

# Jewelry Education – Gem guide

## Gem Guide

The hardness of each gemstone below is based on a gem-trade standard called the Mohs scale. The higher the Mohs scale number, the harder the stone is. The highest Mohs scale rating is 10, diamonds. Anything with a Mohs scale rating of less than 7 is easily scratched.

Mohs' scale of mineral hardness characterizes the scratch resistance of various minerals through the ability of a harder material to scratch a softer. It was created, in 1812, by the German mineralogist Friedrich Mohs and is one of several definitions of hardness in materials science.

**Alexandrite** Alexandrite is the birthstone for June (along with the Pearl) and the anniversary gem for the 55th year of marriage. It changes from green to red, mauve or brown in incandescent light. Alexandrite has a hardness rating of 8.5. There are many synthetic alexandrites on the market. Natural alexandrite is very rare. Alexandrite is found in Brazil, Madagascar, Myanmar, Russia, Sri Lanka and Zimbabwe.



**Amethyst** Amethyst is the birthstone for February and the anniversary gem for the 6th year of marriage. It is purple quartz and one of the most popular gemstones. It varies from pale lavender to deep purple with red highlights. Amethyst is generally abundant and quite inexpensive. It has a hardness of 7.



**Aquamarine** Aquamarine is the birthstone for March and the anniversary gem for the 19th year of marriage. It is light blue, blue-green and dark blue. It has a hardness of 7.5. Aquamarine often becomes paler if left out in the sun.



**Citrine** Citrine is the birthstone for November (along with Topaz) and is the anniversary gem for the 13th year of marriage. It is yellow to brown quartz. It varies from pale yellow to rich golden yellow to dark orange. Darker colors are more highly prized, including medium golden orange ("Rio Grande" citrine) and dark sherry-colored ("Madeira" citrine).



**Diamonds** Diamonds are the birthstone for April and the anniversary gem for the 10th and 60th years of marriage. They can be slightly yellowish, and in this general color range, but those most approaching absolute lack of color are most prized. However, brightly colored diamonds are much rarer and more expensive. It has a hardness of 10.



**Emeralds** Emerald is the birthstone for May and the anniversary gem for the 20th and 35th years of marriage. They are medium to dark green beryl, which derives its color from chromium and vanadium. Emerald has a hardness rating of 7.5. The best known sources include Colombia and Zambia. Almost all emeralds contain numerous small inclusions and fractures that promote fragility.



**Garnets** Garnet is the birthstone for January and the anniversary gem for the 2nd year of marriage. They are usually dark brownish to purplish red cut in small sizes (under 2 carats), as larger stones appear black. There are various types of garnet with the hardness ranging from 7 - 7.5.



**Jade** There are two types of Jade: Jadeite and Nephrite. Jadeite is rarer and the highest quality is known as imperial Jade. Jadeite comes in many colors: red, yellow, green, lilac, black, orange, white, pink, blue and brown. Jadeite has a hardness of 7. Nephrite Jade is more common and is often used in Chinese carvings. Nephrite Jade comes in various tones of green -- mostly with an olive green tone. It has a hardness of 6.5. Jade is the anniversary gem for the 12th year of marriage.



**Onyx**

Onyx is a rich-looking, affordable black stone that is the accepted gem for the 7th year of marriage. It is often mixed with pearls to create elegant jewelry. Onyx, sard, and sardonyx are all varieties of chalcedony (microcrystalline quartz). Onyx comes in brown, white, grey, and black. Sard is a reddish-brown variety. Sardonyx is a blend of sard and onyx with the red bands of sard and the white bands of onyx. Onyx, sard and sardonyx all have a hardness rating of 7.

**Opal**

Opal is the birthstone for October (along with Tourmaline) and the anniversary gem for the 14th year of marriage. Opals in large sizes are rare and costly, especially black opal. Usually cut as cabochons, sometimes beads. Occasionally found as fossilized (opalized) clamshells, snail shells, or wood. Transparent opals, such as Mexican red or orange fire opal, are often faceted. Values are normally determined by the presence and nature of color flashes (play of color). Opal's scratch hardness is measured at 6.0 to 6.5 on the Mohs' scale.

**Pearls**

Pearls are the birthstone for June (along with Alexandrite) and the anniversary gem for the 3rd and 30th years of marriage. They are formed in shellfish, as a reactant to an irritant such as a piece of sand. Cultured pearls are created by adding a piece of mussel or shell inside of an oyster of mussel. This then creates a pearl as layers of the inside of the shell grow over the added substance. The price of pearls vary widely as a result of luster, size, how they were grown, color and type. Natural pearls are the most expensive, followed by cultured pearls. Fresh water pearls tend to be relatively inexpensive. Pearls are generally white, brown, silver, cream, black or pink depending on the type of shellfish and water. Pearl has a hardness of 3.

**Peridot**

Peridot is the birthstone for August and the anniversary gem for the 16th year of marriage. It is a transparent lime or olive green. It has a hardness of 6.5. As with all gems, protect peridot from scratches and sharp blows. Also avoid large temperature changes (such as leaving it in a heater vent or in a hot car). Do not clean peridot in a home ultrasonic cleaner.

**Ruby**

Ruby is the birthstone for July and the anniversary gem for the 15th and 40th years of marriage. It may be any color of red depending on the chromium and iron content of the stone. Ruby has a hardness rating of 9. Generally, ruby is quite durable. Still, rubies are subject to chipping and fracture if handled roughly. Ruby is found worldwide. The finest stones are from Myanmar. Bright red stones are mined in: Afganistan, Pakistan, Vietnam. Brownish-red rubies are from Thailand. Darker stones are generally produced from the mines in Australia, India, Russia and USA (Georgia, North Carolina and Wyoming).

**Sapphire**

Sapphire is the birthstone for September and the anniversary gem for the 5th and 45th years of marriage. All gem quality corundum that is not red is called sapphire such as blue, orange, yellow, violet, green, white and pink. Unless a color is stated, sapphire is assumed to be blue. Some sapphires (color change sapphires) will change between blue and violet depending on the light. Sapphire has a hardness of 9. Generally, sapphire is quite durable. Still, sapphires are subject to chipping and fracture if handled roughly.

**Tanzanite**

Tanzanite is the birthstone for December (along with Turquoise or Blue Zircon). It may be blue, purple or slate gray. Tanzanite has a hardness rating of 6.5. Tanzanite is often heat treated to improve its color and clarity. Tanzanite can easily be scratched or chipped. Clean your Tanzanite with warm, soapy water and a soft bristle brush. Avoid using ultrasonic cleaning.

**Topaz**

Topaz is the birthstone for November (along with Citrine). It comes in many colors such as blue, yellow, pink, brown, green and clear. Orange-red "Imperial" topaz is rare. Topaz has a hardness of 8. As with all gems, protect topaz from scratches and sharp blows.

**Tourmaline**

Tourmaline comes in many colors such as blue, yellow, pink, red, black, green and clear. It has a hardness of 7.5. As with all gems, protect tourmaline from scratches and sharp blows. Pink Tourmaline (along with Opal) is the birthstone for October.

**Zircon**

Zircon is a natural stone - not to be confused with Cubic Zirconia which is manmade. It is



known as a colorless stone used to imitate diamonds but also comes in: blue, yellow, orange, red, brown and green. Blue Zircon is the birthstone for December (along with Tanzanite and Turquoise). It has a hardness of 7.5. Zircon is somewhat soft so avoid scratches and sharp blows. Avoid hot water and household chemicals.