

NAJ, JET 1: Assignment 1

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Assignment 1.1

(i) List **THREE** physical and **THREE** optical properties (including their values) for Aquamarine.

Three physical properties for Aquamarine are:

1. Aquamarine is fairly hard. Hardness is a measure of the scratch-resistance of gemstones (Hall, 2021, p. 16). Moh's scale of hardness for Aquamarine is $7\frac{1}{2}$ (Hall, 2021, p. 76), meaning that Aquamarine can be scratched by a gemstone of a higher hardness, and will scratch one of a lower value.
2. Specific Gravity (SG) indicates a gemstones density (Hall, 2021, p. 16). Aquamarine (SG: 2.69), will not feel as heavy as, for example, Goshenite (SG: 2.80) (Hall, 2021, p. 77); and is the least dense gemstone of the beryl 'family'.
3. Aquamarine has a poor cleavage direction (Hall, 2021, p. 17) so may leave a less smooth surface when broken along its internal atomic structure than for example, diamond, which has perfect cleavage.

Three optical properties for Aquamarine are:

1. Colour: shades of blue. In modern times valued colours are sky-blue and dark-blue, compared to the 'sea-green' preferred in the 19th Century (Hall, 2021, p. 76).
2. The lustre of Aquamarine is described as *vitreous* (Hall, 2021, p. 76), meaning a 'glass-like' appearance (Hall, 2021, p. 22).
3. The Refractive Index (RI) is a measurement of how much light passes through a gemstone, rather than reflects off a polished surface (Hall, 2021, p. 21). The RI of Aquamarine is 1.57-1.58 (Hall, 2021, p. 76)

(ii) Name **SIX** other members of the Beryl family of gemstones.

1. Emerald (green) (Hall, 2021, p. 75)
2. Heliodor (yellow) (Hall, 2021, p. 77)
3. Goshenite (colourless) (Hall, 2021, p. 77)
4. Morganite (pink/peach) (Hall, 2021, p. 78)
5. Red beryl/Bixbite (red) (Hall, 2021, p. 78)
6. Brown beryl (brown) (NAJ, 2022b, p. 4)

Assignment 1.2

Throughout its history Tiffany & Co have introduced several previously unknown gemstones to the jewellery world. Name **THREE such gemstones listing their colour and Mohs hardness value**

Three gemstones introduced by Tiffany that were previously unknown to the jewellery world are: kunzite (introduced by Dr. G.F.Kunz in 1902), morganite (in 1910); and tanzanite (introduced by Tiffany, 1968) (Tiffany & Co., 2022).

Their colour and Moh's hardness values are:

Kunzite (colour: lilac-pink; Moh: 7); and is actually a variety of Spodumene (Hall, 2021, p. 120).

Morganite (colour: pink, rose, peach or violet; Moh: $7\frac{1}{2}$) (Hall, 2021, p. 78).

Tanzanite (colour: green and yellow (in Tanzania and Kenya), Moh: $6\frac{1}{2}$) is a variety of Zoisite (Hall, 2021, p. 116)

Assignment 1.3

Describe FIVE precautions you would need to take into account when measuring a Customer's finger size.

1. Ensure that your customer is not tense; and their hand is relaxed before you attempt to size their finger.
2. Be aware of weather conditions. Hot weather can cause fingers can swell making the size too big so a ring may slip off a finger once the hand has cooled down. The opposite effect in cold weather as the finger would swell once warmed, causing the ring to be too tight. Ensuring your customer's hand is 'room temperature' to give a more accurate measurement.
3. Equally, fingers can swell due to muscle tension when carrying excessive baggage (for example, shoulder bags). In this case, make sure the customer is free from carrying bags before measuring their finger size.
4. Be aware that engagement rings might need adjusting after a wedding ring is in place, since they are worn higher up the finger.
5. If you are inexperienced, ask a colleague to check your sizing.

All information taken from NAJ (2022g)

Assignment 1.4

(i) What are the two types of laser hallmarking.

1. Outline laser mark (also known as incuse mark).
2. Relief laser mark.

(ii) Describe what type of item is more suited to each type of lasering.

Outline laser marking is more suitable to use on delicate items of finished jewellery. For example, jewellery that may be hollow or of an intricate design, where it would be difficult to use traditional methods of hand-punch or hydraulic press hallmarking that would cause damage due to the pressure used.

On the other hand, relief laser marking can be used on large objects such as, silverware, key-rings or money clips, where the item is large enough to use the hallmark as a feature or display mark. This is carried out with precision, causing no damage (NAJ, 2022d).

Assignment 1.5

Upselling is an important trait of a good sales consultant. Using different products list THREE examples of upselling.

