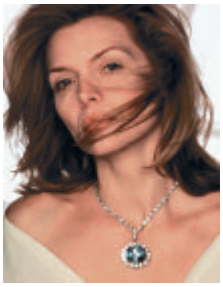

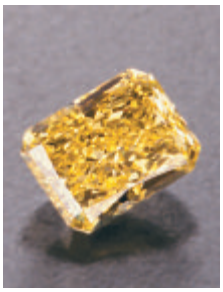

DIAMOND ESSENTIALS

Color and Value

DIAMOND ESSENTIALS

GIA
Gemological Institute of America®

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Facing page: Fine red diamonds are the most rare and valuable of all gems.

AFP

Color and Value

Nancy Snyder was shopping for a present for herself. There was no special occasion. She just wanted to treat herself to something nice. She really wanted a diamond tennis bracelet—what some people call a line bracelet. That's what brought her to Sutton Jewelers one Saturday afternoon. The store manager—Janet Lee—was helping her with her selection.

Janet had already asked enough questions to have a good idea of what Nancy was looking for. She brought out a line bracelet with 45 diamonds and a total weight of 1.68 cts. The diamonds were in the SI range, and had a very light yellow color.

"Are these really diamonds?" Nancy asked after looking at the bracelet for a minute.

"Yes, they are," Janet answered. "What makes you think they're not diamonds?"

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Key Concepts

The color in most diamonds is very subtle.

Near-colorless—A general term for diamonds in the G-to-J color range.

Diamond line bracelets come in a variety of styles to appeal to almost any consumer.

A slight hint of color can make a big difference in a diamond's price. Diamonds with very little color are much more rare than those that show some yellow.

"They look yellow," Nancy said. "They're very pretty, but they *are* yellow."

"You have a good eye for color. The yellow is very subtle—so subtle that many people don't notice it. Diamonds actually come in many different colors, but the most common colors are subtle shades of yellow and brown. Diamonds are graded on a color scale that begins at D—that's a colorless diamond—and ends at Z—light yellow or brown," Janet explained. She then reached for a cardboard display with the color scale printed on it to show Nancy.

Janet took another bracelet out of the display case and laid it next to the first one. The diamonds in the second bracelet were comparable in size and clarity to the diamonds in the first bracelet. The only noticeable difference was that the diamonds in the second bracelet looked colorless.

"The diamonds in the first bracelet fall in the middle of the scale—their color grades range from M to O," she continued, pointing at the M-N-O range on the printed scale. "To me, they have the romantic look of candlelight."

"The diamonds in the second bracelet are in the G-to-J range—they're *near-colorless*. Maybe they're closer to what you had in mind. Which do you like better?"

Nancy didn't answer right away, so Janet picked up the first bracelet and draped it over Nancy's wrist. "Let's see how they look on you," Janet said.

Nancy held her arm out so she could get a better look at the bracelet. She watched the diamonds flash and sparkle as she turned her wrist back and forth. She put the first bracelet down and went through the same motions with the second.

"Is there a price difference between the two?" she finally asked.

"Yes, there is," said Janet. "The first bracelet is $1,975. The second—the one with the near-colorless diamonds—is $2,500."

"Why the difference?" Nancy asked.

"Diamonds with less color are much more rare than those that show some yellow," Janet answered. "Because of that, they're more valuable," she continued.

"I see," Nancy said. "So a colored diamond isn't worth as much as a colorless diamond?"

"Well, not always," said Janet. "As I said earlier, diamonds come in many colors. Some have more yellow or brown than diamonds with a Z color grade. And some diamonds come in colors other than yellow and brown: Those are very rare and valuable.

"See those two rings?" Janet asked, pointing at two rings in the display case. The ring on the right was set with a clear, transparent center stone. The one on the left was set with a transparent light pink stone.

"That center stone is a diamond," Janet said, pointing at the ring on the right. "Its color grade is G. It has just a hint of color, but the color is so faint that gemologists describe diamonds like that as near-colorless.

"The pink stone in the other ring is a diamond, too. It's from a mine in Australia that's famous for its pink diamonds. Both of those diamonds weigh about the same, and both have the same clarity grade. The ring with the near-colorless diamond sells for $4,500, while the ring with the light pink diamond is $8,500. It's worth that much more because pink diamonds are extremely rare.

"But, back to the bracelets," Janet said. "Which one do you like better?" She was already thinking ahead and trying to decide what to show next if Nancy didn't like either of the bracelets.

She didn't have to worry. Nancy had been pondering the question since Janet first asked it. She really liked the look of the faint yellow diamonds. When Janet mentioned candlelight, it made Nancy think of romantic dinners with her husband. She also liked the fact that the diamonds were different, even if they were not as rare as colorless diamonds. And she liked the price, too.

In nature, colorless diamonds are extremely rare. Most gem-quality diamond rough ranges from near colorless to light yellow or light brown.

Shane McClure/GIA

Fancy-colored diamonds can be more valuable than diamonds with little or no color. At auction, this 5.54-ct. Fancy Vivid orange diamond–set in a ring at the time–fetched an astounding $1,322,500. At the same auction, a 28.00-ct. near-colorless diamond sold for $745,000.

John A. Rizzo/PhotoDisc

You can add value to the diamonds you sell by helping customers link them to romantic and meaningful events. After a successful presentation, customers might find that the pale, delicate yellow of a diamond reminds them of a romantic candlelit dinner.

"Will you take a check?" she asked, picking up the bracelet. She draped it over her wrist again, and added, "If you will, I'll wear this home."

