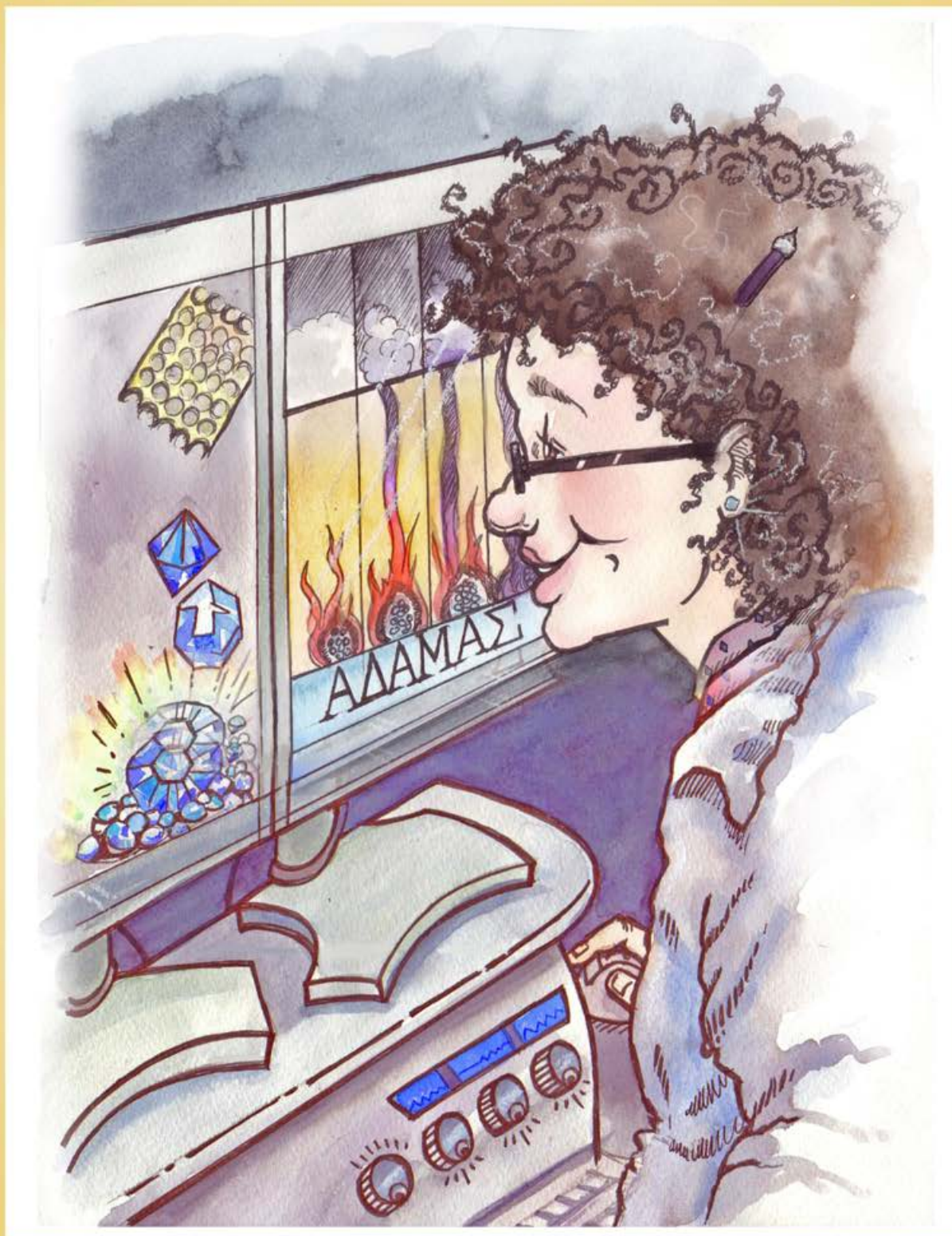


# THE CURIOSITY FILES

EXPLORATIONS WITH PROFESSOR ANA LYZE, EXPERT IN OUTLANDISH ODDITIES



## BLUE DIAMOND

# Everything You Never Wanted to Know

## About the Blue Diamond . . .



**Blue diamonds? I thought all diamonds were clear.**

**Isn't that what makes them diamonds, after all?**

When we think of specific *gemstones*, the colors are usually a tip to what those gems *are*. Blue is for sapphires, red is for rubies, green is for emeralds, and on and on. But to understand the difference between a diamond and a sapphire, or a ruby and an emerald, you first have to understand what a gem actually is.