1. *Rings*: explaining the differences between platinum, palladium, yellow or white gold (NAJ, 2022i); and the benefits of various carat fineness (ct) in, for example, 9ct, 18ct or 24ct gold (NAJ, 2022c), would help the customer to understand the quality of the ring.
2. *High-end watches*: showing the finer details of prestigious pieces (NAJ, 2022i). Perhaps encouraging the customer that buying one could be a good investment.
3. *Gemstones*: describe the cut of the gemstone, for example. One could show how light reflects off the facets giving the gemstone its lustre (Hall, 2021), which may help the customer to understand the meaning of its description.

Assignment 1.6

The Princess-cut Diamond is a very popular choice for many customers. List FIVE advantages & ONE disadvantage of the Princess-cut Diamond.

Five advantages of the Princess-cut Diamond are:

1. An increased 'sparkle' due to the extra number of facets (N=78 (NAJ, 2022a), though there could be between 49 and 78 facets (Dundek, 2022, p. 39).
2. The cut lends itself to good effect on deep stones, which helps retain carat weight and the affected cost.

Due to the number of cuts:

3. The brilliance and fire produced, is increased.
4. Colouration is not as noticeable in a Princess-cut diamond.
5. Inclusions are not so visible.

One *disadvantage* of the Princess-cut diamond is that the points in the corners of the square stone are susceptible to damage; and should be protected to help prevent chipping (NAJ, 2022a).

Assignment 1.7

What is the difference between chasing and engraving.

Chasing and engraving are both techniques to add designs to jewellery. The difference is that chasing involves embossing shapes or letters into the metal with shaped punches; and engraving creates designs by removing, or cutting into, metal (NAJ, 2022f) with specialist engraving tools.

Another difference is that engraving can also be used on gemstones, and is particularly used in creating a family crest or a persons' initials on a signet ring (NAJ, 2022g).

Assignment 1.8

Describe FIVE properties that make silver such a popular precious metal in jewellery.

There are many properties of silver for example, it is relatively inexpensive; and has similar qualities to gold. Five properties of silver are, 1. it is soft enough to be pliable in that it can be bent into intricate designs without cracking. 2. Silver can be drawn into various narrow-gauges for wire (see Rings & Things Staff, 2021) due to its ductility (NAJ, 2022c), for delicate jewellery making. 3. As silver is malleable, it can be rolled into thin sheets (NAJ, 2022c; Stice, 2021); 4. Silvers' reflecting ability is very good (NAJ, 2022c); and has been used in the production of mirrors since early times for example, in China around 500CE, by covering metallic objects with silver-mercury amalgams (AC Silver, 2023); and in modern times by applying a thin layer of molten silver onto the back of a plate of glass in a vacuum (Mirror History, 2023). Finally, the fifth property of silver is that it can be tempered for the production of items such as knife blades (Albert, 2020; NAJ, 2022c).

On a side note, a negative property of silver is that, unlike gold, it can be tarnished by nitric and sulphuric acids (NAJ, 2022c).

Assignment 1.9

Name THREE different types of watch glasses (crystals) and describe an advantage for each one.

Three different types of watch glasses (crystals) available are:

1. Plastic (or acrylic glass).
2. Mineral sapphire.
3. Synthetic sapphire (NAJ, 2022k).

There are advantages for each type of watch crystal, for example, an advantage of plastic crystals is that they are relatively inexpensive and used in cheaper models. Mineral sapphire crystals are common in affordable watches and have the advantage of being more scratch-resistant than plastic. Synthetic sapphire crystals offer the greatest scratch resistance and are used in prestigious watch brands (Pender, 2022).

Assignment 1.10

A vital component of most necklaces is the clasp or fastener. Describe THREE different types of fastener & list ONE feature for each one.

Three types of fastener for necklaces are: 1. claw-style, 2. spring-ring; and 3. threaded-screw clasps (NAJ, 2022e).

The claw-style clasp (sometimes known as *lobster-claw* due to its shape) is fairly common and easy to use by pulling a lever on the claw-side which snaps shut on closure (Authority Jewelry, 2022). They can be large or small depending on the weight of the necklace design.

Spring-ring clasps are very popular for necklaces due to being easy to use and affordable (Authority Jewelry, 2022). They operate by sliding a small lever against a spring inside the round fastener (Wedding KnowHow, 2021), which closes on release to secure the ring on the other end of the chain.

Threaded-screw clasps are generally barrel-shaped and have an external thread on one piece and an internal thread on the other. When each piece is attached to each end of a necklace they are designed to screw together, holding the necklace in place. They come in various shapes and sizes, colours and metals, to suit items of jewellery; and it can be difficult to screw the separate parts together (Authority Jewelry, 2022; Wedding KnowHow, 2021), especially by touch alone, or in front of a mirror.

