

- **The 4 C's - Carat, Colour, Clarity, & Cut**
- **How to Choose a Diamond**
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- **The History of a Diamond**
- **Precious Metals**

The 4C's

There are four criteria used to assess a diamond. They deduce the diamond's rarity and hence value. These are standards and used in all the best gemmological laboratories in the world and throughout all aspects of the trade.

Carat

Simply, the carat is the weight of the gemstone. 1 carat is the same as 0.2g, and gems can easily be weighed on scales. When a gem is set an estimation as to the diamonds' weight is calculated by using measurements of the diamond.

Colour

Diamonds come out of the ground in many different colours, white, brown, black and grey. There are also the rare 'fancy' colours such as pink, blue, yellow and red diamonds. Fancy coloured diamonds are niche markets as they are extremely rare and therefore command very high prices.

In terms of the white diamond scale we are assessing the tint of yellow or brown in the diamond. Only 15% of diamonds that are mined come out of the ground 'gem quality' i.e. suitable for jewellery use.

A diamond will not always be completely colourless like a glass of water. There is often a slight tint in the material colour of the diamond (imagine adding a small drop of food colouring to that clear water).

It is often only obvious when the diamond is unset and viewed from the back on a white piece of paper.

In the gemmological trade we have an alphabetical scale from D colour to Z colour to represent gem-quality diamonds. D is the most rare and exceptionally colourless. Z represents those diamonds that nearly look yellow enough to be noticeable with the naked eye.

In the gem lab we use a set of 'Master stones', which is one of each diamond colour. We use these as a comparison scale and any diamond we grade we find where it fits relative to each of these markers of each colour grade.

In all jewellers there will be a range of diamond colours used in jewellery starting from L colour up to F. Then perhaps one E or D coloured diamonds. However these are very rare and carry a high premium so in any jewellers it would be impossible to assume all diamonds you look at are D colour.

The value of a D colour to and L colour can be as much as 4-5 times for visually very little difference, so certification exists to assist you in making an informed choice, it is fact essential!!

Clarity

Clarity is like the snowflake property. No two snowflakes are the same, and nor are two diamonds. This is mainly due to what we call 'inclusions'. These are what nature includes in the diamond's crystal structure as the diamond is forming or travelling through the earth.

All diamonds have inclusions and no two diamonds will have the same placement, size and number of inclusions. Making your diamond unique.

There is an element of rarity again altering the value of a diamond as regards to clarity. The likelihood of a diamond not coming out of this ancient process without some inclusions is rare. So diamonds with fewer inclusions demand higher premiums than those with more.

We can look at diamonds at very high magnifications so we will always find an inclusion in a diamond. In the lab the magnification level for grading clarity is fixed at x10 magnification.

We ask ourselves does that diamond have an inclusion, a small inclusion, very small inclusion or a very very small inclusion?

This brings up the scale of

I	SI	VS	VVS grade	LC/FL
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The Loup-clean grade or Flawless grade means at 10x magnification there are no visible inclusions.

Cut

The most subjective of the 4C's is cut. Nature controls the carat, colour and clarity of a diamond crystal. However the way the diamond is cut to maximise the brilliance and fire of the gem is up to the cutter.

There are in the most familiar styles of cutting for round brilliant diamonds, 57 facets or cuts on a diamond, always in the same format and placed with mathematical precision.

However because of the 57 facets there are infinite possibilities at to the exact angles, dimensions and placement of these facets. Each scenario offers a different way that light will pass though the diamond. Therefore it is very difficult to actually measure 'sparkle' and hence grade it.

NEW: The G.I.A. published in Nov 04 a cutting grade system, which will be be used as their own standard. [Link to to find out more.](#)

Therefore err on the side of caution when purchasing on sparkle alone. Be realistic, and look at your diamond under a wide variety of lighting, for example away from halogen showroom lights, and in daylight, shade and room lighting.

How to choose a diamond

A certificated 0.50ct, D colour and VS1 clarity diamond in a round brilliant is valued over £2000. A 0.50ct L colour and I3 clarity diamond in a round brilliant is valued around £500. They are both diamonds, they are both ancient, they are the same hardness and reflect light in the same way.

So which is the better diamond? The first is certainly the rarest but if you only have £500 and you see that when set there is no huge visible difference in the particular setting you like go for it!!!

A good diamond is the gem you love and fits your dreams. When choosing a diamond use the 4C's as a way to get exactly what you want. Some people go for 'bling', a diamond twice the size for the same value but adjusting the other of the 4C's to get exactly what you want.

When buying certificated diamond you can see if that diamond can meet your needs instantly, it is there in black and white, the colour, clarity and carat. In the end you choose your diamond, find your diamond's identifying inclusions and it is more special and treasured.

Enjoy the experience and choose your colour range using master stones, look at diamond under a Loupe (eye-piece) or microscope for clarity differences. This helps you choose your diamond.

Advantages of certification

Rarity in any object will influence its value. Rare paintings, cars and antiques are all more valuable, Chippendale vs. Ikea for example. Diamonds are no different. The scale of the 4C's set out a way to classify the rarity of a diamond's properties. 3 of the 4 diamond grading properties are controlled by Nature, so if something rarely occurs by Nature we can identify it and attach a true value.