**Okay. So what is a gem?**

A gemstone is a rock made of specific materials under special circumstances. Just like a sedimentary rock is formed of layers and layers of limestone, quartz, or sandstone building up over time and solidifying, a gemstone is also created from certain things combining and becoming a solid mass that can be classified as a whole new thing.

**Whoa! That's kind of confusing.**

Actually, it's no more confusing than baking a cake. Say you want to make a chocolate cake. You would need eggs, flour, sugar, butter, baking soda, and cocoa powder. When you combine all of those ingredients, you have a batter. You can't see the eggs or the butter anymore—they're all part of the liquidy batter. Now for the big change! Put your batter in the oven, and what comes out? A cake! But you didn't start with a cake, right?

**Well, no. You start with the eggs and flour and other ingredients.**

Right! It's the same way with rocks—all rocks. And gemstones are just rare rocks, really. They are formed of specific ingredients and then "baked" in different ways with the end result being something beautiful.



## So what makes blue diamonds, in particular, so valuable?

Blue diamonds in general aren't necessarily more expensive than other colored diamonds. But they are among some of the more fabled gems in history. People have been using rare stones in jewelry and ornaments since nearly the beginning of recorded time. In the book of *Genesis*, it's clear that the custom has already been firmly established when Abraham's servant goes in search of a wife for Isaac: *"And the servant brought forth jewels of silver, and*



*jewels of gold, and raiment, and gave them to Rebekah: he gave also to her brother and to her mother precious things."* (*Genesis 24:53*) Scholars say that this jewelry would have been studded with precious stones. Throughout history, there are tales of the "crown jewels" of kings and queens and the treasure hordes of great raiding nations. Some of those stories just happen to feature blue diamonds.

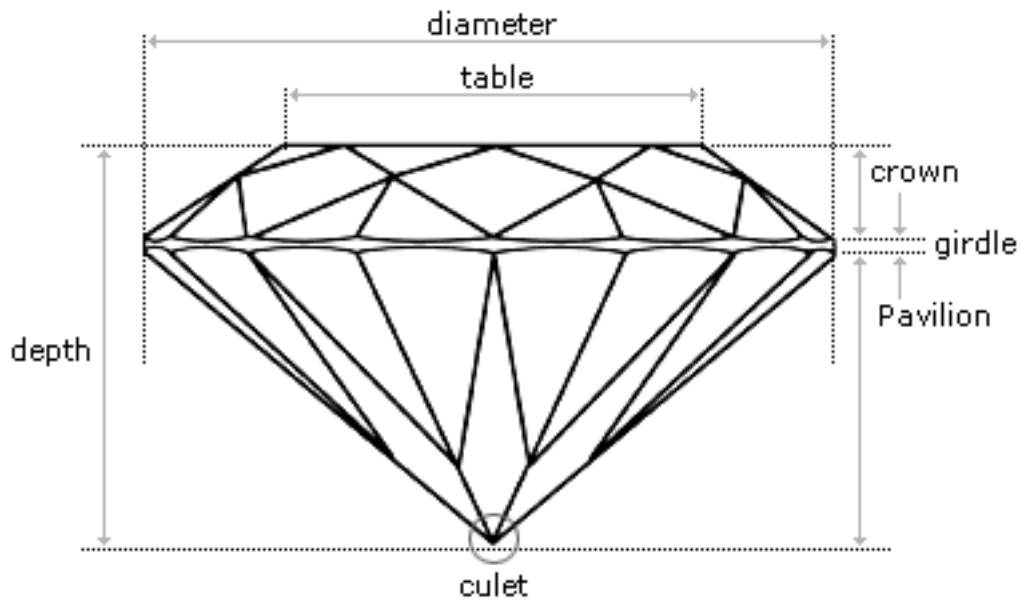
## Such as?

For a truly royal blue diamond tale, look to *Der Blaue Wittelsbacher*, also known as the Wittelsbach Diamond. In 1664, King Philip IV of Spain purchased the 35.56-carat jewel for inclusion in the dowry of his daughter, the beautiful Margaret Theresa. She married the Holy Roman Emperor Leopold I. The Wittelsbach remained in the family line until 1722, when their granddaughter, Maria Amalia, married Charles VII, who also became Holy Roman Emperor. The blue diamond later became a prominent feature in the crown of Bavaria (which was held by the Wittelsbachs) until 1918, when it was lost in the aftermath of World War I. The jewel eventually resurfaced and has been held in private collections. It was sold most recently in December of 2008 for a record \$23.4 million.