During her sales presentation, Janet did a good job of explaining the general topic of color in diamonds. She also gave Nancy a helpful explanation of how color can impact value. That's not always easy to do. Unlike the strong color found in most colored stones, color in diamonds is generally delicate and subtle. The subject is also complicated by the fact that many people think that all diamonds are colorless.

This assignment will help you understand and explain diamond color, the delicate differences between color grades, and the impact of those differences on value. Regardless of your position in the diamond trade, it's an understanding that's essential to your success.

Most people think of diamonds as colorless, but they also come in many colors, including vibrant yellows, soft pinks, and rich browns.

Diamonds and Color

- How is a diamond's color grade determined?
- What are the three most important elements in color grading?
- How does fluorescence affect color?

Many consumers are like Nancy. They think that all diamonds are colorless, and are surprised to learn that diamonds actually come in a wide range of colors. Other people have heard of colored diamonds like the famous blue Hope diamond, but don't understand the relationship between the relative rarity of a diamond's color and its value.

As you learned in Assignment 1, diamonds come in many colors. The diamonds that range from colorless to light yellow and brown fall within the

Key Concepts

It's important to explain the relationship between color, rarity, and value to consumers, who often aren't aware of it.

Key Concepts

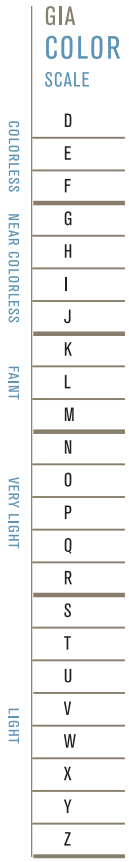
Slight differences in color can cause dramatic differences in value.

The D-to-Z scale describes the normal color range of diamonds.

Peter Johnston/GIA

In the normal color range, the closer a diamond gets to colorless, the higher its per-carat price. There's an especially large leap in the price of a colorless diamond, which is extremely rare.

The GIA D-to-Z scale is the industry standard for color-grading diamonds. Each letter represents a range of color based on a diamond's tone and saturation.



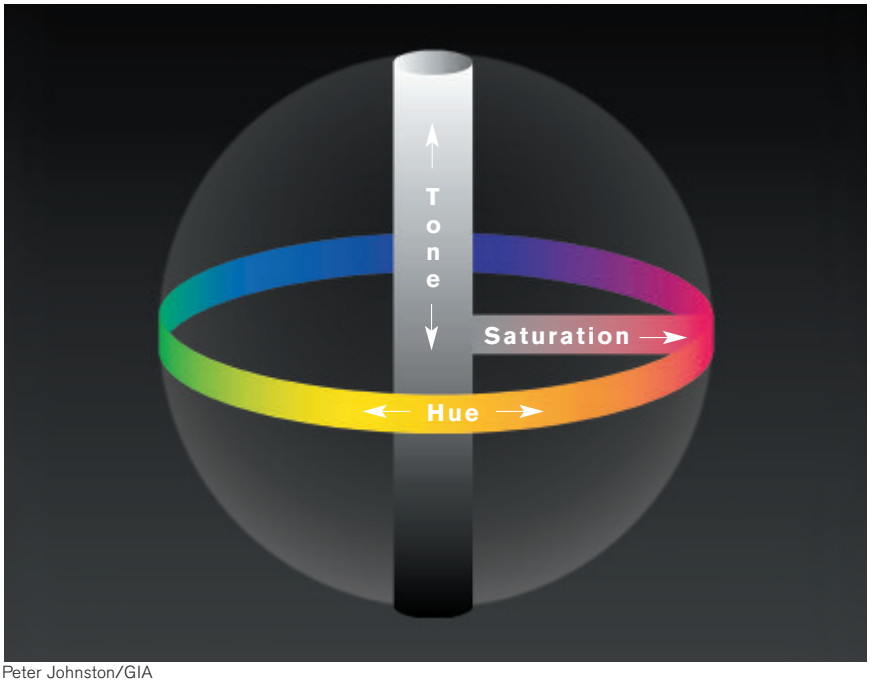
normal color range. Within the normal color range, colorless diamonds are the most rare, so they're the most valuable. They set the standard for grading and pricing other diamonds in the normal color range.

Subtle differences in color can dramatically affect the value of a diamond. Two diamonds of the same clarity, weight, and cut can differ in value based on color alone. Even the slightest hint of color can make a dramatic difference in value, as it did with the bracelets that Nancy was considering.

Diamond Color Scale

The color grading scale that Janet explained at the beginning of this assignment was developed by Richard T. Liddicoat at GIA in the 1950s. It describes the normal color range from D (colorless) to Z (light yellow or brown). Today, the GIA Color Scale is the most widely used diamond color-grading system in the world, and the normal color range of diamonds is often called the "D-to-Z scale."

The letters in the D-to-Z scale don't describe actual colors, or *hues*. Each letter actually represents a range of color that's based on a combination of *tone*—darkness or lightness—and *saturation*—intensity. The combination is called *depth of color*, and it's a measure of how noticeable a color is. Diamonds can differ slightly in their depth of color, but still be assigned the same color grade.



Peter Johnston/GIA

The three-dimensional color globe shows the relationship between hue, tone, and saturation. The globe's equator shows the range of possible colors, or hues. The vertical bar shows a range of lightness to darkness, called tone. The horizontal bar indicates a range of saturation, or intensity.

Normal color range—Range of diamond colors from colorless to light yellow and light brown.

Hue—Your first impression of a color; the basic color of an object.

Tone—A color's degree of darkness or lightness.

Saturation—A color's strength or intensity, ranging from a dull hue to a pure, vivid hue.

