Careers
Welcome!

From raw materials to design and into the retail store, there are many career opportunities in the gem and jewelry industry. Today we’ll look at some of these careers as we take a glimpse into the amazing world of gemology.

We will look at how gemstones move from the earth to the final piece of jewelry that is cherished by the customer. As we look at this process, you’ll learn about some of the exciting careers available in the gem and jewelry industry. Finally, you’ll learn a little about the Gemological Institute of America (GIA) and what GIA does to support the gem and jewelry industry.
About GIA

GIA is a school and a laboratory. Many scientists and teachers work there. GIA has been teaching students gemology (the study of gemstones), developing equipment, and setting standards in the gem and jewelry industry since 1931.

People who want to work in the gem and jewelry industry come from all over the world to study at GIA. They learn how to identify and evaluate gems and how to design and make jewelry.

GIA has the world’s largest gemological library. It’s called the Richard T. Liddicoat Gemological Library and Information Center. The library collects and preserves books about gems and jewelry. It has more than 57,000 books. The oldest one dates back to 1496.

GIA also collects and preserves mineral specimens, jewelry, gem art, and gemological equipment.

Their schools around the world have beautiful gems on display.
Mine to Market

There are many steps in the process of getting a gemstone out of the ground and into a piece of jewelry or into a store. The term “Mine to Market” is used to describe this process.

Here are the steps in the Mine to Market process:

**GEM DISCOVERY:** Gems are discovered in exotic locales like Tanzania, Vietnam, Brazil, and Australia.

**ROUGH SALES:** Uncut gems known as ROUGH are bought by brokers, dealers, and cutters, who then sell to wholesalers in gem centers around the world.

**IDENTIFICATION:** Laboratories identify and grade gems. Graders examine diamonds, colored stones, and pearls.

**CUSTOM DESIGN:** Jewelry designers combine design methods ranging from traditional hand sketching to sophisticated computer programs.

**JEWELRY MANUFACTURING:** Jewelry designers and bench jewelers set gems and create pieces that will be treasured for generations.

**GEM AND JEWELRY SALES:** Rare and valuable pieces are sold through auction houses. Other gems and jewelry are sold at retail and online stores around the world.
Field Gemologist

A gemologist is someone who studies gemstones.

A field gemologist is someone who not only studies gemstones, but also travels around the world to visit mines and new sources of gem material.

Field gemologists collect samples for further study in a laboratory environment.

A successful field gemologist must have a solid understanding of gemology, mathematics, chemistry, and current pricing and consumer trends within the gem and jewelry market.

Expeditions to remote mining areas require trekking through a variety of conditions.

Field gemologists must be adaptable to different terrain, weather, and security conditions.

Expeditions to remote mining areas require trekking through a variety of conditions.
Climbing a wet, slippery trail in Vietnam

Rough gemstones

Rough and polished gemstones at a gem market in Vietnam
Small-scale mining operation in Cambodia

Sorting through the mined material searching for gemstones
Gem mining is typically done with heavy machinery, hydraulic shovels, and trucks to recover diamonds from the ground. Colored gemstone mining is much different, usually involving gem miners who use tools such as picks and shovels to break up the rock. Once the rock has been collected, miners carefully sort through the material looking for gemstones.

The Diavik Diamond Mine in Northern Canada is one of the largest diamond mines in the world. It includes power, water, fuel storage, and living and sleeping quarters for mine workers. It's basically a small town!
Buyer

Once the gemstones have been pulled from the ground, they are processed and sorted by color, size, and quality. After the sorting is complete, the rough gemstones can be sold, but not to just anyone!

A buyer is a person who buys rough gemstones. The buyer then sells the rough gemstones to gem cutters, jewelry designers, or collectors. The rough gemstone trade is not open to everyone. Often new buyers must establish trust and build relationships before they are free to trade.

Buyers often travel to remote locations to participate in buying and selling of rough material.

The buyer must know current market values and what gemstones are popular at the time.
Trade shows can be an excellent source of rough and polished gems.

Examining emerald in Jaipur, India
Courtesy: KK Gems Trading Company

Looking for ruby at gem market in Vietnam
The rough stone is first cut using a saw.

The cutter carefully examines the stone before cutting and shaping.

The stone is then attached to a brass rod called a "dop."

The dop allows the cutter to control the stone while creating facets and polishing.
Gem Cutter

Before the rough gemstones can be mounted into jewelry, they need to be cut and polished.

The person who cuts, shapes, and polishes natural and synthetic gemstones is known as a gem cutter.

A gem cutter must have great knowledge of gemology, jewelry design, and the very specialized process of cutting and polishing gemstones.

A gem cutter cuts, shapes, and polishes natural and synthetic gemstones in an effort to bring out the best color, size, and beauty.

The gem cutter begins by closely examining the stone, evaluating the quality and the best cut to use.

Next, the gem cutter carefully plans the final shape of the stone that is needed. This can be tricky depending on whether the stone will be used in a necklace, a ring, a bracelet, or something else entirely.

Once the planning is complete, the gem cutter works with various tools to cut, shape, and polish the gemstone.

If you like to be creative, enjoy working with tools, and have great pride in your craftsmanship, perhaps the role of gem cutter is something you would enjoy.
Each piece of jewelry is carefully crafted.

Some designers create the jewelry themselves. Others send the designs to jewelry manufacturers.

