



Diamond Jewelry

7 The Diamond Studies Course

Diamond Council of America © 2011

Diamond Jewelry

In This Lesson:

- The Setting for Beauty
- Diamond Moments
- Diamond Settings
- Jewelry Forms and Styles
- Design and Manufacture
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- Gold and Platinum
- Branded Jewelry
- The Right Choice

THE SETTING FOR BEAUTY

A diamond is made to be worn, admired, and enjoyed. This fact alone would make the jewelry in which a diamond is set important. In addition, however, jewelry makes its own contributions to diamond's appeal.

Like a crystal vase holding a rose, a setting of fine jewelry enhances the beauty of a diamond and the pleasure it gives. To the diamond's radiance, fire, and sparkle, jewelry adds the satisfying dimensions of visual composition and the sensation of touch.

The setting can also become part of a diamond's meaning. Few events represent more emotion than the giving or receiving of a diamond. However, the full meaning of the event may depend on the jewelry that's involved. Given as a gift, a diamond set in a ring often carries a very different message than a diamond set in a pendant.

The setting's overall style has significance, too. Diamond jewelry designs can be simple and classic, elegant and sophisticated, bold and provocative. They may be inspired by a variety of sources. In a deep and profound way, they can also reflect the identities and personalities of those who wear the jewelry.



Photo courtesy Elite.



Photo courtesy Judith Conway.

Cover photo courtesy The Hearts On Fire Company.

The Diamond Studies Course 7

Beyond aesthetics and symbolism, diamond jewelry embodies value. It combines artistic talent and skilled labor with rare gems and precious metal. In previous lessons, you learned how the 4Cs affect a diamond's price. In much the same way, the artistry, workmanship, and materials that make up a piece of fine jewelry determine both its quality and its cost.

When you shop for diamond jewelry, you already know all this on a subconscious level. In this lesson, you'll come to consciously recognize the appeal and meaning in a piece of jewelry. You'll learn to interpret design and understand quality. You'll learn why branded jewelry is growing in popularity. All of this will help you select jewelry that provides a perfect setting for diamond's beauty, and is the perfect way to express what you feel.

Artistry,
workmanship,
and materials
affect jewelry's
value.

Lesson Objectives

When you have successfully completed this lesson you will be able to:

- Fully appreciate the connection of diamond jewelry with important occasions.
- Recognize types and styles of diamond jewelry.
- See the appeal, quality, and value of diamond jewelry.
- Shop for branded diamond jewelry intelligently.
- Make diamond jewelry selections confidently.

DIAMOND MOMENTS

Jewelry is an art form that evolved with the human desire to create beauty and command Nature. The oldest jewelry yet found was made around 80,000 years ago. That was when prehistoric cultures were also beginning to decorate their tools, utensils, and dwellings. Diamond jewelry first appeared in Europe during the Roman Empire (about 2,000 years ago). However, it was probably worn in India, the most ancient source of diamonds, long before then.

Some jewelry is purely ornamental, but diamond jewelry has always held great symbolic meaning. From primitive amulets to glorious crowns, objects adorned with diamonds have signified the highest powers and rarest achievements. They've marked turning points for individuals, and sometimes entire civilizations.

In Lesson 13 you'll look at the magic and romance that have surrounded diamonds over the centuries. For now, it's important to recognize that today—as it has been throughout history--diamond jewelry is closely linked to outstanding moments in a person's life.



*Napoleon
Necklace*

*Courtesy
Smithsonian
Institution.*



The diamond engagement ring tradition is hundreds of years old, presumably starting with this ring given by Austrian prince Maximilian to French princess Mary of Burgundy upon their betrothal in the 1400's.

Engagement

Engagement signals the decision to share life with one special person. The custom of giving engagement rings began thousands of years ago with gold betrothal rings in Roman times. Placing the ring on the fourth finger of the left hand also began with the Romans. They believed there's a direct connection between that finger and the heart.

History first records a diamond engagement ring in the 1400s. An Austrian prince named Maximilian gave one to the French princess Mary of Burgundy as a symbol of his love and her betrothal. For centuries after that, diamond engagement rings belonged to royal courtship. They became a mainstream American tradition in the 1900s.

In the US, around 2½ million couples become engaged every year, and 8 out of 10 commemorate it with a diamond engagement ring. For most people, an engagement may be the most significant diamond moment in their lives.

Many couples select their ring together. It can be a trying as well as joyful process. Each person may have a different priority in the selection. The man may concentrate on the diamond's 4Cs, and the woman on the ring's appearance and style. Try to understand each other's concerns. Keeping your focus on romance and the diamond's symbolism can help.

Today a popular engagement ring choice is the **diamond solitaire**. This is a band of precious metal set with a single sparkling diamond. Other designs feature various arrangements of smaller **accent diamonds** (sometimes called **side diamonds**) that dramatize the larger center gem. For you, a solitaire might express the love of a lifetime, while a center diamond among accent stones represents the importance of the relationship amid all of life's busy activities.



The diamond solitaire is today's most popular engagement choice.

*Photo courtesy
The Hearts On Fire Company.*



Many engagement rings feature a center diamond among smaller accent diamonds.

Photo courtesy JCK.

Wedding

A wedding is a rite that symbolizes the union of two lives, and the exchange of rings is a focal point of the ceremony. This is the moment when women most often express their feelings with the gift of diamonds. Many men also give diamonds at this time. For both sexes, the diamonds are most likely to be set in the wedding rings.

There are numerous diamond wedding ring designs from which to choose. Many couples prefer different styles for bride and groom. Some select a **wedding duo** of matching rings. Others decide on a **trio** – two wedding bands that coordinate with the design of the bride's engagement ring.

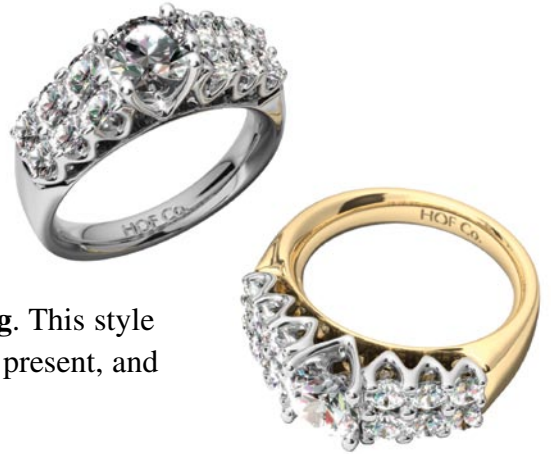
Whatever the choice, the ring's circular form is an age-old emblem of eternal love. Diamond's beauty, purity, and strength aptly reflect qualities of that devotion.

Anniversary

An anniversary is the time when two people celebrate what they share. Apart from engagements and weddings, anniversaries are also the most frequent occasions for giving diamond jewelry. Husbands typically shop for and purchase anniversary jewelry alone. The message they usually want to send is: “I’d gladly marry you all over again.”