Depth of color—The combination of tone and saturation that determines how noticeable a color is.

Maha Tannous/GIA

These brown diamonds from the Argyle mine in Australia are arranged according to depth of color, from less to more noticeable.

Tino Hammid/GIA

These diamonds–graded E, K, and Z–represent diamond colors that are near the top, middle, and bottom of the GIA Color Scale.

Color is easier to see in larger stones than in smaller ones. In weights under 0.25 ct., only trained graders can distinguish between diamonds in the D-to-F range—and then only if the stones are not in a setting.

When mounted, G, H, and I diamonds might look colorless face-up. That's why most gemological laboratories don't grade mounted stones. Part of the

Key Concepts

It's difficult to accurately determine a diamond's color grade if it's mounted.

What Happened to A, B, and C?

Probably the most frequently asked question about the GIA Color Scale is "Why does the system start at D?"

Before GIA introduced the D-to-Z scale, diamond professionals used a variety of other symbols. Some dealers used the letters A, B, and C without clear definition, while others started grading their diamonds double A (AA). Other systems used numerals—both Arabic (0, 1, 2, 3) and Roman (I, II, III).

Systems that relied on descriptive terms like "blue white" or "fine white" were the most dubious of all. Terms like those were the least precise, which left them open to error and misinterpretation.

The creators of the GIA system wanted to start fresh. They wanted symbols that would not have any association with the inadequate systems that came before. Thus, the GIA scale starts at the letter D.

While other color grading systems are still in use, no other system has the universal acceptance of the GIA scale.

A diamond's mounting can influence its apparent color. The diamond color is the same in both photos, but the yellow gold setting (left) masks the slight amount of yellow, while the white metal (right) makes the color more obvious.

difficulty in color-grading mounted diamonds is that the mounting affects the apparent color by covering part of the stone.

Another factor that affects a diamond's apparent color is the color of the mounting itself. Yellow gold makes slight amounts of yellow or brown less obvious, while white metal mountings make the color in yellow or brown stones more apparent. On the other hand, white metals enhance the appearance of colorless stones.

Face-up and set in yellow gold, J, K, and L diamonds that weigh less than 0.50 ct. look nearly colorless to the untrained eye. The color is easy to see in larger diamonds or when the setting is white metal. Beyond M, most consumers can see color pretty easily. As the grade gets closer to Z, the color is obvious even in small diamonds.

Grading Color

Diamonds are color graded under controlled conditions by comparing them to round brilliant diamonds of known color, called *masterstones*. Each masterstone represents the least amount of color in its color range. Consistent color grading depends on:

- The masterstones
- The environment
- The grader

Because each color grade represents a range, stones that fall on the borderline between two color grades can be challenging. When this happens, the grader has to make a judgment. At the GIA Laboratory, each diamond is color graded by several graders.

Eric Welch/GIA

People who work with color will tell you that it's very tricky to depend on memory when matching colors. That's why decorators use color swatches and diamond graders use masterstones for comparison.

Masterstones—A set of color comparison diamonds that defines GIA's diamond color grades in the normal (D-to-Z) range.

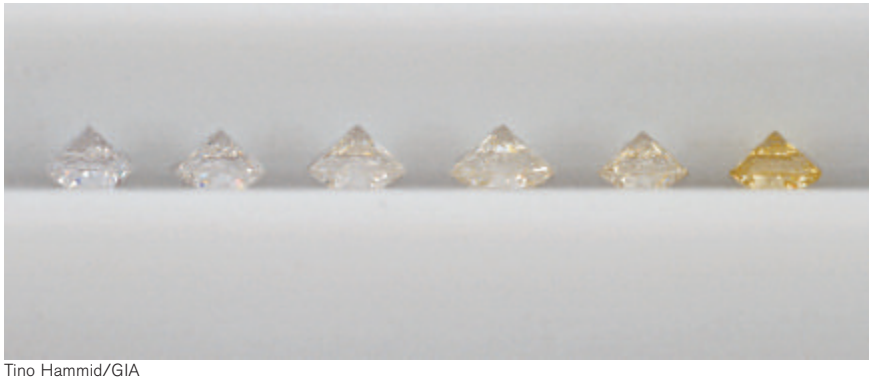
The Masterstones

If you've ever tried to pick matching paints or fabrics without a sample, you know how tricky "color memory" can be. Some medical professionals say there's no such thing.

Color grading diamonds from memory is asking for trouble. Many dealers and retailers learned this the hard way. They bought diamonds that looked colorless, only to find that the stones showed color when they were graded.

That's where masterstones come in. Diamonds in the normal color range are graded against a colorless-to-light-yellow master set. There are no brown masterstones because, as you've learned, the grade isn't determined by the hue, but by the depth of color.

Subtle color differences are usually more visible through the pavilion, so diamonds in the D-to-Z color range are graded table-down. But to get a reliable impression of color, graders also compare stones (especially fancy-colored diamonds) face-up and from different directions.