*The Wittelsbach Diamond with a picture of Infanta Margarita Teresa*

## DIAMOND ANATOMY



**Diameter** - The width of the diamond as measured through the girdle.

**Table** - The flat top and largest facet of a gemstone.

**Crown** - The top portion of a diamond extending from the girdle to the table.

**Girdle** - The narrow band around the widest part of a diamond.

**Pavilion** - The bottom portion of a diamond, extending from the girdle to the point of the stone.

**Culet** - The facet at the tip of a gemstone. The preferred culet is not visible with the unaided eye (graded "medium" or "none").

**Depth** - The height of a gemstone measured from the culet to the table.

## Let's See How Much You've Learned . . .

1. Which element gives blue diamonds their bluish tint?
  - ☐ nitrogen
  - ☐ helium
  - ☐ boron
  - ☐ aluminum
2. It takes three things to make a diamond: \_\_\_\_\_, pressure, and heat.
3. Name three possible diamond colors.  

---
4. Diamonds form in the earth's:
  - ☐ crust
  - ☐ mantle
  - ☐ core
  - ☐ magma
5. True / False: Diamonds are currently mined in more than 27 countries.
6. Diamonds were initially discovered in:
  - ☐ India
  - ☐ South Africa
  - ☐ Bavaria
  - ☐ France
7. Diamonds are weighed in \_\_\_\_\_.
8. True / False: The average diamond mounted in an engagement ring today is about 35 carats.



Blue Diamonds are the rarest, highest quality of diamond found in nature. Because of their rarity, they are one of the most expensive and highly treasured jewels on earth. Most blue diamonds for sale today are actually color-treated clear diamonds of the highest clarity. Created through a heat treatment process to enhance their color, these diamonds are still extremely valuable in today's market. Their brilliant sparkle is greater than blue sapphire and, because they are diamonds, they are harder and more durable than any other gemstone.

The Hope Diamond, donated in 1958 to the Smithsonian Institution in Washington, D.C., is the most famous and valuable of blue diamonds in the world. Although its known history spans over 341 years of ownership, trading hands from merchants to kings to an American woman, its beauty, clarity, and quality remain intact with no imperfections visible to the naked eye.

God's Word has much to say about hope, strength, and treasure. As we look at these verses, consider how God's creation of diamonds can lead us to consider these attributes of our heavenly Father and His Word.

1. *"Blessed be the God and Father of our Lord Jesus Christ, which according to his abundant mercy hath begotten us again unto a lively hope by the resurrection of Jesus Christ from the dead, To an inheritance incorruptible, and undefiled, and that fadeth not away, reserved in heaven for you, Who are kept by the power of God through faith unto salvation ready to be revealed in the last time." (I Peter 1:3-5)*

According to this Scripture, what type of hope do we have? Why is it a "living hope"? How is this different than hope we might experience from other circumstances? How secure is this hope? Why would God want us to have such hope for our lives? What difference does this knowledge make for you when you are facing difficult circumstances?