One feature for each fastener type described above are:

1. Claw-style clasp: These are very strong clasps and suitable for heavy chains (International Gem Society, 2022; Wedding KnowHow, 2021).
2. Spring-ring clasp: Perfect for lightweight chains (Wedding KnowHow, 2021).
3. Threaded-screw clasp: Good for securely holding the chain of the necklace together (Authority Jewelry, 2022; Wedding KnowHow, 2021).

Assignment 1.11

In the event of an armed raid upon your store list THREE things that you SHOULD DO and THREE that you SHOULD NOT DO

In the event of an armed raid on your store, three things you *should* do are

1. Do what the thieves say without question.
2. Give them the items they demand.
3. Stay out of their sight (if you not in the vicinity).

Three things you *should not* do are:

1. Do not take risks. Taking risks might endanger you or your staff/colleagues.
2. Do not fight back. Risk of injury or even death is too high.
3. Do not operate the alarm (unless you can without being noticed).

All examples from The National Association of Jewellers (NAJ) Security PDF (NAJ, 2022h).

Assignment 1.12

List SIX silverware items that you would recommend as suitable gifts for a baby girls christening.

Six items of silverware suitable as gifts for a baby girl's Christening are as follows:

1. An expanding silver bangle as it will fit the wrist as the child grows.
2. A silver bracelet.
3. A silver pendant.
4. A silver drinking cup.
5. A silver bead-charm.
6. A silver spoon or fork.

All of these items can be kept as a memento of the special occasion, some, such as an expanding bracelet, pendant, cup, bead-charm, spoon or fork could be used in the future (NAJ, 2022j).

Words: 1866

References

- AC Silver. (2023). *The History of Mirrors*. <https://www.acsilver.co.uk/shop/pc/History-of-Mirrors-d337.htm>
- Albert. (2020). Can You Make a Knife Out of Silver? In *Forging World*. <https://forgingworld.com/can-you-make-a-knife-out-of-silver/>
- Authority Jewelry. (2022). 31 Types of Necklace Clasps (with pictures) [Blog]. In *Authority Jewelry*. <https://authorityjewelry.com/necklace-clasps/>
- Dundek, M. (2022). *Diamonds* (3rd. ed.). Noble Gems.
- Hall, C. (2021). *Gemstones* (New ed.). Dorling Kindersley Limited.
- International Gem Society. (2022). Jewelry Nomenclature: Gem Bracelets and Necklaces [Article]. In *International Gem Society*. <https://www.gemsociety.org/article/the-nomenclature-of-jewelry-part-2-bracelets-and-necklaces/>
- Mirror History. (2023). History of mirrors - The earliest man made mirrors. In *Mirror History*. <http://www.mirrorhistory.com/mirror-history/history-of-mirrors/>
- NAJ. (2022a). *Diamonds* (pp. 1–17) [Download].
- NAJ. (2022b). *Gemstones* (pp. 1–16) [Download].
- NAJ. (2022c). *Gold, platinum, palladium and silver* (pp. 1–19) [Download].
- NAJ. (2022d). *Hallmarking* (pp. 1–8) [Download].
- NAJ. (2022e). *Jewellery* (pp. 1–7) [Download].
- NAJ. (2022f). *Manufacturing* (pp. 1–15) [Download].
- NAJ. (2022g). *Rings* (pp. 1–14) [Download].
- NAJ. (2022h). *Security* (pp. 1–13) [Download]. <https://naj.connectedportfolio.com/learner/programs/39983/741289/view/enrollments/1430/lists>
- NAJ. (2022i). *Selling & customer care* (pp. 1–32) [Download].
- NAJ. (2022j). *Silverware & gifts* (pp. 1–6) [Download].
- NAJ. (2022k). *Watches & clocks* (pp. 1–13) [Download].
- Pender, C. (2022). Types of Watch Crystals: A Complete Guide [Blog]. In *Watch Researcher*. <https://www.watchresearcher.com/types-of-watch-crystals/>
- Rings & Things Staff. (2021). Wire Jewelry 101 [Blog]. In *Rings & Things*. <https://www.rings-things.com/blog/wire-jewelry-101>

Stice, E. (2021). Jewelry Metal Sheet: Guide to Gauges and Tempers [Article]. In *Halstead*. <https://www.halsteadbead.com/articles/jewelry-metal-sheet-guide-gauges-tempers>

Tiffany & Co. (2022). *A Legacy of Discovery*. <https://www.tiffany.co.uk/high-jewelry/tiffany-gemstones/>

Wedding KnowHow. (2021). 16 Types of Jewelry Clasps – A Complete Guide. In *Wedding KnowHow*. <https://weddingknowhow.com/jewelry/types-of-jewelry-clasps/>