Tino Hammid/GIA

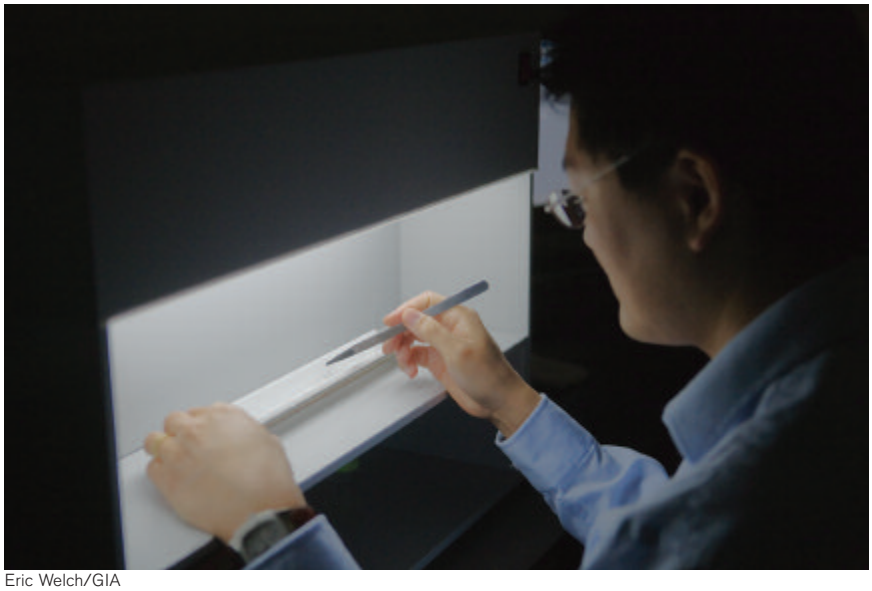
To eliminate the guesswork from grading diamond color, graders compare it to masterstones that represent known colors in the GIA D-to-Z scale.

Key Concepts

"Color memory" is not a reliable tool for color grading.

Key Concepts

Training and a lot of practice are what make a good diamond grader.



Eric Welch/GIA

Accurate color grading requires a controlled environment. At the GIA Laboratory, neutral colors and consistent lighting form a reliable color-grading workplace.

Clara Zink/GIA

A grader's general health is important, but for consistent diamond grading, there's no substitute for plenty of practice.

The Environment

The colors of the walls and furniture in the grading area can affect a grader's consistency. Neutral or subdued colors are best. Neutral gray and white might be too sterile for a retail store or dealer's office, but they're ideal for the walls and furnishings of a grading lab. Any bright color can be distracting. Bright colors can reflect in the diamond and mask its color, too.

People in the trade once thought that daylight from a north-facing window (or a south-facing window in the southern hemisphere) was the most consistent source of light for diamond grading. The problem with that is that daylight itself is too variable to be a good, consistent light source for color grading. "Daylight equivalent" fluorescent bulbs are readily available and widely used as a consistent color-grading light source.

The Grader

By far the most important component of the grading process is the grader. Quality training is important and so is practice: Good graders exercise their skills often. But other factors, like general health, mood, and diet, also affect a grader's consistency. With stones that fall on the border between grades, something as trivial as a bad cold can affect a grader's judgment. That's why, in reputable gemological labs, diamonds are examined by more than one grader.

Color-deficient vision (commonly called color blindness) isn't necessarily a liability to a color grader. That's because in the normal D-to-Z range, the grade is based on the depth of color, not the hue itself.

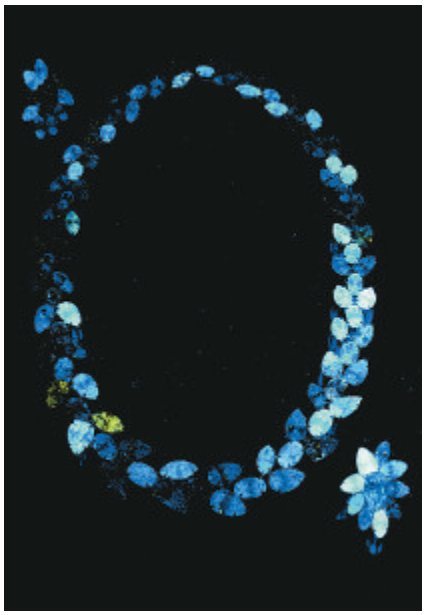
Color-grading Environment

GIA Instruments supplies light sources specifically designed for color grading and diamond displays.

The GIA DiamondDock™ provides a permanent setup and a neutral background for grading color and other diamond qualities. The user can switch between spotlighting and daylight-equivalent fluorescent lighting or use both at the same time.

Eric Welch/GIA

The GIA DiamondDock™ provides a neutral background and an option for daylight-equivalent fluorescent light. This makes it an ideal color-grading environment.



Both ©Harold and Erica Van Pelt

This necklace and earring set contains 155 cts. of diamonds with varying degrees of fluorescence. The differences are invisible under normal light (left), but the range of fluorescence shows up under longwave UV light (right).

Fluorescence—Emission of visible light by a material when it's exposed to ultraviolet radiation.

Ultraviolet (UV)—Light wavelength that's invisible to the human eye.

Fluorescence and Diamond Color

Many diamonds emit a visible light called *fluorescence* when they're exposed to *ultraviolet* (UV) radiation. Although invisible to the human eye, UV radiation is everywhere. Sunlight contains it. Fluorescent lights emit it, too.

Both by Christie's Images Inc.

Jewelers achieve beautiful results by combining fancy-colored diamonds with diamonds in the normal color range. Colorless diamonds circle a pear-shaped Fancy Vivid blue diamond in this exquisite pendant (left). The earrings (right) feature clusters of colorless and fancy-colored diamonds.

Fancy-colored diamonds— Naturally colored yellow and brown diamonds that exhibit color beyond the Z range, or that exhibit any other color face-up.

Under the right conditions, you can see fluorescence in about 35 percent of gem diamonds. Blue is the most common fluorescent color in gem-quality diamonds, but other possible fluorescent colors include white, yellow, and orange.