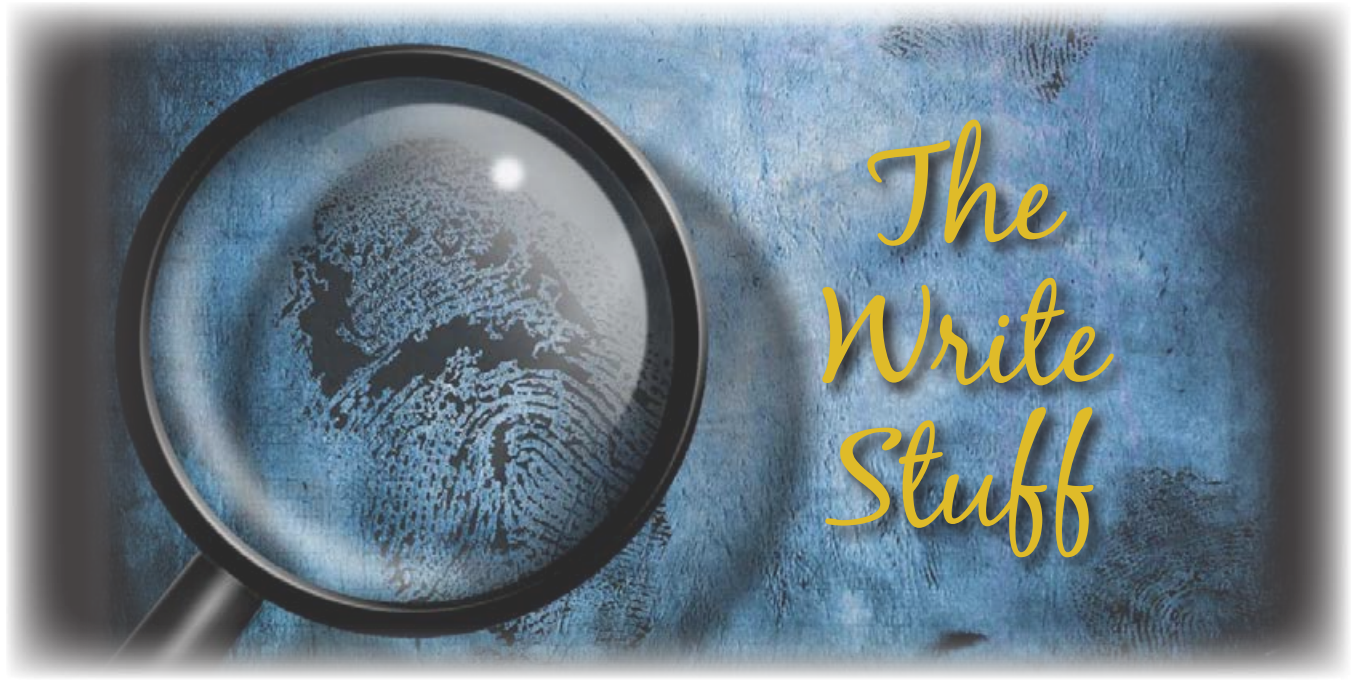
# Figure it Out

## BLUE DIAMOND COLORS

Blue diamonds are rare. They have many shades of blue. Go throughout your house looking for 20 blue things having different shades. Compare all your blue crayons to the blue items and write down their color names. If none of your crayons look like the right blue, make up your own color name. For example, my eyes are the exact color of Lake Zurich in Switzerland, so I call that color "Zurichsee blue."

Item	Color





## The Mystery of Blue Diamonds

Blue diamonds are filled with a mystery all of their own. As we look at things that seem so mysterious, it is fun to try to solve the question of why things are the way that they appear. Sometimes we find that what may seem strange and mysterious can be explained using simple logic. Mysteries make our brains work as we try to solve them. Many people love to read mystery stories and try to figure out the seemingly inexplicable crime or other event that takes place in the story.

What do you think makes a good mystery? There are several things that all great mystery stories have in common:

- A great mystery story is usually realistic. This means that it is believable and you think that the story could happen in real life.
- A great mystery story will have a setting, plot, and characters that are well developed.
- A great mystery story will have a mystery that needs to be solved. It will create questions for the reader that need to be answered. For example: Who did it? How did it happen? What is it? What will happen next?
- A great mystery story will include distractions and clues.





## Elementary Word List

**blue diamond** - An extremely rare diamond that has a striking blue color. These diamonds can sometimes conduct electricity.

**Hope Diamond** - One of the world's most famous blue diamonds. It was originally owned by King Louis XIV of France in 1668.

**crown jewels** - The jewels worn only by the king or queen of a country.

**carat** - The measurement used for weighing gems.

**clarity** - Measures the clearness and flawlessness of a diamond.

**cut** - Term used to describe the proportions and shape of a gemstone.

**hue** - Another name for color.

**Smithsonian Institution** - The world's largest museum, where the Hope Diamond is displayed.

**rare** - Extremely hard to find.

**Pretoria** - City in South Africa which is home to the world's richest diamond mine.

**mine** - A large tunnel or deep hole in the ground where diamonds and other materials are found.

**boron** - An element that gives blue diamonds their unique color.

**conduct** - To transmit or send, such as electricity.

# Just For



## The "Sparkle" Game

1. Students form a circle.
2. The teacher reads one spelling word aloud.
3. One student is chosen to start the word, saying the first letter of the word.
4. Play moves clockwise, having each student say the next letter of the word.
5. When the word has been spelled correctly, the next student in line says "sparkle."
6. Then the next word is given.
7. If a student says the wrong letter, he/she is out of the game and must sit down. Keep going until all the spelling words are used. The person left standing wins!