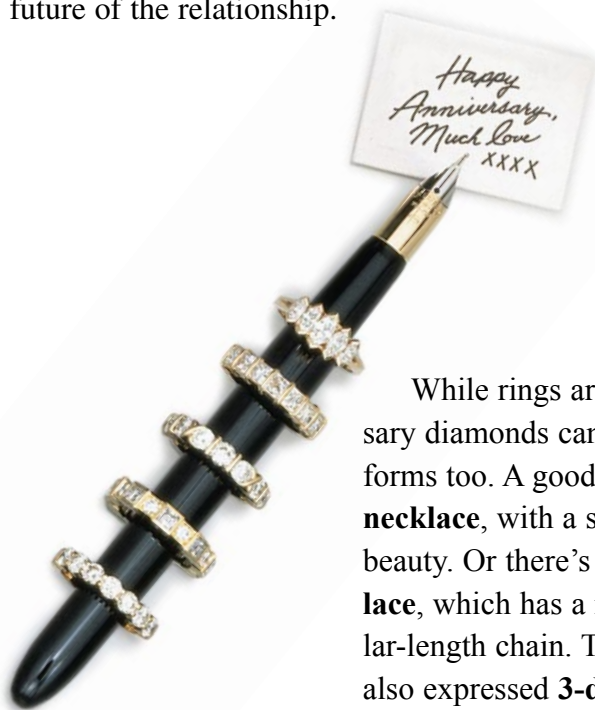
For several decades, a favorite for this affirmation has been the diamond anniversary band. One version of this style is the **eternity ring**. It features a complete circle of small diamonds.

Rings with fewer but larger diamonds set on top have always been high on the list of anniversary selections. In recent years, however, the meaning of the anniversary diamond has been raised to a new level by the **3-Diamond Anniversary Ring**. This style is distinguished by three fine diamonds that symbolize the past, present, and future of the relationship.



The wedding ring’s circular form is an age-old symbol of eternal love.

Photo courtesy The Hearts On Fire Company.

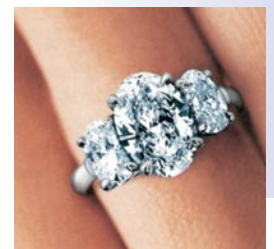


The diamond anniversary band sends the message, “I’d marry you again... and again... and again...”.

Photo courtesy Diamond Promotion Service.

While rings are definitely most popular, anniversary diamonds can deliver their messages in other forms too. A good example is the **diamond solitaire necklace**, with a single diamond shining in isolated beauty. Or there’s the **diamond anniversary necklace**, which has a row of diamonds attached to a collar-length chain. The “past, present, future” theme is also expressed **3-diamond pendants**.

Another great option for anniversaries is **Journey Diamond Jewelry**. Available in earring and pendant designs, this concept features diamonds of graduated sizes that symbolize how love grows over time.



The 3-diamond Anniversary ring symbolizes past, present and future.

Photo courtesy Diamond Promotion Service.

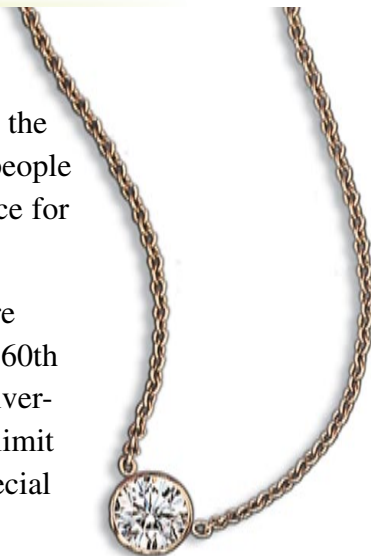
Other selections are appropriate as well. A diamond bracelet can signify the circle of a life together. Diamond earrings can represent the beauty of two people acting in harmony. In fact, any type of diamond jewelry makes a good choice for an anniversary – as long as its quality befits the occasion.

Any anniversary is right for the gift of diamonds. Some anniversaries are traditionally more significant than others, however. In the US, the 10th and 60th anniversaries have long been marked by diamond gifts. Today the 25th anniversary is an important diamond moment as well. However, you should never limit yourself to these particular anniversaries. The 6th, 8th or 17th may have special significance to you, worthy of commemorating with diamonds.

Diamond earrings are a shining representation of the beauty of a pair acting in harmony.



Some diamond moments are less predictable than those of courtship and marriage, but are also significant milestones in life.



The diamond solitaire necklace serves as a worthy symbol of ongoing commitment.

Photo courtesy Diamond Promotion Service.

Special Events

Other diamond moments are less predictable than those associated with courtship and marriage, but they can be just as meaningful. These include special events like birthdays, job promotions, and the births of children or grandchildren.

On these occasions, you may select diamond jewelry as a gift. At other times, you may purchase the jewelry as a way to express pride in your achievement, or some other emotion.

Within the last few decades, women in particular have been buying more and more diamond jewelry for themselves. This trend reflects their growing success in business, professional fields, and other endeavors. It's fueled by their increasing desire and willingness to reward themselves, as well as a growing sense of personal style and a determination to have jewelry they like and enjoy. This trend is almost certain to continue into the future, too.

When women buy diamond jewelry for themselves, it may mark a professional achievement or personal milestone. It may make a statement, or become an element of individual style. It's an essential component of every wardrobe, and a terrific way to celebrate "just being me."

Within the last few decades, women have been buying more and more diamond jewelry for themselves.



Photos courtesy Rina Limor for J.R. Gold Design.



Many kinds of diamond jewelry can be appropriate to buy for yourself or as a special event gift. Earrings, necklaces, and bracelets are frequent choices. The **right hand ring** is popular, too. This style is adapted from traditional designs, but its message is distinct. While left hand rings symbolize engagement and marriage, right hand rings represent self-expression and individuality.

Whatever the event, diamonds are a way to celebrate many of life's happiest times and feelings. Fortunately, there is a wide variety of diamond to suit to each moment and message.

DIAMOND SETTINGS

You should never lose sight of the reason you're buying diamond jewelry. However, there is a place for practicality, too, when you begin to look at the jewelry quality. Understanding quality begins with understanding the parts of diamond jewelry.

You probably think of the **setting** as the entire piece of jewelry. Professionals often use the term this way as well. However, in more a technical sense, the "setting" is the way in which a diamond is held.

There are two basic categories of settings – those designed for individual diamonds and those for groups of diamonds.

Individual Settings

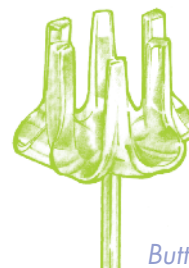
- **Prong setting** – In this setting style, slender metal claws hold the diamond. A prong setting can raise the diamond above the main body of the jewelry, accentuating it and allowing light to strike it from all directions. The **Tiffany setting** for rings is a familiar type of prong setting. It usually has four prongs (but can have six) with V-shape openings between them. Originally introduced in the 1800s by Tiffany & Co, this style is still a favorite today. Another prong style that's sometimes used for earrings and pendants is called the **buttercup setting**. It has prongs extending from a scalloped base. Prong settings for diamonds are usually manufactured in one piece. These units are often referred to as "heads."