Strong blue fluorescence can make a light yellow diamond look closer to colorless in sunlight. Blue and yellow are color opposites and tend to cancel each other out, so blue fluorescence masks the yellow color. If the fluorescence is too strong it might make the stone look cloudy or "oily." And that can lower the value of the diamond.

Fancy Diamond Colors

Naturally colored diamonds outside the normal color range—like the pink diamond Janet pointed out in her sales presentation—are called *fancy-colored diamonds.* You also might hear them called "fancies."

While fancy-colored diamonds have traditionally been a small part of the diamond business, their popularity and availability have increased in the past decade. The FTC provides no guidelines for the use of the term "fancy color" in the US, but there is general agreement in the international trade that fancy-colored diamonds display one of these face-up features:

- They are yellow or brown diamonds that have more color than a Z masterstone
- They exhibit a color other than yellow or brown

As you saw at the beginning of this assignment, diamonds in the D-to-Z range usually decrease in value as the color becomes more obvious. Just the opposite happens with fancy-colored diamonds—value usually increases as the color deepens.

Fancy-colored diamonds come in almost any color you can imagine. Red, green, purple, and orange are generally the most rare, followed by pink and blue. Yellows and browns are the most common fancy colors.

Many fancy colors, however, are not strong and pure. They're often blended with other colors and muted by grayishness or brownishness. Large, vivid fancy-colored diamonds are extremely rare. They're also very valuable.

Blacks and grays are considered fancies, too. Some have been fashioned into gems. The 67.50-ct. Black Orloff diamond is the most well known example.

Public awareness of colored diamonds has increased since the 1980s. That's when the Argyle mine in Australia began marketing its brown stones under trade names like "Champagne" and "Cognac." Argyle reached its goal of making the public more aware of fancy-colored diamonds and dropped its marketing campaign in the late 1990s. Today, the Argyle mine still produces brown diamonds, but it's more famous as the world's major source of pink diamonds.

Spectacular prices in high-profile auctions are another factor in the increased awareness of fancy-colored diamonds. In November of 1995, at

Key Concepts

The value of fancy-colored diamonds generally increases with the strength and purity of the color.

Each year, the Argyle diamond mine in Australia produces hundreds of carats of diamonds in various shades of pink.

Christie's Images Inc.

This magnificent 12.45-ct. pear shape with internally flawless clarity is one of Argyle's best pinks.

Chris Grey/Harold Freeman Co.

Black is considered a fancy diamond color. Tiny black and white diamonds give these rings a distinctive, modern look.

Jack Kelége & Co.

Combinations of diamond colors–like the fancy yellow and colorless diamonds in this platinum ring–can create striking contrasts.

Sotheby's, Geneva, a Cartier ring containing a 7.37-ct. Fancy Intense purplish pink diamond sold for $6,011,894—a price that amounted to about $815,725 per carat.

In the same year, Christie's sold a Boucheron 4.37-ct. Fancy Deep blue oval-cut diamond ring for $2,485,398—or $568,740 per carat. For the sake of comparison, a giant—and extremely rare—100.10-ct. D-color, internally flawless, pear-shaped diamond was sold by Sotheby's in 1995 for $16,548,750—about $165,322 per carat.

Bettman/Corbis

The eccentric Evalyn Walsh McLean was one of the Hope diamond's many owners.

Famous Diamonds: The Hope

Rough weight: 110.50 cts.

Modern cut weight: 45.52 cts.

Shape: Cushion

Color: Fancy Deep grayish blue

Clarity: VS_1

©Tino Hammid 1988

Joe McNally/TimePix

The Hope (top) is one of the world's most famous fancy blue diamonds. Today, it's on public display at the Smithsonian Institution in Washington, D.C., in the necklace worn by actress Michele Pfeiffer (bottom).

The history of the diamond that's today known as the Hope goes back to mid-seventeenth century India, when Jean Baptist Tavernier bought a sapphire-blue diamond and named it the Tavernier Blue. In 1669, he sold the stone to Louis XIV, France's Sun King. It became known as the Blue Diamond of the Crown and remained with the royal family until 1792.

The diamond later surfaced in London, where Henry Philip Hope bought it sometime before 1839 and gave it his family's name. The stone stayed with the Hopes until 1901. It then took two side trips to owners in Turkey and Paris.

In Paris, Pierre Cartier tried to enhance the diamond's appeal. He used fictional tales and exaggerated stories to create the Hope's famous "curse," which implied that bad luck followed anyone who owned it.

The diamond crossed the Atlantic to America in 1911, where Evalyn Walsh McLean bought it for $180,000. Having been treated royally for better than two centuries, the Hope got something less than deep respect from the flamboyant McLean. She kept it in a shoebox and often lent it to friends to wear, including her Great Dane, Mike.

McLean died in 1947 and willed the Hope to heirs, who sold it in 1949 to pay debts and claims against the estate. Harry Winston bought the Hope, along with McLean's other jewelry, for about $1.3 million. In 1958, Winston donated the diamond to the Smithsonian Institution in Washington, D.C., where it's still on public display and said to be the museum's most popular attraction.

Christie's Images Inc.

Astounding auction prices have given fancy-colored diamonds newfound recognition. This ring, with its 4.37-ct. Fancy Deep blue oval-cut diamond, sold for almost two and a half million dollars in 1995.

Not all fancy-colored diamonds command such high prices. Many people consider yellow and brown fancies less desirable than near-colorless stones of equal weight and clarity. And deeper yellows and browns are generally less valuable than other fancy colors.

