



## MERCURY



United States; Brazil

This stone contains sodium—the same chemical that is in the salt you eat. Sodium is the sixth most common chemical in Earth's crust. Sodalite was first discovered in Greenland

#### OPAL

in the early 1800s.

with white and gray lines

Some Discovery Spots: Canada,

Hardness: 5.5-6

Type: Mineral
Features: Many different colors, milky,
pearly luster
Hardness: 5.5-6.5
Some Discovery Spots: Worldwide

Opal is formed as water runs into the ground, picking up silica from sandstone. When the water evaporates, the silica is left behind. When this happens over and over, the silica becomes opal. Some types of opal flash a rainbow of colors when the rock is turned in the light (opalescence).

#### CITRINE -

Type: Mineral Features: Golden yellow color Hardness: 7

This is a yellow variety of quartz. Natural citrine is very rare and expensive. It is prized for jewelry. Like the one you have, most citrine sold is "made" by exposing amethyst, another quartz, to high heat. This changes the purple stone's color to yellow. Lab citrine is more affordable than

#### **DIAMOND**

Type: Mineral
Features: Red and hard
Hardness: 10
Some Discovery Spots: US, Africa, Canada

Diamonds are the hardest known mineral. Miners use large machines to blast and crush the rocks to reach the diamonds. Because diamonds are so hard, they aren't damaged by the mining activities. One of the largest diamonds ever found is the 3, 106-carat Cullinan diamond. (\*\* The one you dug up is NOT REAL! Real diamond is expensive.)

#### CARNELIAN

Type: Sedimentary rock
Features: Orange to reddish-brown
color, waxy
Hardness: 6.5 to 7
Some Discovery Spots: India, Brazil,
and Uruguay

This is one of the oldest-known gemstones. Thousands of years ago, Egyptians carved carnelian into amulets. They believed that wearing these heart-shaped necklaces helped keep them safe. Carnelian can range from translucent to opaque in appearance.



## VENUS

## PICTURE JASPER

Type: Sedimentary Rock
Features: Brown, gold to reddish brown
black, blue; tan or ivory
Hardness: 6.5-7
Some Discovery Spots: Worldwide

Picture Jasper, a remarkable form of Brown Jasper, is characterized by masterful "scenes" and landscape patterns formed by Nature. It is believed to contain hidden messages from the past. It was revered in many cultures of the world. It is perhaps more closely connected to the planet than any other Jasper. It is known today as the Stone of Global

#### OBSIDIAN

Type: Igneous rock
Features: Black or greenish-black color
shiny and glassy
Hardness: 5-5.5
Some Discovery Spots: Near volcanous

Obsidian starts out as super-hot magma. When a volcano erupts, lava blasts out. Sometimes, the lava cools super quickly as it hits air or water. This turns the lava into a shiny, sharp rock obsidian. In ancient times, obsidian was used as a mirror or made into arrowheads.

#### RED GOLDSTONE

Type: Synthetic Color: Red with sparkly gold luster Hardness: 6 Some Discovery Spots: Worldwide

The manufacturing of goldstone was a safely guarded secret by Venetian artisans in the 17th century. One myth of goldstone's origin is that it was first created accidentally by alchemist monks who were trying to create gold! The gold-colored flecks are not actually gold, but shiny bits of mica or copper infused to make it sparkle.

#### DIAMOND

Type: Mineral
Features: Yellow and hard
Hardness: 10
Some Discovery Spots: US, Africa, Canada

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## YELLOW

TIGER EYE

Type: Sedimentary Rock
Features: Brown, gold, yellow bands; silky
Hardness: 6
Some Discovery Spots: South Africa, Canada, Australia,
China, United States, Brazil

Put this rock under a bright light or look at it out in the sun.
You might be able to see the light bouncing off it. This rock has chatoyance. That means it can display a concentrated band of reflected light. In French, the word means "to shine like a cat's eve."



## **EARTH**

#### AMETHYST

Type: Mineral
Features: Pink to dark purple color
Hardness: 7
Some Discovery Spots: Uruguay, Brazi

Amethyst is a type of quartz, the second-most common type of mineral on land. Most of the sand in the world is made of quartz. Amethyst was once thought to be very rare until large deposits of it were found in South America in the 1800s. Long ago, people believed that this stone had special healing powers. But so far, there's no proof.

#### **PYRITE**

ype: Mineral eatures: Gold color; shiny metallic cubes Hardness: 6.5 Some Discovery Spots: Worldwide

This mineral is commonly known as fool's gold. It may sparkle like gold, but don't be fooled! Real gold is soft and malleable (can be easily bent and shaped). Pyrite is brittle, so it cracks easily. Also, gold has no odor, but pyrite can stink like rotten eggs. Pyrite was once used to fire guns. In fact, the word pyrite is Greek for "stone that strikes fire."

#### DIAMOND

Type: Mineral Features: Blue and hard Hardness: 10

Some Discovery Spots: US, Africa, Canada

Diamonds are the hardest known mineral. Miners use large

machines to blast and crush the rocks to reach the diamonds. Because diamonds are so hard, they aren't damaged by the mining activities. One of the largest diamonds ever found is the 3, 106-carat Cullinan diamond. (\*\* The one you dug up is NOT REAL! Real diamond is expensive.)

#### CORAL

Type: Mineral
Features: Tubular sac-like
Hardness: 3 to 4
Some Discovery Spots: Worldwide

Corals are close relatives of sea animones and sell yield and are the main reef builders in modern oceans. Corals can be either colonial or solitary. Corals are found worldwide in sedimentary rocks.