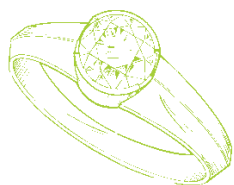
Tiffany Setting



Point Prong Setting



Buttercup Setting



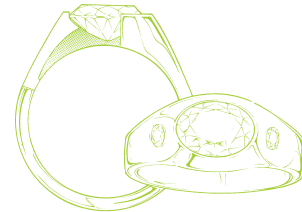
Bezel Setting



*Photo courtesy
William Schraft.*

- **Bezel, Box, or Tube setting** – In this type of setting, a metal collar or rim wraps around the diamond and slightly over its edge. This protects the diamond and makes the setting a prominent element of the design.

- **Gypsy setting** – In gypsy setting, a metal rim formed from the body of the jewelry holds the diamond. Like a bezel it provides protection. This is a traditional and popular setting style for men’s rings. A similar style, called **flush setting**, is used for small diamonds. The diamonds are set deep into the jewelry metal, so the tops of their tables are even (or flush) with the jewelry’s surface.



Gypsy Setting



Tension Setting

- **Tension setting** – In tension settings, opposite ends of a circular jewelry form, such as a ring, hold the gem by the force of tension alone. Through a special process the jewelry metal is repeatedly heated and cooled, making it exceptionally “springy.” This creates the tension that holds the diamond, which appears to float within the design.

*Photo courtesy
Steven Kretchmer.*

- **Illusion setting or Miracle top** – In illusion and miracle top settings, tiny prongs or metal beads hold a diamond that’s surrounded by a bright, white metal rim. The reflective framing makes the diamond appear larger.

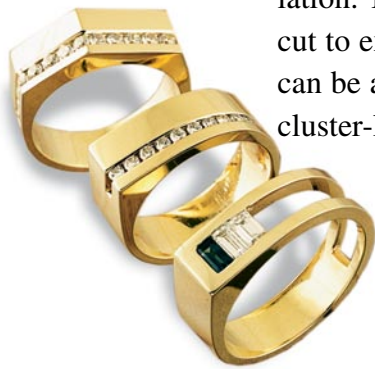


Illusion Heads

Photo courtesy Stuller.

Group Settings

- **Cluster setting** – In cluster settings, a number of diamonds are set close together in a symmetrical pattern. A typical version is the seven-diamond cluster, with six small diamonds circling a larger center diamond. Sometimes this style of setting can look like a single large diamond.
- **Bead Setting** – In bead settings, the diamond is fitted into a recessed **seat** that's formed in the metal. Then a special tool is used to force in the walls of the seat (usually at four points, forming a square). The pushed-in walls hold the diamond in place, but the technique also raises small amounts of metal, which are formed into decorative beads. This setting style is most often used for diamonds that weigh 1/4 carat or less.
- **Channel setting** – Channel settings typically features rows of small diamonds set side-by-side between parallel ridges of metal. The diamonds form bands or ribbons of brilliance and scintillation. To be channel set, the diamonds must be cut to exactly the same dimensions. The style can be adapted to single diamonds and even cluster-like arrangements.



Channel Setting

Photo courtesy Diana.



Cluster Setting

Photo courtesy Stuller.

- **Bar setting** – With a bar setting, the diamonds are held in place by short metal ridges (or bars). For a ring, the bars are usually perpendicular to the band. This creates a bold modern linear look that shows off each diamond individually. Bar settings can also be used for solitaire designs

- **Pavé setting** – In pavé setting, small diamonds (usually round) are prong-set next to each other across the jewelry’s surface. The term, pronounced pa-VAY, means “paved” in French, and the appearance is like a glittering diamond veneer.



Diamond pavé earrings.

Photo courtesy Henry Dunay.



Invisible Setting

Photo courtesy JCK.

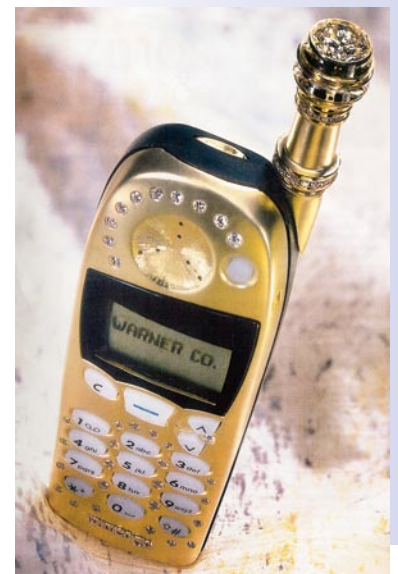
- **Invisible setting** – With invisible setting, small square diamonds (usually princess cut) are set side-by-side into a wire-like framework. The filaments of the frame fit into grooves cut in the diamonds’ girdles, so the metal that holds the diamonds doesn’t show from above. This striking style demands the combined skills of both cutter and jewelry maker.

JEWELRY FORMS AND STYLES

For men’s diamond jewelry, top-selling items include rings, cufflinks, tie tacks, and lapel pins. Bracelets and earrings sell well in some markets, too. Diamond studs (either single or in pairs) make both a fashion and a success statement for many professional athletes and musicians, as well as the men who emulate them.

Most men’s diamond jewelry styles can be described as strong and bold or tailored and businesslike. Instead of standing out alone, the diamonds are often integrated within the overall design.

Women’s diamond jewelry comes in an almost endless variety, and the diamonds themselves are usually the center of attention. Primary categories are rings, earrings, necklaces, bracelets, and pins. There are special names for many forms and styles, however. You’ll probably hear some of the mentioned when you shop for diamond jewelry.



Diamonds for men may include many novelty items, like a diamond-studded cell phone.

Photo courtesy The Warner Company Jewelers, Fresno.

Rings

In addition to rings that are specifically designed for engagements, weddings, and anniversaries, other choices include:

- **Cocktail or Dinner ring** – An ornate diamond ring that’s appropriate for dressy evening events. Cluster settings are traditional, but almost any dramatic design can be placed in this category.
- **Ballerina ring** – A cocktail or dinner ring with a large center gem surrounded by tapered baguettes. The baguettes are arranged in a radial pattern that resembles a dancer’s flaring skirt.



Pavé Dinner Ring

Photo courtesy Robert Wander for WINC Creations.



Ballerina Ring

Photo courtesy Oscar Heyman.



Bypass Ring

Photo courtesy Eloquence by Gruber.

- **Crossover or Bypass ring** – A ring that coils around the finger, with the ends of the band passing each other on top. In some designs, the ends are completed with pavé or channel set diamonds. Others have larger diamonds set on or between the ends.
- **Halo Ring** – An adaptation of the solitaire, with a large central diamond circled by a row of smaller diamonds
- **Right hand ring** – A non-bridal ring (that is, not for an engagement or wedding) that’s worn on the right hand. This style usually features at least one fairly large diamond, but there are many design variations



Right Hand Ring

*Photo courtesy
The Hearts On Fire Company.*



Chandelier Dangles

*Photo courtesy
J.R. Gold Designs Ltd.*

Ornate Studs

Photo courtesy KC Designs.