Grading Fancy-colored Diamonds

Because fancy-colored diamonds come in so many different hues, there are far too many variations to make a complete set of masterstones possible. So when diamond graders at the GIA Laboratory grade fancy-colored diamonds, they use a combination of comparison stones and printed standard color references. These tools help them identify the color of the diamond as a whole, or its *characteristic color*.

After deciding on the diamond's characteristic color, the grader assigns a color grade. The grade consists of the characteristic color modified by one of these fancy grade terms:

- Faint
- Very Light
- Light
- Fancy Light
- Fancy
- Fancy Intense
- Fancy Vivid
- Fancy Dark
- Fancy Deep

The first three grades (Faint, Very Light, and Light) apply to all colors except yellow. A stone that shows a natural yellow color stronger than the Z master would be called "Fancy Light yellow."

Characteristic color—The basic color of a fancy-colored diamond.

Robert Weldon/GIA

The GIA grading system for fancy-colored diamonds was designed to accommodate the varying intensities of different hues. These four diamonds share the same yellow characteristic color, but they vary in saturation. Their grades are (left to right) Fancy Light yellow, Fancy yellow, Fancy Intense yellow, and Fancy Vivid yellow.

Rules and Industry Practice

The US FTC *Guides* addresses the subject of diamond color descriptions that can be misinterpreted in *SECTION 23.14: Misuse of the term "blue white."*

It is unfair or deceptive to use the term "blue white" or any representation of similar meaning to describe any diamond that under normal, north daylight or its equivalent shows any color or any trace of any color other than blue or bluish.

Descriptive terms are different for natural black and opalescent white diamonds, which are described simply as "fancy black" and "fancy white" to avoid redundant expressions like "dark black" and "light white."

Color Treatment

- Why don't most gemological laboratories grade coated diamonds?
- Is irradiated color permanent?
- What treatment can remove color from diamonds?

Researchers have made countless efforts to intensify or remove color in diamonds. They've had more success with attempts to add or enhance diamond color than with those to remove color. Either way, all the processes fall under the general heading of treatments. As you learned in Assignment 2, a treatment is any human-controlled process that improves gem appearance. Gem treatments generally improve apparent clarity or enhance or remove color.

Some treatments are completely legitimate and some are questionable. Most treated diamonds are presented honestly. But a treated diamond might re-enter the market if a long-time owner wants to sell it, or if someone inherits the diamond with no knowledge of its history. The fact that it was treated might be forgotten or unknown. If it's also undetected, it might be presented as a naturally colored diamond.

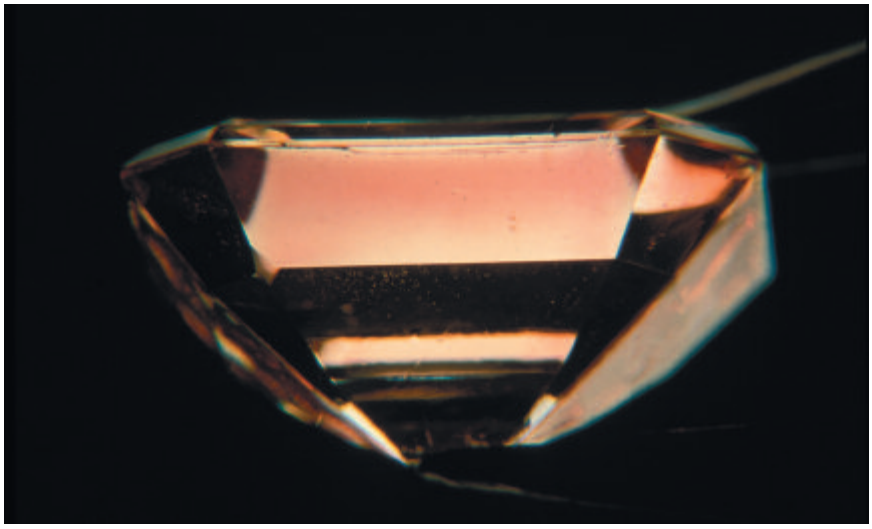
The equipment available in a typical retail store can't positively identify many of today's diamond color treatments. However, laboratory gemologists working with the proper equipment can detect them. That's why a lab report is helpful: It can assure you and your customer of a legitimate transaction.

As you learned in Assignment 2, the seller of a treated stone is responsible for honestly and accurately representing its treatment history. There are no allowances for lack of training, equipment, time, or opportunity to determine origin of color.

Various treatment methods can enhance diamond color. The fancy colors of the diamonds in these channel-set rings are a result of laboratory irradiation.

Consumers must be informed if a diamond's color is a result of treatment. The promotional information clearly states that the diamond in this ring was treated to give it its blue color.

Irradiation—A treatment that changes the color of a gem by exposing it to radioactive materials.



A coating of nail polish on the surface of this 10.91-ct. yellow diamond gives it a deceptively pink hue.

Key Concepts

Diamonds can be treated to alter or add color by coating, irradiation, heating, or by a combination of irradiation and heating.

Adding and Enhancing Color

Efforts to add color range from the primitive to the highly sophisticated. One of the earliest color treatments was coating. Most coatings were super-thin layers of chemicals applied to a few of the pavilion facets, or to a tiny spot on the culet or around the girdle.

If the stone remains in its mounting, a coating can go unnoticed for years. Then it might be discovered if the stone is repolished, which usually removes the coating.