## The Memory Game

Write each vocabulary word on an index card. On a separate index card, write the word definitions. Place index cards face down and have students take turns flipping over two cards—one word card and one definition. If they're a match, the student keeps them. If not, the student flips them back over so the next student can have a turn. The person with the most matches wins.

## Hangman

Take turns playing this traditional classroom favorite! See how many "body parts" you can draw before your friends/classmates/siblings guess the correct word.

## Jeopardy!

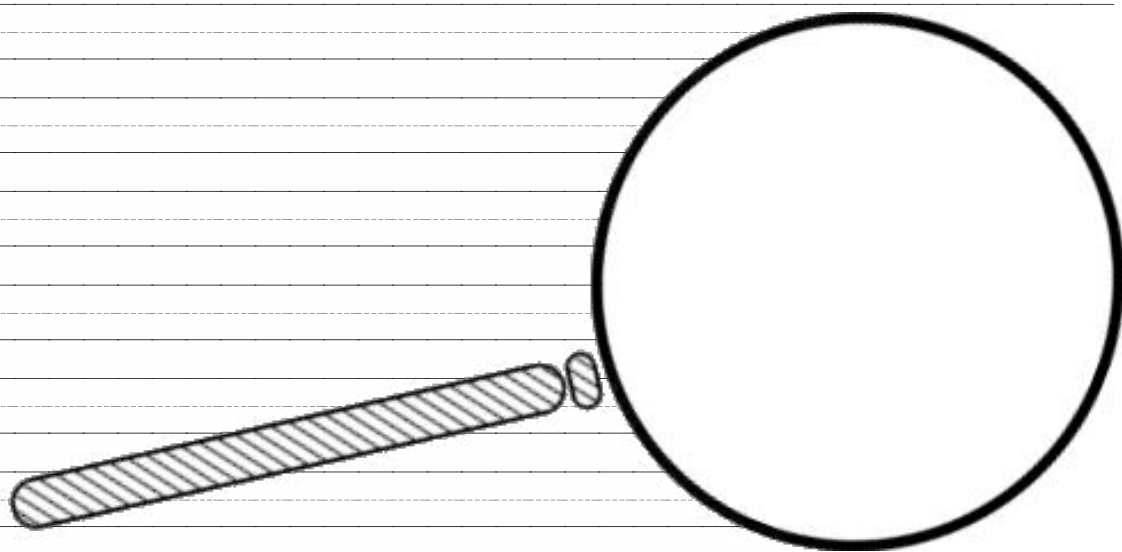
Create your own version of this classic TV game show, using only your vocabulary words and other interesting facts about the blue diamond. Make sure you answer in the form of a question!

## Timed ABC/Reverse ABC Order

Race your siblings to see who can write their vocabulary words in either ABC or reverse ABC order first. For added "drama" set a timer for 1 minute or less!

Proverbs 17:8

A gift is as a precious stone in the eyes of  
him that hath it: whithersoever it turneth,  
it prospereth.