Buttons

Photo courtesy Elite.



Triangular Diamond Studs

Photo courtesy LF Industries.

Earrings

- **Studs** – Single diamonds or small clusters in simple settings for pierced ears.
- **Buttons** – Disk-shape or slightly domed earrings, often with cluster or pavé settings.

- **Hoops** – Earrings in the form of rigid metal loops. Channel and tension set diamonds are especially striking in this style.
- **Dangles, Drops or Pendants** – Earrings with diamonds or decorative elements that dangle. These range from dainty drops to long and elaborate **chandeliers**.



Diamond Hoop Variations

Photo courtesy Breuning.



*Diamond Drop Earrings
Winners of "Diamonds Today"
Design Contest.*

Photo courtesy JCK.

Diamond Link Bracelet

Photo courtesy Carol Silvera.

Bracelets

- **Link bracelet** – A flexible bracelet made of chain-like links or small hinged panels. A modern classic is the **straightline bracelet**, which consists of diamond-studded links that completely circle the wrist. This is also called a **tennis bracelet**.
- **Bangle** – A solid circle of precious metal that slips over the hand. This style also includes designs with hinged half-circle segments, and those with narrow gaps between the ends. Diamonds might be channel or pavé set, or individually set in prongs.
- **Cuff** – A wide oval-shape bracelet. It may have a hinge and clasp, or encircle about 3/4 of the wrist with open ends that allow it to be slipped on. The diamonds can be set in almost any style or arrangement.



Diamond Cuff Bracelet

*Photo courtesy Orlando Orlandini
exclusively for Simon Sobie.*

THE TENNIS BRACELET

In 1987 the tennis world was watching young Chris Evert at the US Open. Suddenly, after delivering a smashing shot, she stopped play and ran to the sidelines. She searched frantically for several minutes. Then she stooped, picked something up, looked to the crowd, and beamed, dangling a bracelet in her hand. After that, she reattached the bracelet, walked back on court, and signaled for play to resume.

The object of her temporary panic was a straightline diamond bracelet. It was a gift from her fiancé, Jimmy Connors, and had flown off her wrist.

In addition to the tournament, the media had been watching the budding romance of the two young tennis stars. Reporters seized the moment and christened the jewelry a “tennis bracelet.” The name instantly became popular, and the industry eventually adopted it for any link bracelet with diamonds circling the wrist. Hundreds of variations have been created. However, most tennis bracelets are modern versions of traditional straightline classics. The terms “straightline” and “inline” are used more frequently today.



Photo courtesy Diamond Promotion Service.

Necklaces

- **Pendant** – One or more diamonds in a setting that’s suspended from a chain.
- **Drop or Lavalier** – A pendant that’s suspended from the neck chain by another short chain or decorative element. Lavalier is pronounced la-va-LEER. If the pendant is suspended by a longer chain, the style is often called a **Y-necklace**.
- **Lariat** – An open-ended necklace that’s held together by an ornamental clasp in front, usually with diamond drops at each end.

*Lavalier
Necklace*

*Photo courtesy
Nancy & David.*

*The Diamond Solitaire
Necklace*

*Photo courtesy the Diamond
Promotion Service.*

- **Slide** – A large pendant with slotted sides made to slide on a heavy neck chain (for example, an Omega style chain).

Lariat

*Photo courtesy
Robert Wander
for WINC.*

Platinum Diamond Slide

Photo courtesy Helene M.

Fabulous Rivière

*Photo courtesy
Louis Glick
Starburst®
Diamonds.*

- **Rivière** – Diamonds in individual settings that entirely circle the neck. The term is pronounced ri-VYEER.



*Gwyneth Paltrow’s
slender neck is
stunning with
a snugly fitting
choker.*

Photo courtesy JCK.

- **Collar or choker** – A necklace that fits snugly against the throat. Diamonds may be set within the framework, or hang as pendants.
- **Neckwire** – A rigid necklace of heavy-gauge precious metal wire with a central diamond setting.

Sliding Knot on Neck Wire

Photo courtesy Diana Vincent.

Brooches and Pins

A **brooch**, or **broach**, is an item of jewelry that's fastened to a garment by a hinged pin and catch. It's most often simply called a **pin**. Diamond pins are versatile. They can be worn on the upper part of a dress, on a jacket lapel, at the neck of a blouse, to fasten a scarf in place, on a hat or cap, or even at the waist.



Pins, pins, pins! Functionally used to hold a scarf or a smart statement on a business suit.

A modern adaptation of the circle pin.

By Ahee Jewelers, Grosse Pointe Woods, MI.



Photo courtesy The Hearts On Fire Company.

Diamond Pins

Photo courtesy Rina Limon for J.R. Gold Designs.



Classic Barpins

Photo courtesy Temi B. Designs.

- **Circle pin** – A diamond pin with an open circular design.
- **Bar pin** – A pin with diamonds or other elements in an overall design that's straight and elongated.
- **Spray pin** – A free-form pin with diamonds in an open group.
- **Stickpin** – A straight pin with a diamond setting at the top.
- **Design or element pin** – a specific, defined shape (animal, symbol or other design), often set with diamond accents or pave.

DESIGN AND MANUFACTURE

Whatever its form or style, fine diamond jewelry represents artistic creativity and skilled labor. You need to carefully consider both of these factors when you make a jewelry selection.

Design Inspirations

Inspirations for jewelry designs come from many different sources. A single item may also combine elements from several of these. However, you can usually identify one or two that define its “spirit.”

Four sources of design inspiration for today’s diamond jewelry are natural forms, historic periods, modern life, and symbols of faith or affection.

- **Natural Forms** – Many diamond jewelry designs incorporate flowers, vines, or leaves, either as an overall theme or in decorative details. Animals and insects (like bees and butterflies) are frequently seen, too. There are also celestial bodies – the sun, moon, and stars. Natural forms appear in jewelry from the earliest civilizations all the way to the present. Thus, they have a timeless appeal.



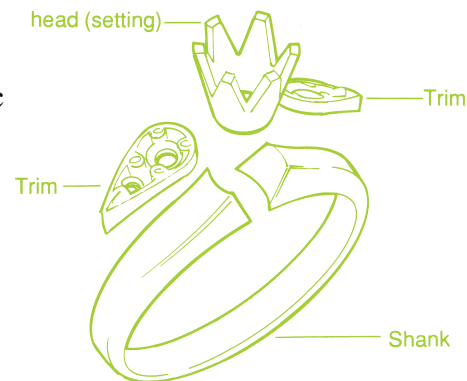
Art Deco Pin

- **Historic Periods** – Some diamond designs draw consciously on the past. Favorite periods include the Victorian, Art Nouveau, Edwardian, and Art Deco. Each of these has its own look and characteristic motifs. However, they all link the meaning of the present moment with the romance of long ago.
- **Modern Life** – Bold geometric shapes, sleek lines, and dynamic curves are the visual hallmarks of today’s technological culture. Mirrored in jewelry designs that range from contemporary to cutting edge, these elements capture the feeling of here and now – energetic, intelligent, confident, and sophisticated.
- **Symbols of Faith or Affection** – Designs that reflect religious belief are always popular. So are those that have sentimental connotations – for example, hearts and teddy bears. In an uncertain world, these serve as cherished reminders of the things that really count.