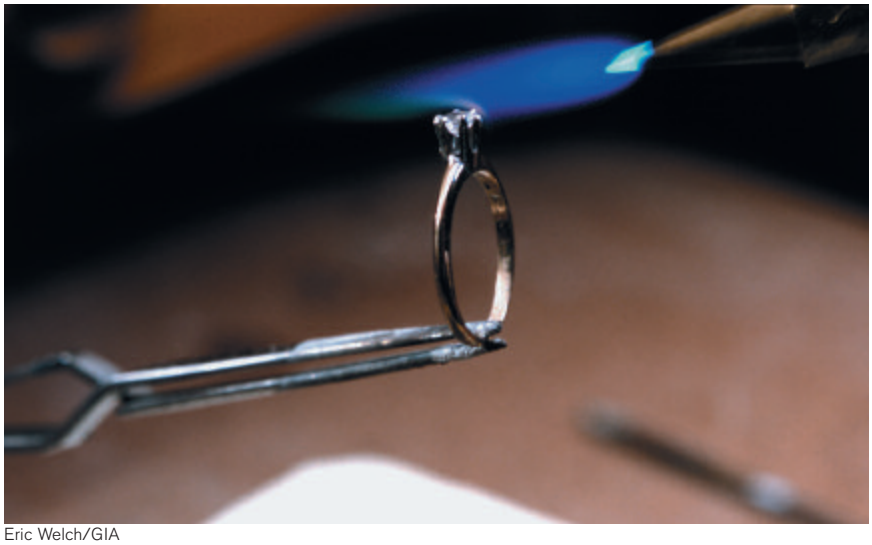
Early coatings were not very durable. Modern technology, however, has produced tougher coatings, similar to those used on camera lenses and optical instruments.

Coatings are fairly common, and might be difficult to detect. At a major auction house in the 1980s, someone switched a valuable pink diamond with a very pale yellow one that had been coated with pink nail polish. Careful attention caught the deception before the auction took place.

It's a good idea to check for coatings when you take diamond jewelry in for repair. Experienced diamond professionals often sense immediately when something about a color doesn't look right. The color might appear unnatural and hard to classify. Revealing the coating is then a matter of patient, careful examination with a microscope. When in doubt, send any questionable stone to a lab for confirmation.

While coatings are confined to the surface of a stone, and are easy to remove or damage, *irradiation* penetrates the stone. It changes the color by altering the crystal structure of the diamond, so it's more permanent than a coating.

The irradiation process dates from about 1904, when British scientist Sir William Crookes buried some diamonds in radium salt for a year. As with



Eric Welch/GIA

It's important to be aware that the flame of a jeweler's torch can alter the color of some color-treated diamonds.

Annealing—A gemstone heating process that can be used alone or to stabilize irradiated color.

diamonds exposed to radioactive rock in the ground, Crookes' diamonds turned green. But they also became radioactive. This hazard has been overcome since then by advances in radiation treatment. From time to time, however, dealers and retailers who specialize in antique jewelry still encounter radioactive diamonds.

Modern radiation treatments are byproducts of the nuclear age. Technicians can now duplicate most natural diamond colors. Color-treated blue-greens, yellowish greens, yellows, browns, and oranges were the first to be readily available. Now even rare colors like pure blues, purples, pinks, and greens, can be treatment-induced. Irradiated diamonds have become common and accepted alternatives to the more valuable natural fancy-colored diamonds.

Annealing, or heating, can influence the color of some diamonds, but it's often used to stabilize irradiated color. Heat can also be combined with high pressure to induce color. There will be more on this subject in the GIA *Diamonds & Diamond Grading* course.

Be cautious when you accept fancy-colored diamonds for repair—especially yellows and browns, which are the most common results of diamond color treatments. Always consider the possibility that they might have been treated. Heat—like the flame of a jeweler's torch—can affect irradiated color in undesirable ways: Some irradiated diamonds change color if they're heated. A common repair job, like retipping, can lead to disaster if this happens. If a diamond changes color while in your care, you could have a very unhappy customer on your hands.

Fracture filling, as you learned in the previous assignment, conceals diamond fractures by filling them with glass. It can also affect a diamond's apparent color. But fracture filling doesn't change the actual color of the diamond, and the apparent color will change if the filling material is ever removed or damaged.

Bettman/Corbis

When British scientist Sir William Crookes uncovered the diamonds he had buried in radium salt for a year, he discovered that they had turned green. Unfortunately, they were also dangerously radioactive.

Both by Phillip Hitz/Gübelin Gem Lab

In the late 1990s, Lazare Kaplan International and GE developed a method for lightening or removing diamond color with a process that combines high pressure and high temperature. After processing, the color in the diamonds (top) disappeared almost completely (bottom).

Removing Color

Until the late 1990s, efforts to remove color from diamonds were not very successful. That changed in March 1999 when Lazare Kaplan International (LKI) announced that it had worked with General Electric (GE) scientists to develop a process to improve the color in some diamonds in the normal color range.

This process uses a combination of high pressure and high temperature—the same critical forces in diamond formation—to lighten or remove diamond color. After treatment, the color of the treated diamonds usually falls between grades D and H.

LKI markets these diamonds under the brand name Bellataire. To help the jewelry industry identify and disclose them, the company applies a laser inscription to each diamond's girdle. The earliest inscriptions said "GE POL" (POL is an acronym for Pegasus Overseas Limited, an Antwerp-based subsidiary of LKI that's the exclusive agent for these diamonds). Now, each diamond is inscribed "Bellataire."

While the GIA Laboratory won't grade diamonds that have been subjected to certain treatments (fracture filling, for example) because the effects of the treatment are not permanent, it does grade Bellataire diamonds—and notes the fact of the treatment on the report.

Today, many companies worldwide use high pressure, high temperature treatments to remove diamond color and also, in rare cases, to create fancy diamond colors like green, yellow, blue, and pink. You'll learn more about these treatments in the GIA *Diamonds & Diamond Grading* course.