# in the Lab

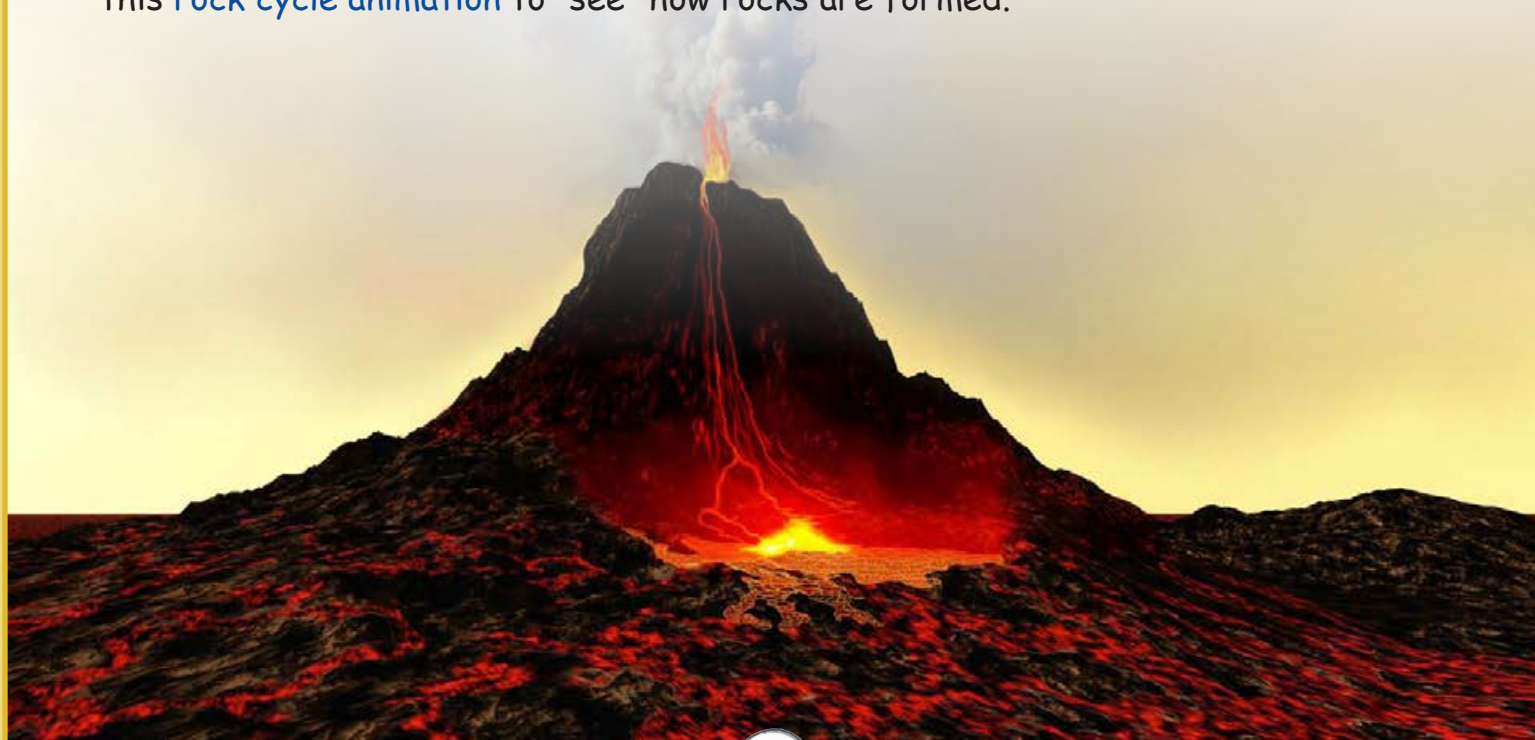


## GEOLOGY

Since we're discussing blue diamonds, let's talk about geology. Geology is the scientific study of the earth including rocks and [minerals](#), and minerals are the building blocks of rocks. Rocks are put into one of the following categories based on how they are formed:

- **Igneous** rocks are formed by the hardening of molten magma.
- **Sedimentary** rocks are made up of small pieces of rocks and minerals that are compressed over a long period of time and bond together.
- **Metamorphic** rocks are formed when rocks are buried far enough that pressure and temperature change them into different rocks.

And different effects can change one rock into another type of rock! Take a look at this [rock cycle animation](#) to "see" how rocks are formed.





# Good Old Days

There are several notable blue diamonds recorded throughout history. Of course, the most famous is the Hope Diamond, which is currently located at the Smithsonian Institution's Museum of Natural History in Washington, D.C. The Hope Diamond isn't even the largest blue diamond on record! The Regent Diamond is a blue diamond that's more than three times the weight of the Hope Diamond. But many of these valuable and rare diamonds have great stories.

Did you know that historically kings and queens have believed that diamonds and gems hold special powers? Kings would wear special breastplates with diamonds and other gems attached to protect them in battle. And enemy soldiers would avoid those kings because they believed that the gems held special powers. Do you think that maybe they started to believe this because God had the high priest in Israel's temple wear a breastplate mounted with precious gems? (Exodus 28) When others saw Israel's victory in war, maybe they adopted the belief that these gem-studded breastplates held special protective powers.



Prior to the 15th century, only kings owned and wore diamonds. They were seen as symbols of strength. As you read some of the stories of the diamonds listed below, you will learn about how they were used in scepters and crowns for many kings.