Photos courtesy The Hearts On Fire Company.

When you shop for diamond jewelry, look for designs that “speak” to you. A ring’s antique look might have a classic elegance, while a bracelet’s sculptural curves look more high-tech and high-style. A heart-shaped pendant almost always means, “You’re special to me.”



Basic components of a ring. Many rings are made up of several parts that are assembled together.

Jewelry-Making Methods

Knowing how an item of jewelry was made can help you appreciate its quality and value. Dozens of specialized techniques are used today, but most involve one of four basic methods – die-striking, electroforming, casting, or hand fabrication.

- **Die-striking or stamping** – Items are mass-produced by shaping solid metal with a mold, or die, made from hardened steel. The mold has two parts, and the form of the finished piece is defined by the interior space that's created when those parts are joined. (The principle is similar to making Play-Doh shapes with a toy mold.) During production, sheets of precious metal alloy are placed in the mold and machine-stamped. The tremendous pressure – many tons per square inch – actually forces the metal's atoms closer together, increasing its density and strength.

Coins are familiar die-struck objects from everyday life. Entire items of jewelry, such as wedding bands, can be manufactured this way. More often, however, die struck pieces are made as components that are later assembled. Hollow jewelry is frequently made by stamping two separate pieces and then soldering them together. The individual panels of some link-style bracelets are also stamped. Because of the strength this process gives the metal, die-striking is a good way to make ring shanks and diamond settings (specifically, the parts called setting heads).



Large, showy items can be made by Electroforming.

Photo courtesy Andin.



During electroforming, precious metal is deposited on wax forms suspended in a solution. Later the item is drilled and the wax melted and removed.

Photo courtesy Andin.

- **Electroforming** – In this process, particles of precious metal alloy are electrodeposited on a model. The model is usually made from wax and then coated with graphite so it conducts electricity. It's connected to the negative terminal of a power source and placed in a chemical solution, or bath, that contains positively charged atoms of the alloy metals. Another conductor attached to the positive terminal also goes in the bath. When the power is turned on, the model attracts the metal atoms. Metal accumulates on the model and builds a shell. After the shell is thick enough, the piece is removed, a tiny hole is drilled, and the piece is heated, causing the wax to melt and run out. The resulting jewelry is hollow and lightweight, but strong. For this reason, electroforming is a common method for manufacturing large earrings, necklaces, and pins.

- **Casting** – Jewelry is made by pouring molten metal into a mold and allowing it to cool. Traditionally, the process begins by hand carving a model from wax and imbedding it in a liquid plaster-like material called investment. After the investment solidifies, it's heated in a high-temperature furnace to vaporize the wax and leave a hollow mold. (Because the wax disappears, this method is known as **lost-wax casting**.) The mold is then filled with melted metal that hardens into the form of the original model.

Casting is the most popular way to create custom-made jewelry, and it can be adapted for large-scale production as well. Models can be duplicated by making a rubber mold of a metal prototype, and then using that to generate wax copies. To produce multiple castings, a number of models can be attached to a central wax rod (or sprue), forming what's often called a tree. The tree is then cast like an individual piece.



In centrifugal casting the mechanism spins, throwing the molten metal into openings in the plaster.

Photo courtesy Swest.

Wax models on a "tree" are embedded in "investment" then burned out, leaving voids which are filled with metal.



Photo courtesy Swest.

CAD/CAM TECHNOLOGY IN JEWELRY MAKING

Today the traditional processes of jewelry design and wax carving are often replaced by CAD/CAM technology. CAD (computer-aided design) software can be used to produce visual images (or "virtual models") of jewelry. CAM (computer-aided manufacturing) software helps to produce actual physical models or prototypes in wax, plastic, or metal.

CAD/CAM technology is now being employed by jewelry makers at every level, from major manufacturers to individual designers and craftspeople. A growing number of retailers are using it to create custom jewelry designs for clients and their own inventories.

Designers may work directly with special CAD programs to create completely original jewelry designs, or they may work with design templates within the program, altering them as necessary.

The electronic file is sent to a 3-D printer that creates a wax model by carving wax or by building a model up with layer after layer of liquid wax—both techniques mimic traditional wax model production. The finished model is then cast by traditional means.

CAD technology has revolutionized the way many jewelry stores deliver custom design services. In the past, if a customer wanted a unique design, the sales associate worked with them to make a sketch of their ideas; that sketch might be converted into a color painting. Based on the sketch or painting, a bench jeweler would then make a wax model for the customer to approve before the piece was cast.

Jewelry CAD programs now allow customers to actively work with sales associates to create designs, and watch the entire process on a computer monitor. The programs can show you the design from all angles so you can get the design just right. The electronic file is then sent to the manufacturer and you get exactly what you've seen on the screen.

The Diamond Studies Course 7

- **Hand fabrication** – Jewelry is still made completely by hand labor and manually controlled methods. Hand fabrication starts with precious metal that has undergone minimal processing. It may have been alloyed and made into bulk stock such as sheets, strips, tubes, or wire, but otherwise it’s raw material. The jewelry maker then beats, bends, draws, drills, files, or saws the entire piece or separate components into the desired shapes, and if necessary solders components together.

Hand fabrication is the oldest jewelry-making method, and many of its tools and processes originated with the earliest civilizations. It can produce almost any form or style of jewelry, but each piece is one-of-a-kind. Even if it copies an existing design, there are bound to be slight differences that make it unique. Under FTC guidelines, to be called “handmade” or “handwrought,” jewelry must be manufactured in this way.



In hand fabrication, the individual pieces may be entirely made from basic metal stock, then assembled.

Many jewelry items are assembled from components made by different methods. For instance, a ring might have a die-struck head attached to a cast shank. The purpose of this “mixing and matching” is to achieve the best combination of beauty, durability, and value.

The individual effort that goes into the manufacturing of a piece of diamond jewelry is a significant cost factor. Diamond setting is a prime example. Although quality setting is always critical, styles like pavé, channel, and invisible setting are very labor-intensive. Dozens of diamonds may have to be matched for size and appearance. Then each one must be set with skilled attention. Tension setting demands extra time and care as well.

Different production methods also represent differing amounts of individual work. Die-striking and large-scale electroforming and casting are industrial in nature. That's not necessarily a negative, though. Mass production requires creativity, expertise, and effort. However, the process spreads the expense of these over a large number of items, reducing the cost of each unit. Custom-designed cast or hand-fabricated jewelry offers uniqueness, but each piece must bear the entire cost of the process. This is why custom-made jewelry will always be more expensive than comparable mass-produced items.