How do we know if a diamond we are looking at is rare? That is where certification comes in. Every day diamonds are sent the foremost diamond grading labs around the world. They are graded by independent experts as to where that diamond fits on the International grading scale and given a certificate. So a seller can prove to a buyer the diamond they are selling what they say they are. In turn the buyer knows what they are looking at and can deduce if it is good value.

The exact classification of a diamond's rarity is not determinable by the naked eye. So in order to buy diamonds with confidence and security it is advisable to buy certificated.

Why to buy certificated

- You know exactly what grade diamond you are buying
- You can choose which properties of diamond quality you want confidently.
- Your diamond is identifiable for security and peace of mind
- Your diamond's value can be accurately assessed for insurance purposes.
- Your diamond's value will never be 'second-hand' it is that grade forever - it will never change.
- Your diamond will be upgradeable. At any time you can exchange your diamond to Diamondology and upgrade without losing any of your investment.

Are all diamonds certificated?

No, not all diamonds are certificated. This may seem strange as grading now seems essential. To grade a diamond costs, for example, £50. If a diamond has a value of £120 if it is the highest

quality for that carat weight and £100 at the commercial quality for that carat weight, is it worth spending £50 to confirm it? Economics says no. So smaller diamonds don't often come with a certificate.

If a diamond will alter in value between £7000 and £1500 depending on its quality will you spend £50 to be sure of its rarity? Economics says yes. So generally in the trade we see diamond being certificate from 0.50ct upwards.

At Diamondology to ensure we offer the choice to all our clients we stock diamonds from 0.25ct upwards certificated.

The History of a diamond

Diamonds are ancient crystals that are nearly as old as the earth itself. When a diamond's rarity is appreciated then its value is clearly apparent. In the time line of history the earth was created 4.2 billion years ago, the oldest diamond found is 3.3 billion years old with the average age of diamonds found so far are 2.4 billion years old.

Diamonds are estimated to be forming right now roughly 120 miles below the surface in the solid Upper Mantle (1000 football pitches). Diamond is pure carbon, just like graphite. The difference between the two minerals is that the carbon atoms are arranged differently in the softer graphite compared to the harder diamond.

This closer and more equal arrangement of carbon in the diamond forms only under extreme conditions. An extremely high pressure and temperature are both needed to cause this equal atomic arrangement. The pressure is 45,000 atm and the temperature needed is 1,600 Degrees C. in real terms for the pressure, imagine the Eiffel Tower in Paris, turn it upside down and then balance it on your finger!

So how do the diamonds arrive from 120 miles beneath our earth's surface? The solid Upper mantle where the diamonds are formed is 'floating' on the molten lava of the Lower Mantle. If at any time is a weakness or crack in the Upper mantle, the molten Lava will force its way through the weak area and burst through the surface. This is a volcano. By chance if this lava exploding through the Upper Mantle happens to pass through an area where diamonds are growing, the diamonds will be carried up with the Lava. Imagine the stresses of that journey for our diamond crystals!

The lava pipe will form a volcano on the surface and cool, leaving the diamonds inside the pipe down into the earth. This is what we call a Kimberlite pipe. When we see images of great circular open-pit mines the lava pipe is being mined down into.

It is predicted that the last diamond-bearing volcano erupted roughly 20 million years ago. So the diamonds we wear have been waiting to be found since then.

What are the precious metals used in jewellery?

Metals have been chosen over the ages for jewellery because of their ease to be easily manipulated or worked. This allowed metals to be formed into beautiful and ancient representations of wealth and status since the earliest civilisations.

Nowadays we see 3 metals more than others used in jewellery, silver, gold (in all its varieties) and platinum. Some metals making an impact into the industry are titanium and stainless steel but widespread use is not common.

Silver

One of the pure white metals we see in jewellery. Easy to wear and easy to work and extract so often seen in fashion jewellery. It is easily tarnished and is not suitable for larger gemstones, as it is not a hard wearing metal.

Gold

Revered since the Egyptian times gold's wondrous lustre has captivated people through the ages. It is a luxurious buttery yellow colour and at its purest 24 karat state is very soft, ideal for intricate jewellery. 24 karat gold is so soft in fact it can drawn across a piece of paper like a wax crayon.

Realistically we would wear our jewellery away very quickly if we used 24 karat gold, so we alloy it down to various grades to add strength to the gold. In Britain we tend to see 9 kt, 18kt, and occasionally 22kt.

This means that for 9kt gold 9/24ths or 37.5% is gold metal and the rest is alloyed. For 18kt gold 9/24ths or 75% of the mix is gold and the rest is other metals.

What is white gold and rose gold?

The natural yellow colour of gold can never be made fully white, so to make it as white as possible silver and zinc are used as alloys, then a layer of bright white rhodium metal (one of the platinum group of metals) is plated on the surface.

This means white gold jewellery must be re-rhodium plated to keep the bright white look.

Rose gold is adding the majority of copper into the gold mix, this produces a pink tint in the gold, hence called rose gold.

Platinum

Another naturally white metal platinum is one of the hardest metals used in jewellery and it has a greater 'heft' or weight than the equivalent piece in gold. It is hard to extract and more rare to find. Therefore it is more expensive than gold. It is becoming, however, a hugely popular metal because of its durability and suitability for pieces that are worn in the long term for example engagement rings and gents wedding rings.

If you brought together all the gold that has been mined in the world, it would fill 3 Olympic swimming pools. The amount of platinum mined would be ankle high in the first pool!!