Selling Color

- How can rarity help you explain diamond value?
- What is the most important element in most sales presentations?

In some sales presentations, you might have to go into some detail about how diamonds are graded, just as Janet did with Nancy at the beginning of this assignment. Most customers think all diamonds are colorless. Others will need to be assured that color grading is a precise process, and that the grade on a diamond report is accurate. Some people will want to know more about the grading system in general.

While all of that can help you answer a customer's questions and concerns, the most important part of most presentations will revolve around two key points: rarity and romance. Think of them as the Two *R*s.

Use rarity to explain value, just as Janet did in her presentation. People want to be assured that they're getting good value for their money. Rarity can help you assure them that they're getting what they're paying for, especially if you're selling a colorless or near-colorless diamond. And rarity is obviously important when you present a fancy-colored diamond.

Key Concepts

A combination of high pressure and high temperature can lighten or remove diamond color.

The Two Rs—rarity and romance—are critical to successful sales presentations.

When you sell jewelry, try to relate diamond color to romance. If you describe colorless diamonds as symbols of pure and eternal love, you can help customers connect emotionally with the jewelry.

As important as rarity can be, romance is usually more important. Jewelry is an emotional item, and color is an emotional topic. Use romance to sell a diamond's color, and to make it exotic and special. People respond better to descriptions like, "This diamond has a beautiful cognac color," than "This diamond is a nice shade of brown." Use words to make the color come alive:

- Colorless diamonds are icy cool. They look as pure as water running over rocks in a clear, sparkling stream.
- Yellow is the color of sunshine and gold. Yellow diamonds are bright, cheerful, and positive.
- Brown is warm and comforting. Brown diamonds are the color of honey and fine cognac.
- Pink is happy and bright. Pink diamonds are the color of roses—or the blush of a lover's cheek.
- Green is natural and peaceful. Green diamonds are the color of peaceful, rolling meadows.

One of a diamond's greatest selling features is its rarity. Just as perfectly colorless diamonds are rare, so are fancy colors like the bold, black diamond that stands out against its platinum mounting.

Christie's Images Inc.

You can compare the bright hue of these heart-shaped yellow diamonds to golden sunshine to make the color come alive for customers.

As always, remember that the best diamond color is the one the customer likes best. If you go back and read the sales presentation at the beginning of this assignment, you'll see that the sales associate, Janet, was very careful not to try to convince the customer to choose one color over the other. But she did help Nancy make a choice between the two bracelets by using good sales practices.

Torsten Blackwood/AFP

Whether a diamond is colorless or fancy-colored, color is one of its most distinguishing features. Knowing how to provide information about diamond color while using imaginative language makes the most of this very important feature.

Use what you've learned about color in this assignment to prepare sales presentations for the diamonds in your inventory. Practice explaining the color-grading scale—and invent creative ways to talk about the color of the diamonds you sell. The more you know about color, and the more you practice presenting it, the better you'll be at promoting this important aspect of diamond appearance.

A GIA Diamond Grading Report can help you explain diamond color to your customers.

Color and GIA Laboratory Diamond Reports

On both the GIA Diamond Grading Report and the Diamond Dossier®, the color grade is located on the left side of the page, and fluorescence is noted under it. There's also an illustration of the grading scale for the normal color range.

Both reports show the full range of the D-to-Z color grading scale, which can help you explain diamond color to your customers.

Although the principles are the same, color grading at the GIA Laboratory is much different from color grading in a retail store or dealer's office. First, GIA graders work with many masterstones, while the sets found in retail stores or dealers' offices usually contain five or fewer masterstones. Grades that fall between the masters have to be estimated. Second, GIA color grades are not assigned until several graders have examined the diamond. Retailers and dealers usually don't have the option of consulting with a number of expert graders.

Key Concepts

The color in most diamonds is very subtle.

It's important to explain the relationship between color, rarity, and value to consumers, who often aren't aware of it.

Slight differences in color can cause dramatic differences in value.

The D-to-Z scale describes the normal color range of diamonds.

It's difficult to accurately determine a diamond's color grade if it's mounted.

"Color memory" is not a reliable tool for color grading.

Training and a lot of practice are what make a good diamond grader.

The value of fancy-colored diamonds generally increases with the strength and purity of the color.

Diamonds can be treated to alter or add color by coating, irradiation, heating, or by a combination of irradiation and heating.

A combination of high pressure and high temperature can lighten or remove diamond color.

The Two Rs—rarity and romance—are critical to successful sales presentations.

Key Terms

Annealing—A gemstone heating process that can be used alone or to stabilize irradiated color.

Characteristic color—The basic color of a fancy-colored diamond.

Depth of color—The combination of tone and saturation that determines how noticeable a color is.

Fancy-colored diamonds—Naturally colored yellow and brown diamonds that exhibit color beyond the Z range, or that exhibit any other color face-up.

Fluorescence—Emission of visible light by a material when it's exposed to ultraviolet radiation.

Hue—Your first impression of a color; the basic color of an object.

Irradiation—A treatment that changes the color of a gem by exposing it to radioactive materials.

Masterstones—A set of color comparison diamonds that defines GIA's diamond color grades in the normal (D-to-Z) range.

Near-colorless—A general term for diamonds in the G-to-J color range.

Normal color range—Range of diamond colors from colorless to light yellow and light brown.

Saturation—A color's strength or intensity, ranging from a dull hue to a pure, vivid hue.

Tone—A color's degree of darkness or lightness.

Ultraviolet (UV)—Light wavelength that's invisible to the human eye.

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