Any jewelry-making method can produce excellent results. What counts is the skill and care with which it's done.

DECORATIVE FINISHES

Decorative finishes add visual texture and contrast to jewelry. They can be created in a number of ways – with polishing wheels, wire brushes, files, engraving tools, punches, grindstones, and even by sandblasting. When shopping for jewelry, be sure to consider the decorative finish as part of the design and workmanship.

The finishes you're most likely to see on modern diamond jewelry are:



- **Bright polish** – smooth, shiny, mirror-like.
- **Matte finish** – grainy and non-reflective.
- **Brushed finish** – tiny parallel grooves scratched into the surface. A finely textured version with soft sheen is called **satin finish**.
- **Florentine finish** – a crosshatch pattern of lines tooled onto the surface.
- **Stipple finish** – tiny indentations and ridges.
- **Hammer finish** – small indentations covering the surface.
- **Bark finish** - coarse texturing that resembles tree bark.

QUALITY AND VALUE

When shopping for jewelry, there are a number of elements of design and craftsmanship you should look for when you first handle the piece. These include:



A stamped trademark is required by US Law.

Photo courtesy The Hears On Fire Company.

- The item is stamped with the manufacturer's name or trademark. US law requires this, and it assures a certain level of quality.
- The design is attractively proportioned. The various elements are harmonious and properly aligned.
- All the parts fit together smoothly. Details are sharp and well defined. There are no cracks, bumps, or weak spots. Any mechanical parts, such as hinges or clasps, should work smoothly.
- The surface is entirely polished or textured. Finish patterns are distinct, evenly executed, and clearly demarcated. There are no rough areas or pits. The inside or back of the piece is as well finished as the top or front.
- The setting is precise and secure. It provides the diamond with adequate protection. In group settings, all the diamonds are even and properly aligned.

If you have any questions about the craftsmanship, ask your sales associate. He or she can also point out any other quality aspects that will ensure your lasting enjoyment and value of the jewelry.

If you have
questions about
craftsmanship,
ask your sales associate.

GOLD AND PLATINUM

Gold and platinum are the primary structural materials for today's diamond jewelry. Rarity makes both intrinsically “precious.” Even in the form of unworked ingots or bars, they cost well over a thousand dollars per ounce. The labor of transforming them into jewelry adds to their value.

Diamond jewelry's appeal can depend on the metal from which it's made in several ways:

- The metal accounts for almost all of an item's weight. This is significant because more weight equates with more value. The more metal in the piece, the higher the cost.
- The metal's color contributes to both beauty and symbolism. To many customers yellow gold is warm and inviting. Others associate the color of platinum or white gold with purity and strength.
- The metal's color can also affect the diamond's appearance. As you learned in Lesson 4, yellow gold masks traces of yellow or brown, but makes darker tints stand out attractively. White metals accentuate colorless diamonds and most fancy colors.

Each metal also has specific facts and features that you should consider when choosing your new piece of jewelry.

Gold



Pure gold is alloyed with other metals to add strength and durability.

Photo courtesy Jean Designs.

For thousands of years, gold's easy workability, luxurious feel, and lasting beauty have made it the world's most treasured metal. Ancient civilizations used gold in pure form, and some cultures still do. Pure gold is expensive, however. It's also soft and bendable. To produce jewelry that's affordable and wearable, modern manufacturers combine it with other metals in alloys called **karat gold**.

(It's common to confuse the terms “carat” and “karat.” In some countries both are actually spelled with a “c.” However, in the US, carat is the unit of weight for diamonds, and karat means the amount of gold in an alloy.)

The karat system comes from old metal-making recipes based on 24 parts, or equal units, of weight. Pure gold is 24 parts – or 24/24 – gold, and it's designated 24 karat. (That may be abbreviated 24K or 24Kt.) An alloy of 18 parts gold and 6 parts other metals is 18K, and so forth. Instead of karats, most international jewelry manufacturers use a metric-type system based on parts per thousand. Thus, 18 karat gold (18/24ths or $\frac{3}{4}$) contains 750 parts gold out of 1000. So it is referred to and stamped as 750. 14 karat is marked 585.

This table shows karat ratings, percentages of gold by weight, and metric equivalents for different alloys:

Gold Markings

Karat	Gold %	Metric
18K	75.00%	750
14K	58.33%	585
12K	50.00%	500
10K	41.60%	416



Alloys and processing produce different colors of gold.

Photo courtesy Designs by Vatche.

Under FTC guidelines, the karat rating of gold jewelry must be specified unless it's 24K. US law also requires the actual gold content to be extremely close to the content indicated by the quality mark. Most jewelry items must be within 7/10 of 1%, or 7 parts per thousand. This means that a 14K right hand ring, for example, has to be at least 57.8% gold. (If the item has no soldered parts, like a plain gold wedding band, the tolerance is even less – only 3/10 of 1%, or 3 parts per thousand.)

Most gold jewelry sold in the US ranges from 10 to 18K. Some designers use 22K or 24K for its rich look, but usually as an accent, not for the entire piece. That's because pure gold and most ultra-high karat alloys are too scratchable and bendable to withstand what is considered normal wear.

Generally speaking, the lower the karat rating, the harder and stronger the alloy will be. (And less expensive, too.) For those who are experienced in wearing fine jewelry, 18K is an elegant option. A better choice for jewelry that may get harder wear, such as rings and bracelets, may be 14K. However, a high-karat pendant or earrings can still provide luxury for special occasions.

In addition to improving wearability, alloying can impart a white, pink, or green tint to gold. Other colors are produced by special techniques used in manufacturing. The hue isn't tied directly to the karat rating, however. While 24K is always yellow, most karat gold can be almost any color, depending on the other metals in the alloy and the processes it has undergone.



Yellow gold is warm and inviting; platinum and white gold are associated with purity and strength.

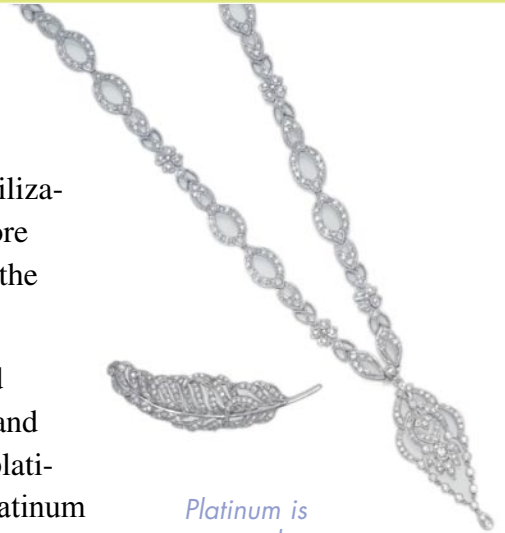
*Photo courtesy
Designs by Vatche.*

Platinum

You might call platinum a modern jewelry metal. A few early civilizations occasionally used it to make small ornaments. However, large ore deposits and effective ways of fashioning it weren't discovered until the 1800s.

