main minerals we can taste (See Table 4).



IMAGE 5: A Halite (salt) crystal from the Bochnia Mine, Malopolskie, Poland.

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| <b>MINERAL/ROCK</b> | <b>TASTE</b>              | <b>CLASS</b> |
|---------------------|---------------------------|--------------|
| Halite              | Salty                     | Halide       |
| Hanksite            | Salty                     | Sulfide      |
| Glauberite          | Bitter salty taste        | Sulfide      |
| Sylvite             | Bitter or sharp saltiness | Halide       |
| Epsomite            | Bitter                    | Sulfide      |
| Borax               | Sweet alkaline taste      | Borate       |

TABLE 4: Examples of minerals with distinctive tastes.

## ODOR

For humans to smell, a substance must be both volatile (be in a gaseous state) and soluble in water. These properties allow a substance to be airborne, dissolve through mucus, and bind to receptors. Most minerals do not naturally produce odors unless they contain certain chemical compounds, organic matter, undergo chemical reactions that produce gases, or undergo weathering. Even then, most samples must be moistened, heated, rubbed, or breathed upon to detect a smell. Why does breathing make it easier to detect an odor? You breathe out carbon dioxide, which reacts with moisture in the air and produces carbonic acid (See Reaction Below). Carbonic acid is a weak acid and can trigger chemical reactions that may release gases. Also, your breath is warm, and molecules can travel more efficiently.



Rocks and minerals are more likely to produce odors if they contain certain elements, chemical compounds, or organic matter (See Table 5). Some examples are discussed below.

### 1. Sulfides

Most people are familiar with the unpleasant smell of sulfur. The odor is caused by gases such as hydrogen sulfide ( $\text{H}_2\text{S}$ ). Gasses can be produced and released due to weathering and chemical reactions (See Image 6). Even breaking a rock/mineral can release trapped gas molecules and produce a notable smell. Common sulfur-containing minerals include elemental Sulfur, Pyrite, Galena, and Chalcopyrite.

### 2. Organic Matter

Rocks and minerals that contain organic matter can produce an earthy smell. This is mainly due to geosmin, a by-product produced by soil-dwelling bacteria breaking down the organic matter. This compound also produces the earthy smell often noticed after rain on dry soil. This scent phenomena is called “petrichor”.

### 3. Arsenic-containing Minerals

Native Arsenic gives off a mild garlic smell. Arsenic-containing rocks/minerals may produce a strong garlic smell if heated or broken/struck. However, heating these

specimens is not advised, as they release a toxic gas. Examples include Arsenopyrite, Realgar, and Orpiment.

#### 4. Clay Minerals

When wet, clay minerals have an earthy smell. This is due to the release of volatile organic compounds and the presence of hydroxyl groups in their layered structure.

#### 5. Bitumen-containing Rocks and Minerals

Bitumen is also commonly called pitch or asphalt. It can be found in natural deposits or refined from petroleum. It is very viscous and contains several aromatic components such as naphthalene, which gives mothballs their unusual odor. Bitumen can become incorporated into rocks and minerals such as Calcite, Marble, Dolostone, Dolomite, and Limestone. When rubbed or struck, these rocks/minerals can emit an unpleasant odor. Together, these rocks/minerals are referred to as Anthraconite or 'stinkstone'.



IMAGE 6: A volcanic fumarole emitting sulfur gases. Also notice the sulfur deposits where the gas exits. The fumarole is located on the Avachinsky volcano in Kamchatka, Russia.

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| MINERAL/ROCK | COMPOSITION                                 | SMELL                                                           |
|--------------|---------------------------------------------|-----------------------------------------------------------------|
| Pyrite       | FeS <sub>2</sub>                            | Sulfur smell                                                    |
| Sphalerite   | (ZnFe)S                                     | Faint sulfur smell when broken or crushed                       |
| Sulfur       | S                                           | Sulfur smell                                                    |
| Hematite     | Fe <sub>2</sub> O <sub>3</sub>              | Iron smell                                                      |
| Shale        | Clay mineral                                | Earthy mud smell when wet                                       |
| Kaolinite    | Clay mineral                                | Earthy clay smell when wet                                      |
| Amber        | Fossilized tree resin                       | Faint pine-like smell when heated                               |
| Oil Shale    | Contains kerogen a petroleum-like substance | Smells like diesel oil or tar                                   |
| Arsenopyrite | FeAsS                                       | Garlic odor if heated<br>WARNING HEATING RELEASES TOXIC ARSENIC |
| Anthraconite | Contains naphthalene                        | Unpleasant smell                                                |

TABLE 5: Example of some rocks and minerals with characteristic odors.

The properties examined above are a few of the many unique properties that can be used to help identify minerals. They are not common, but that is what makes them useful in narrowing down possibilities when trying to identify an unknown specimen. Other unique properties not discussed, include radiation, fluorescence, and various optical properties.

### FIELD TRIP OPPORTUNITIES

Our new field trip coordinator, Cindy W. is doing a great job. There are several trips the club may do depending on interest. **If you are interested in any of the trips below or need more information, please contact Cindy at:**

Email - [Pastorcindyw@gmail.com](mailto:Pastorcindyw@gmail.com)

Text – 828-514-2142

**PLEASE VIEW YOUR EMAIL FOR THIS MONTH'S TRIP OPPORTUNITY WITH DMC**

## **OCTOBER:**

October 8-10:

**NY Herkimer Diamond Trip** (if we get enough interest)

Crystal Grove Campground and Mine

County Road 114

Saint Johnsville, NY

(12 hour drive from Hickory)

Mining fee - \$16/day if NOT staying in campground

14/day if staying in campground

Mine hours – 9am – sunset

Camping: tent and RV; cabins (4 people \$115/night)

Other accommodations: several motels close by

October 24 (Sat) / October 25 (Sun) backup date:

**Diamond Hill Mine** / 100 Diamond Mine Road Abbeville SC

Mining Fees: adults \$18

Mining Hours: 9am-5pm

Overnight accommodations nearby:

Hotels:

- Belmont Inn
- Abbeville Motel

Camping:

- Hickory Knob State Park
- Calhoun Falls State Park
- Greenwood State Park

## WHAT'S HAPPENING IN OUR AREA

| WHAT                                                         | WHEN                                                                       | WHERE                                                                             |
|--------------------------------------------------------------|----------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| Treasures of the Earth                                       | Sept. 4 – 7<br>Fri Noon - 6:00<br>Sat/Sun 10:00 - 5:00<br>Mon 10:00 - 4:00 | North Carolina State Fairgrounds<br>4285 Trinity Rd<br>Raleigh , NC 27607         |
| Forsyth Gem and Mineral Club Show                            | Sept. 11 - 13<br>Fri/Sat 10:00-6:00<br>Sun 11:00-5:00                      | Dixie Classic Fairgrounds Educational Building<br>421 27th St NW<br>Winston-Salem |
| High Country Gem and Mineral Society<br>Gem and Mineral Show | Oct. 2 – 4<br>Fri/Sat 10:00-6:00<br>Sun 11:00-5:00                         | National Guard Armory<br>2025 Spartanburg Hwy<br>East Flat Rock                   |

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