Jewelry designers start with a sketch.
Jewelry Designer

Much like amazing works of art and beautiful music, jewelry begins with an idea, an INSPIRATION. These ideas and inspirations are brought to life by very talented people who can capture and translate these concepts into design sketches. These people are called jewelry designers.

The process begins with meeting the client and listening to their ideas. Then the designer creates a sketch incorporating the client’s ideas. Some designers work with metals, gemstones, and other materials to create magnificent pieces of jewelry for customers, while others provide jewelry manufacturers with the design for final production.
Jewelry Manufacturer

Do you like gemology, art, and working with tools? Creating jewelry from raw materials is an art that requires very specific skills and knowledge.

Jewelry manufacturers must understand the fundamentals of jewelry engineering as well as the techniques required to create and repair jewelry.

Jewelry manufacturers can make or repair jewelry, and they work with a wide variety of special tools that help them to saw, solder, engrave, polish, and much more!

Many successful jewelry designers and manufacturers start as bench jewelers and learn their skills through educational programs and over time on the job.

This jewelry manufacturer is using a torch to prepare this ring for gemstones.
Computer-Aided Design/Computer-Aided Manufacturing (CAD/CAM) is another method used to create custom-designed jewelry. Sketches are used to communicate the design (1). The CAD model is created using special computer software (2), and then the file is processed by the 3D printer (3). The 3D printer creates a model of the final piece (4), which is compared against the initial design (5). The metal casting is then made (6), gemstones are selected and added to the metal casting, and the final piece of jewelry is provided to the customer (7).
Laboratory Gemologist

Laboratory gemologists use high-tech lab equipment and microscopes to study gemstones. They also figure out how to identify gemstones by their physical properties, which can help explain how gems are formed.

Gemologists must be able to solve intellectual and practical problems using scientific methods.
Retailer

Purchasing jewelry can be a very personal experience. Often people make the decision to buy jewelry to mark a significant life event.

A retailer is someone who works with customers to identify an appropriate piece of jewelry.

However, the world of retail gem and jewelry careers includes sales, marketing, appraisal, buying, merchandising, management, and much, much more.

A retailer must be honest and friendly and be a good listener. An effective retailer must also have passion and confidence about what they’re selling and be ready to answer questions from the customer.

Retailers can build trust through honesty and product knowledge.

Building relationships can help to create return customers.
When photographing jewelry, proper lighting is essential.

Jewelry photographers have to get creative to capture the perfect shot.
Photographers must know about various photography tools such as cameras, lenses, lighting, and staging. However, photographing gemstones and jewelry is a very specialized skill.

Gemstone photographers must also have knowledge of how different gemstones react to light and what color is best to present.

To be successful, you'll also need to understand photo editing software. This software makes it possible to correct color to match the actual gemstone and to adjust background or modify shadows.

Patience is also a key in capturing the brilliance and beauty of gems and minerals.

Remember, practice makes perfect. The more pictures you take, the better you’ll get at it!
Teacher

Did you know that most of your teachers like to learn new things too?

Great teachers love to learn! That’s why they spend most of their day helping others enjoy the learning process.

A gemology teacher can show students how to identify and evaluate a wide variety of gemstones.

A jewelry arts teacher can show students how to design, create, and repair jewelry of all types.

Both types of teachers are likely to have experience in the gem and jewelry business.

Jewelry Design and Technology teachers help students create wax prototypes of their CAD jewelry designs.
At GIA, teachers help students understand the identifying characteristics and qualities of diamonds and colored gemstones.

Jewelry Manufacturing Arts teachers show students how to create designs using computer software and how to transform those computer designs into jewelry.

Gemology teachers show students practical skills they will use in their career.
CROSSWORD PUZZLE

Across
2. One of the December birthstones
3. A birthstone thought to provide powers of prophecy
5. Unit of measurement for gem weight
8. A tabletop magnifier
10. A gem’s ability to withstand wear, heat, and chemicals

Down
1. A person who studies mineralogy
4. Organic gem that is the birthstone for June
6. The basic unit of all matter
7. Small, portable magnifying lens
9. City where GIA headquarters is located
A loupe is a handheld magnifier. It’s capable of making an object appear 10 times larger than it actually is. 10X is the standard magnification used throughout the gem and jewelry industry to look at gemstones. Benefits of a loupe are that it’s portable and easy to use once you get the hang of it.

A darkfield loupe is a handheld magnifier with its own light source. Darkfield illumination means that you’re lighting the gemstone from the side against a built-in black, non-reflective background. This helps you to see inside the gem.

Tweezers are the instrument gemologists use to hold stones. They help prevent the oils from your fingers from getting on the gem. They’re also used for sorting large quantities of small stones.

A gem cloth is used to remove debris and oils from stones. It also keeps your stone in a safe place while you’re examining it. A penlight is a small handheld light source that is the size of a pen. It supplies additional lighting and is used to check for phenomena in gemstones.
GIA’s mission is to ensure the public trust in gems and jewelry by upholding the highest standards of integrity, academics, science, and professionalism through education, research, laboratory services, and instrument development.

GIA was established in 1931 by Robert M. Shipley. Mr. Shipley wanted to create an institute to educate jewelers and the world about gems and jewelry. GemKids is just one part of his legacy.

Do you want to become a gemologist? Keep exploring the world of gems and jewelry. Be sure to visit gemkids.GIA.edu.

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