Platinum's popularity soared in the early 1900s, but during World War II (1939-1945) the US government declared it a strategic metal and removed it from the jewelry market. That action was taken because platinum has many scientific, technological, and industrial uses. While platinum was off the market, white gold gained favor as an alternative – especially for women's engagement and wedding rings.

After the war, platinum once more became available for jewelry, but it remained relatively rare for several decades. Then, in the 1990s, platinum's popularity boomed.



Platinum is extremely strong. Jewelry made from it can be delicate, yet wearable.

Photo courtesy Epstein.

Despite the vogue, most people consider platinum different and distinctive. Many like platinum's neutral gray-white color. Compared to white gold, which is highly reflective, platinum also has a more subdued and sophisticated glow.

Platinum is exceptionally strong, too. Platinum jewelry can be delicate yet wearable, and a platinum setting can hold a diamond securely for decades.

Platinum jewelry will normally be more expensive than the same design done in karat gold. Two reasons for this are greater purity and greater density.

- **Greater purity** – Platinum is often used in purer form than gold. As you've seen, karat gold normally ranges from about 42% pure (with 10K) to 75% pure (with 18K). Platinum's fineness is measured in parts per thousand, and much of the platinum jewelry manufactured in the US is 900 or 950 platinum. That means it's 90% or 95% pure.
- **Greater density** – Platinum is denser, or heavier for its size, than gold. This enhances platinum's feeling of value. However, it also means an item made of platinum will weigh more than a karat gold item of the same size, and precious metals are priced by weight not by volume.



Platinum jewelry is heavier for its size than most gold alloys, which adds to the feeling of value.

Photo courtesy Precision Set.

High purity is traditionally one of the factors that makes platinum jewelry comparatively expensive. In addition, the other metal in the alloy is usually iridium, palladium, or ruthenium. These are known as *platinum group metals*, and they too are relatively expensive.

In recent years, manufacturers have started making jewelry with less platinum – down to 50% pure platinum. These non-traditional alloys often contain non-precious (or base) metals like copper and cobalt. The goal in making this change has been to offer platinum jewelry that’s more affordable. However, it’s made platinum marking and FTC guidelines more complex.

Platinum Markings and Content

Here are examples of platinum quality marks and what they mean:

Quality Mark	Platinum and Other Metals % Weight
Plat, 950Pt, 950Plat	95%
Pt900, 900Pt, 900Plat	90%
Pt850, 850Pt, 850Plat	85%
800Pt.150Pd.	80% Platinum and 15% Palladium
750Pt.200Rh.	75% Platinum and 20% Rhodium
600Pt.350Ir.	60% Platinum and 35% Iridium
550Pt.350Pd.50Ir.	55% Platinum, 35% Palladium, and 5% Iridium
750Pt.250Cu.	75% Platinum and 25% Copper
600Pt.350Co.050Rh.	60% Platinum, 35% Cobalt, and 5% Rhodium

Here are some simple guidelines to help you understand the terms your sales associate might use:

- **950Pt, 999Pt, or 1000Pt** – If an item of jewelry is at least 95% pure platinum, it can simply be called “platinum,” without any further qualification or explanation.
- **850Pt or 900 Pt** – If the item is at least 85% pure platinum, it can be called “platinum,” but the sales associate must specify the platinum content. For example, he might say, “This ring is made of 850 platinum.” This means the alloy is 85% pure platinum with 15% other metals.

If the jewelry is less than 85% pure platinum, it may be called “platinum,” but the mark must also identify the other PGM metals in the alloy. Exactly what information is in the mark depends on the quantity of platinum group metals in the product:

- **At least 950 PGM** – If the alloy is at least 950 parts per thousand of all platinum group metals combined, the quality mark must identify the amount of platinum and each platinum group metal. For example, if the quality mark is 600Pt.350Ir., the piece is 60% pure platinum, plus 35% iridium.
- **Less than 950 PGM** – If an item is less than 950 parts per thousand platinum group metals, the full composition of the alloy and the percentage of each metal must be disclosed. Thus, if the quality mark is 600Pt.350Co.050Rh., you’ll know the jewelry is made of 60% pure platinum, plus 35% cobalt and 5% rhodium.



Today's diamond jewelry offers a constantly changing and expanding galaxy of beauty offering continuous opportunities for wardrobing.

Photo courtesy Penny Preville.

If an item is less than 50% – or 500 parts per thousand – pure platinum, FTC guidelines state that it cannot be labeled, described, or presented as platinum, no matter how much qualification or explanation might be provided. The reason is that non-traditional platinum alloys may not have the same characteristics as platinum alloyed with platinum group metals. For example, they may not have the same strength as alloys with high platinum content. However, specific characteristics vary from one alloy to another. Ask your sales associate for specifics.

ALTERNATIVE METALS

In recent years, designers and manufacturers have started using metals other than karat gold and platinum to make diamond jewelry. These “alternative” metals produce fresh and different looks that may appeal to you. The ones you’re most likely to encounter are silver, palladium, titanium, and stainless steel.



Photo courtesy Hot Diamonds.



Photo courtesy Spector.



Photo courtesy Frederick Goldman, Inc.

- **Silver** – This is an ancient metal with current style. Its cool crisp color is a chief attraction. Compared to karat gold or platinum, it’s also very affordable. Most diamond-set pieces are made of Sterling silver, an alloy that’s 92.5% silver and 7.5% copper. This is harder and more wearable than pure silver. Silver-and-diamond designs tend to be fashion forward. They’re often designed for young women who are buying for themselves, although they can appeal to people of all ages.
- **Palladium** – Palladium is one of the platinum group metals. It has a “true-white” color with subdued luster, and shares many of platinum’s technical characteristics. However, it’s much lighter and less expensive than platinum. As a result of these “pluses,” many of the industry’s leading designers and manufacturers are working with palladium, and a growing number of retailers are carrying it. Much of what’s now being used is 950 palladium, an alloy of 95% palladium with 5% ruthenium.
- **Titanium** – Light as aluminum but strong as steel, this is truly a Space Age metal. (In fact, it’s a structural material for jet planes.) Titanium first appeared in fashion jewelry in the 1980s, and during the 1990s it became popular for men’s watches. Today it’s moving into the fine jewelry mainstream. Jewelry-grade titanium is 99% pure, and has a natural color that’s comparable to platinum or silver. Alloying produces

black, while other colors come from special manufacturing techniques. Most titanium-and-diamond designs have a decidedly high-tech look. They're perfect for those who have ultramodern taste.

- **Stainless Steel** – This is another metal that first moved from technology and industry into watches and has now entered the world of fine jewelry. It combines the cool gray-white color of platinum and silver with exceptional hardness and strength. Stainless steel is an alloy composed mostly of iron and chromium, and jewelry is made from the highest grade available. Many steel-and-diamond designs can be described as sleek and contemporary. They're available in women's styles, but steel's appearance and masculine connotations make it a natural choice for men's jewelry.

