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# The S A Gem and Mineral Club

Associated Member of **FOSAGAMS**  
34 Heath Street, Sydenham, PE South Africa, 6001

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Phone calls preferably after 17:00 weekdays

## NEWSLETTER - APRIL 2015

### SUBS ARE NOW DUE

R130.00 PER INDIVIDUAL, R150.00 FOR FAMILY AND  
R60 STUDENT

Payment can be made at the next Club meeting or  
By Direct Deposit or by EFT into the Club's Savings Account:  
SA GEM & MINERAL CLUB ABSA BANK Greenacres Branch  
Branch Code 632-005 Savings Account No 380 3157 1933  
PLEASE USE YOUR SURNAME AS REFERENCE FOR  
DEPOSIT AND ADVISE THE TREASURER, DONAE'  
0837735222

**LAST CLUB MEETING** Thursday 26th March 2015 at Donae' Stone's home in Sydenham at 7:30pm. There was a total of 12 members present. Donae' welcomed everyone into her lovely home and shared a few stories about her collectables. What a pleasant evening. Thank you Donae'.

The members then spent some time looking at some items on display and enjoyed tea, coffee and cake.

**CLUB WORKSHOP** : Members are encouraged to come and join us for Workshop on Saturdays 2—5pm. Please contact Angie or Reinhardt first.

Remember you only have one more month to finish your mosaic projects, due end of May 2015.

**NEXT MEETING** : 30th April 2015, at the Conference Room, St Saviour's Church Hall, Cnr Villiers Road and 1st Avenue, Walmer, at 7.30pm. Committee meeting at 7pm sharp. We will be watching a video on The Secret Life of Caves. The birthstone for April is diamond, so ladies and gents I want to see you wearing your bling bling:-). Members are also encourage to bring any samples of clear quartz to fill the display table.

### **BIRTHSTONE** : diamond

Diamond is the transparent, gemstone-quality crystalline form of carbon and it is the hardest known natural substance on earth. Diamonds are not only prized and famed for their exceptional hardness, but also for their high refractive index (brilliance) and their remarkably high dispersion rate of visible light (fire). Although traditional colourless or 'white diamonds' are by far the most popular coloured diamonds, yellow and brown diamonds (champagne and cognac) are actually the most commonly occurring diamonds. Other fancy diamond colours include blue, pink, red, green, orange and black. Red diamonds are actually one of the rarest gemstones in the world. Rather than owing their colour to traces of chemical impurities like most other types of coloured gemstones, the colour of red diamonds is the unique result of minute defects formed in the crystal lattice.

The name 'diamond' was taken from the Greek word, 'adamas', meaning 'invincible', a sheer tes-

tament to its remarkable and superior hardness. The superlative physical qualities of diamond are credited to the strong covalent tetrahedral bonding between its transparent crystals. Each individual carbon atom is connected to four other carbon atoms, all of which are very closely packed. This formation yields a remarkably strong three-dimensional cubic structure. Diamond's cubic crystal pattern is also completely symmetrical, which allows it to refract light in all directions at the same velocity (singly refractive).

Most diamonds form under extreme pressure and at very high temperatures, typically at depths of over 140 kilometres inside Earth's mantle. On average, diamond formation occurs over periods of 1 to 3.3 billion years, until they are surfaced through deep volcanic eruptions of a rare type of magma called kimberlite. Kimberlite is a ultramafic potassic igneous rock that also contains many other minerals like olivine, diopside, calcite, serpentine, garnet and small amounts of apatite, as well as various other upper mantle minerals. The kimberlite magma erupts from rare volcanic vents known as pipes or diatremes.

Diamonds can be very easily identified through thermal conductivity testing, which is in fact one of the most common tests done today by jewellers to distinguish diamonds from glass. Diamonds are one of the few singly refractive gemstones available and they have an unmistakable carbon-only composition (the same as graphite). Diamond is the hardest known substance on earth (10 on the Mohs scale) with a cutting resistance approximately 140 times greater than that of sapphire and ruby (9 on the Mohs scale). Diamond has a high refractive index and a considerably high level of dispersion. It is often imitated, but no other substance can rival its superior hardness. Many well-experienced gemologists can often identify diamond by its strong lustre alone.

Champagne, cognac and colourless 'white' diamonds are typically untreated. However, they may be artificially enhanced. Laser drilling can be used to remove inclusions; fissures and cracks may be artificially filled with glass. Many fancy colours can occur naturally, but most are produced through irradiation or high pressure / temperature treatment. Diamonds are often imitated or simulated. The process of synthesizing diamonds is very difficult and expensive, but lab-grown synthetic diamonds can be found.



THE MOUSSAEIFF  
RED DIAMOND



5.11 CTS

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Examples diamonds Cut & Rough.

Cullinan diamond before cutting