#### GREEN AVENTURINE

Type: Sedimentary Rock
Features: Green color with glittery specks
Hardness: 6.5
Some Discovery Spots: India, Brazil, and Russia

These vibrant quartz rocks are known for their color and shine. Aventurine contains small reflective particles that catch the light. This characteristic is called aventurescence and is what makes aventurine stand out among other stones. Green aventurine contains fuchsite, a green metallic mineral. The more fuchsite in your specimen, the stronger green the aventurine will be.

## MARS

Type: Sedimentary Rock
Features: Red color, opaque with clear,
white; or black veins or spots
Hardness: 6.5-7
Some Discovery Spots: Worldwide

RED JASPER

This rock gets its name from its spee and stape. The word jasper means "spotted stone" in Greek. Polished jasper is used to make fancy jewelry or carved into sculptures. Because it is hard, long-ago humans used jasper to make cups, bowls, and kniv

#### TEKTITE

Type: Metamorphic Rock
Features: Black, green, or gray color; glass
Hardness: 5
Some Discovery Spots: Worldwide

When meteorites (space rocks) crash and Earth the impact can heat up Earth rocks. The action can send the fiery hot rocks flying into space. These rocks eventually fall back to Earth and cool down. They turn into a glass called tektite.

#### HEMATITE

Type: Sedimentary Rock Features: Reddish brown

Hardness: 7
Some Discovery Spots: Alabama

Hematite is a sedimentary formation that has a reddish brown color and an earthy luster and is composed of small rounded grains. The spectral signature of hematite was seen on the planet Mars by the infrared spectrometer.

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#### CRYSTAL QUARTZ

Type: Sedimentary Rock
Features: Naturally colorless
Hardness: 7
Some Discovery Spots: Worldwide

Quartz is the second most common mineral. Naturally colorless, quartz becomes beautiful with the help of impurities that result in colorful gemstones. Also known as "Quartz King".

## JUPITER SATURN

#### PICTURE JASPER

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Features: Brown, gold to reddish brown
black, blue; tan or ivory
Hardness: 6.5-7
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#### ROSE QUARTZ

Features: Milky pink, glassy luster; had Hardness: 7 Some Discovery Spots: Brazil, France, United States

Quartz is very common. If you pick up a rock, it probably has some quartz in it! When quartz is squeezed very hard, it releases electricity, and in a very predictable way. That's why quartz is sometimes used in solar cells and computer chips.

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#### LEPIDOLITE

Features: Usually pink to purple color glittery; soft Hardness: 2.5 to 3

Some Discovery Spots: United States, Brazil

This soft stone is a member of the mica family, so it flakes

when scraped with a fingernail. It contains lithium, which provides its purple color. Lithium is the chemical often found in rechargeable batteries, cell phones, toasters, and microwave ovens.

#### YELLOW JADE

Type: Mineral
Color: Yellow to orange
Hardness: 6-6.5
Some Discovery Spots: India, Brazil, Russia, Spain

Despite its name this is not actually jade but a form of clo quartz, also called butter quartz due to its smooth yellow coloring. Like other forms of quartz, this mineral generate small electric charge when exposed to quick temperature changes. These types of rocks are called piezoelectric (pee-ay-zo-ee-lek trik) gems. The piezoelectric effect is use in many devices such as clocks, lighters, sensors, digital microscopes, and even micro-thrusters for satellites!

#### BASAL

Type: Igneous Rock Features: Dark grey to black Hardness: 5-7 Some Discovery Spots: United States, India, South Africa

Basalt is a igneous rock formed from the rapid cooling of low-viscosity lava rich in magnesium and iron (mafic lava) exposed at or very near the surface of a rocky planet or a moon. Basalt is also an important rock type on other planetary bodies in the Solar System.

## CITRINE

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#### BLUE AVENTURINE

Type: Sedimentary Rock
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Hardness: 7
Some Discovery Spots: India

Blue aventurine is a type of quartz with a deep blue hus.

Aventurine can also be found in shades of green, orange.

Aventurine can also be found in shades of green, orange, brown, yellow, and gray. The glittery look of aventurine makes it a popular pick for jewelry. Although it looks like it rolled around in glitter glue, the sparkle in aventurine comes from bits of a mineral called mica.

#### **AMETHYST**

Type: Mineral
Features: Pink to dark purple color,
white streaks
Hardness: 7
Some Discovery Spots: Uruguay, Brazil

powers. But so far, there's no proof.

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#### HOWLITE

Type: Mineral
Features: White or gray color, dark velocities: 3.5
Some Discovery Spots: United States,
Turkey, and Germany

Howlite is usually shaped like cauliflower. This mineral is porous, or filled with tiny holes. That's why it can absorb colored dyes. Some people dye howlite to make it look like other, more expensive gems, such as turquoise. It is named after Henry How, the first person to describe the rock.

URANUS

#### RED JASPER

Type: Sedimentary Rock
Features: Red color, opaque with clear
white; or black veins or spots
Hardness: 6.5-7
Some Discovery Spots: Worldwide

This rock gets its name from its spots and stripes. The word jasper means "spotted stone" in Greek. Polished jasper is used to make fancy jewelry or carved into sculptures.

Because it is hard, long-ago humans used jasper to make cups, bowls, and knives.

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# NEPTUNE

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Features: Pink and green color, with
clear or milky parts
Hardness: 6

Zimbabwe, Switzerland

This rock is often used for jewelry. It is a combination of three different minerals: orthoclase feldspar (pink), epidote (green), and quartz (colorless). Its name comes from the Unakas

Mountains in North Carolina, where it was discovered.

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#### SODALITE

Type: Mineral
Features: Dark blue to blue-violet color
with white and gray lines
Hardness: 5.5-6
Some Discovery Spots: Canada, United
States, Brazil

Greenland in the early 1800s.

This stone contains sodium—the same chemical that is in the salt you eat. Sodium is the sixth most common chemical in Earth's crust. Sodalite was first discovered in