Diamonds have represented love throughout history. Ancient Greeks believed that diamonds held the fire of love. The sparkle in a diamond reminded them of this fire. In 1477, an archduke of Austria gave a diamond ring to the woman he wanted to marry. That was the first engagement ring. It was even believed that Cupid's arrows were tipped with a diamond.





# Where in the World?



## Geography Activity #1

### Supplies:

- Blue diamond timeline activity from the history section
- Blue marker, crayon, or pencil
- [World map](#)

If you read the stories of the famous blue diamonds listed earlier in this section, you will find that these diamonds have travelled the world. On your world map, mark all the places that your blue diamond has travelled in its lifetime. Mark the countries mentioned in the blue diamond stories with a blue diamond. If you are marking more than one diamond, write the name of the diamond beside the mark you leave on the map for it.

## Geography Activity #2

Using your world map, we're going to make it look like the map found here: [http://en.wikipedia.org/wiki/File:Diamond\\_output2.PNG](http://en.wikipedia.org/wiki/File:Diamond_output2.PNG)

This is a map of the countries that were producing diamonds in 2005. Although it doesn't *only* include blue diamonds, it's still a good opportunity to see from where the world's diamonds are coming. Make a mark on your map for every mark on this map.



# LET'S GET CREATIVE



## Buried Treasure

Age: 3-12 years old

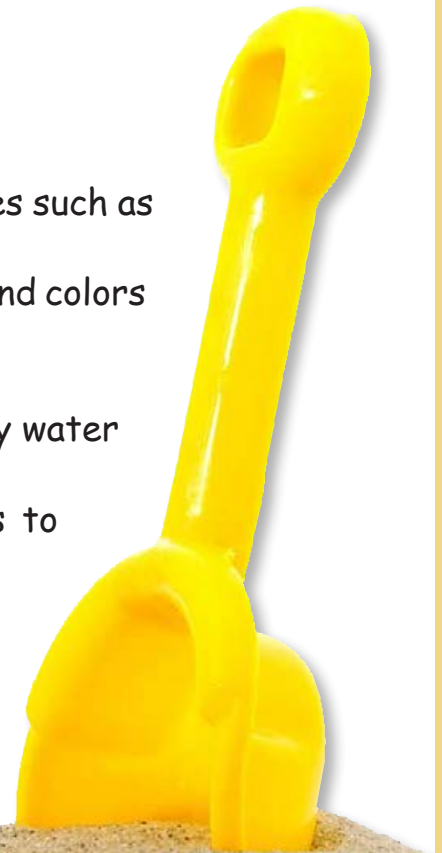
To find a blue diamond in nature is a rare event. Diamonds must be mined from deep in the earth requiring skill, determination, and patience. Create your own "diamond mine" you can use to search for blue diamonds.

### Materials needed:

- Empty .5-liter water bottle—washed and dried thoroughly
- Duct tape (colored or plain grey)
- Play sand (approximately 2 cups)
- Funnel (if desired to aid in pouring sand)
- 5-10 "Blue Diamonds"—plastic gems available at craft stores such as Michael's and Jo-Ann Fabrics
- Other small trinkets—glitter, small rocks of various sizes and colors

### Instructions:

1. Slowly pour small amounts of the play sand into the empty water bottle. Fill approximately  $\frac{1}{3}$  full.
2. Add one or two blue diamonds, rocks, or small trinkets to sand inside bottle.
3. Continue alternating blue diamonds, trinkets, rocks, and sand until bottle is full 1" below bottle cap.
4. Screw bottle cap on top of bottle and secure in place with duct tape.
5. Gently shake to mix diamonds and sand.
6. Spend hours searching for blue diamonds in your brand new diamond mine by shaking bottle gently while closed.





To be sung to the tune of "All Around the Mulberry Bush"

**Verse 1:**

Blue diamonds are not sapphires, are not sapphires, are not sapphires;

Blue diamonds are not sapphires, even though they are both blue.

**Verse 2:**

Sapphires are made from aluminum and oxygen, aluminum and oxygen, aluminum and oxygen;

Sapphires are made from aluminum and oxygen, while diamonds are made from carbon.

**Verse 3:**

Other elements mix with carbon to make colored diamonds, to make colored diamonds, to make colored diamonds,

Other elements mix with carbon to make colored diamonds, these elements give the diamond its color.

**Verse 4:**

Blue diamonds have carbon and boron, carbon and boron, carbon and boron;

Blue diamonds have carbon and boron, the boron is what makes them blue!