If diamond jewelry made from alternative metals appeals to you, you can do some "homework" on it. For additional facts and ideas, try the following websites:

The Silver Institute and Silver Promotion Service – www.silverinstitute.org, www.savorsilver.com, and www.silverjewelryinfo.com

Palladium Alliance International – www.luxurypalladium.com

The Stainless Steel Information Center – www.ssina.com. This site focuses on building and construction, but contains interesting background information.



Stainless steel offers many women hypoallergenic alternatives to other jewelry metals

BRANDED JEWELRY

In Lesson 5 you learned that branded diamond cuts have become an important part of the market. The same is true of branded diamond jewelry.

Except for the creations of firms like Bulgari, Cartier, Tiffany, and Van Cleef & Arpels, fine jewelry once lacked widespread name recognition. That began to change back in the 1970s. Today, many people shop for specific brands. Three factors have given branded jewelry momentum.

- Active promotional efforts by industry organizations and jewelry manufacturers, as well as designers, have made the public more aware of brands and their potential benefits to consumers.
- There's been a convergence between jewelry and fashion. Popular magazines like *Cosmopolitan*, *Elle*, *Vogue*, and *W* now cover jewelry along with apparel. Some of the biggest names in couture – including Chanel, Dior, Gucci, and Versace – have launched their own jewelry lines.
- Consumers have become more brand conscious – especially young professional women. Members of this emerging demographic group see a clear link between fashion, jewelry, and self-expression. They grew up with favorite labels in cosmetics, clothing, footwear, and other accessories. So they naturally seek the same in jewelry.

Photo courtesy
Roxann Souci
for John Atencio.

As a result of this combination, names like Henry Dunay, Robert Lee Morris, Judith Ripka, and David Yurman may be familiar to you. Like branded cuts, however, a true jewelry brand is more than just a name. It has consistent and distinctive characteristics that are easy to recognize.

When shopping for branded jewelry, you need to identify its **signature**. This can include design motifs, inspirational themes, the way the jewelry is made, the metals that go into it, its form and style, even the diamonds or other gems and how they're set. Since most brands are built around individual designers, there are also the human personality, artistic vision, and working methodology that lie behind the jewelry. Designers' promotional literature and websites are usually good sources for this kind of information. As you learn more about the brands, you'll begin to find one—or several—that convey your sense of fashion or individuality.

THE RIGHT CHOICE

In previous lessons you've learned to look at diamonds in terms of the 4Cs. It's just as important for the jewelry to meet your needs and desires.

When purchasing jewelry for yourself the selection process can be fairly straightforward. You may be interested in certain styles, level of quality, or individuality. You'll want to learn more about the jewelry's design, workmanship, and value.

For gift purchases, the message of the moment often determines the type of jewelry you choose. However, there are other factors to consider as well. Most diamond jewelry is bought as a gift of love from a man to a woman. Thinking in terms of fashion and romance, as a woman would, may be uncomfortable for many men. While there are no firm rules for men in this position, shopping can be easier if you keep certain points in mind:



The jewelry should suit the wearer's personal taste. Consider size, dimension and style.

Photo courtesy The Feeling Collection.



Jewelry should be compatible with the wearer's lifestyle.

Photo courtesy JCK.

- The jewelry should compliment the wearer's features and physique. An item might be truly spectacular, but it won't be worn if it isn't flattering.
- The jewelry should also be compatible with the wearer's lifestyle. Comfort and practicality should never be sacrificed for the sake of looks.
- The jewelry should suit the wearer's personal taste. If you're unsure, consider the other items the receiver wears. Has she expressed interest in pieces she's seen in magazines or media advertising? Has she admired jewelry her friends own?
- Whatever jewelry you purchase, you should be proud to give it. You want to express your feelings, but you naturally want the deep satisfaction you'll receive when the woman you love responds to your gift.

Remember that a store's sales associates are experienced in assisting many customers with jewelry purchases. They are valuable allies and sources of advice.

FTC GUIDES

Jewelry and Precious Metals

Several sections of the FTC Guides address issues related to diamond jewelry. The most important of these are:

- 3.3 Misuse of terms “hand-made,” “hand-polished,” etc.
- 3.4 Misrepresentation as to gold content.
- 23.6 Misrepresentation as to silver content.
- 23.7 Misuse of words “platinum,” “iridium,” “palladium,” “ruthenium,” “rhodium,” and “osmium.”
- 23.9 Additional guidance for use of quality marks.

The main points of these sections are covered in the lesson. You can find the full versions on the FTC website at www.ftc.gov/bcp/guides/jewel-gd.htm.

RECAP OF KEY POINTS

- A setting of fine jewelry contributes to a diamond's beauty, meaning, and value.
- Diamond jewelry carries great symbolism and is linked to important moments in life. The most significant diamond moment is engagement. Others include weddings, anniversaries, and special events such as birthdays and job promotions.
- Diamond jewelry comes in a wide variety of forms and styles. Top-selling items for men are rings, cufflinks, tie tacks, and lapel pins. Primary categories for women are rings, earrings, necklaces, bracelets, and pins.
- Diamond jewelry represents artistic creativity and technical skill. These qualities should be considered in any jewelry selection. There are a number of ways to make jewelry, but what counts is the skill and care with which it's done.
- Gold and platinum are the primary structural materials for today's diamond jewelry. Karat gold has been most popular for many years, but platinum is becoming increasingly important.
- Branded jewelry is part of the product mix for many stores. To shop for branded jewelry confidently, identify its unique signature to find the product that suits you.
- When selecting a gift, remember that diamond jewelry should suit the wearer's features, lifestyle, and personal taste. It should also make you proud to give it.

Lesson 7 Self-Test

This lesson also includes a Self-Test that's designed to help you gauge your comprehension of the lesson material. The test is an important part of the learning process, so be sure to complete it.

When you're ready to take the test, go to the Course Materials page (the one that lists all the lessons) and click on "Take Self-Test." Make certain you select the test for this lesson.

All questions in the test are based on Lesson 7. More than one answer for a question might seem correct, but you should select the one **best** answer based on the lesson discussion.

As you take the test, you may refer to the lesson. To do this, you'll need to have the lesson loaded in a separate window of your browser.

If you feel certain about a question, try answering it without looking at the lesson. But if you're not sure, check the lesson before answering.

After you answer a question, you'll receive immediate results and feedback. You'll find out whether you answered correctly, what the correct answer was (in case you missed it), and also the page number in the lesson where the information can be found. Take time to review any material you're not completely clear on.

At the end of the test, you'll receive your overall results. Then you'll be able to continue to the next step in your coursework.

If you have questions or need help, please contact us. You can use this website – just click on "Help." You can also email studenthelp@diamondcouncil.org or phone 615-385-5301 / toll free 877-283-5669.