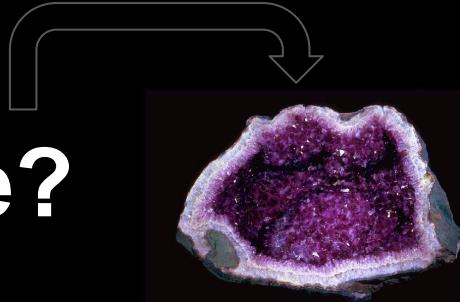


A large, fractured geode specimen is shown against a black background. The geode has a rough, light-colored exterior and a fractured interior filled with clear, crystalline quartz. The text is overlaid on the left side of the image.

Geodes (A summary)

By Leo

What is a Geode?



A Geode is a igneous/sedimentary rock formation that forms when there's a hollow cavity. They can get their structure and shape from lava bubbles cooling, abandoned animal dens, or the area that's left behind when a tree root rots away. They are special mainly because when you open them, you'll find a hollow rock full of crystals of many types. A geode that is not hollow is called a nodule and is a lump.

How are Volcanic Geodes formed?

Volcanic geodes are formed when a bubble of lava cools. This makes it hollow because gas (CO₂ or Water Vapor) rises in the lava and the bubble rapidly cools. This can either happen when the bubbles goes into water or it just happens to cool fast.

Mineral rich water then seeps into the geode or evaporates instantly. This then creates layers of impurities in the geode and this repetitiveness creates crystals due to crystals having the same mineral repeated. The Geodes you will be using are volcanic. Here's a brief drawing made by me, Leo. It's about how these are formed.



Fig 1: It's a peaceful day in
<insert place here>. Little
do they know that a
convection current is going
up in the volcano and will
cause lava to spew
everywhere... (Spoiler it
does)

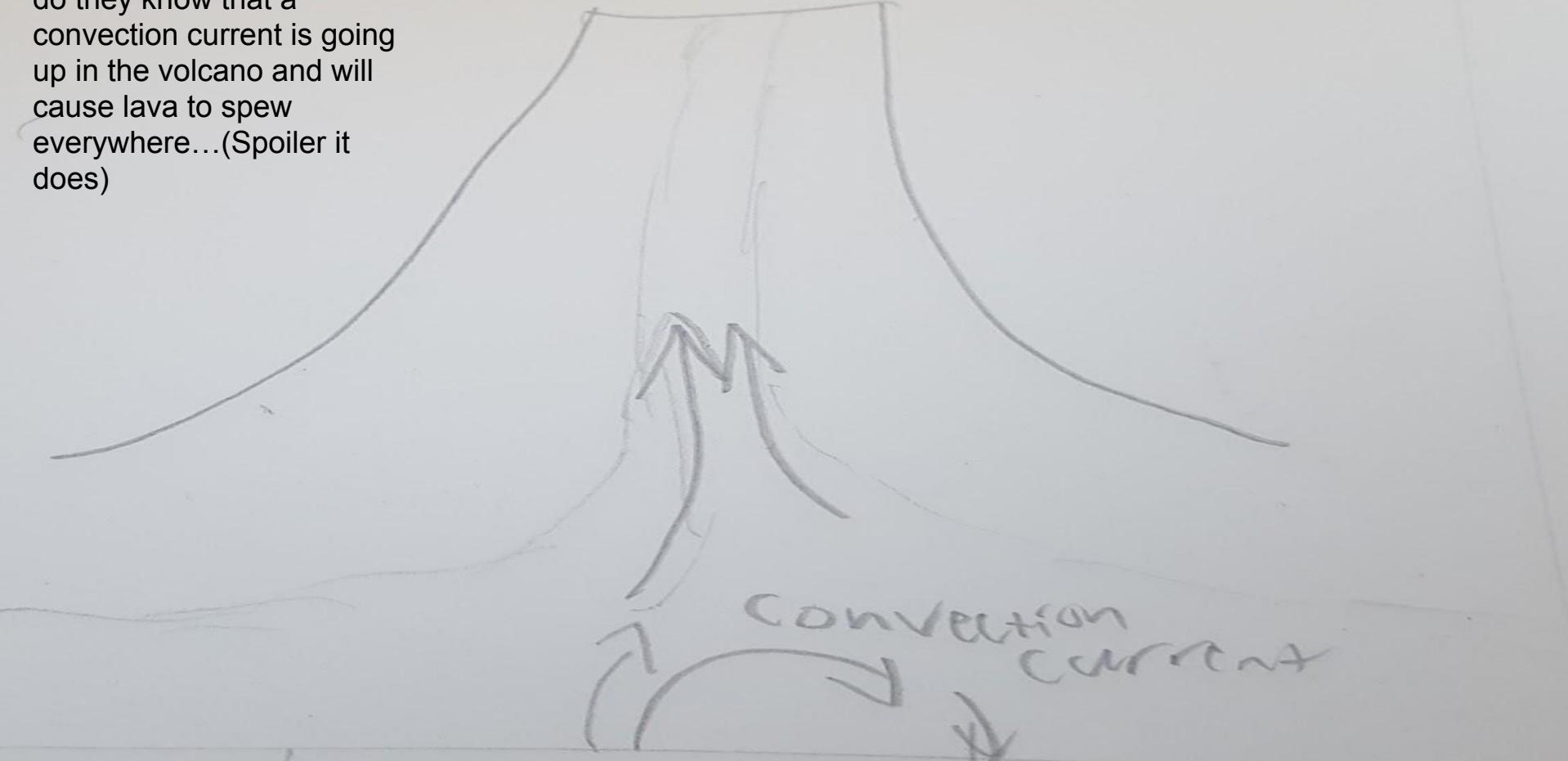


Fig 2: The volcano eruptions causing lava to pour everywhere.

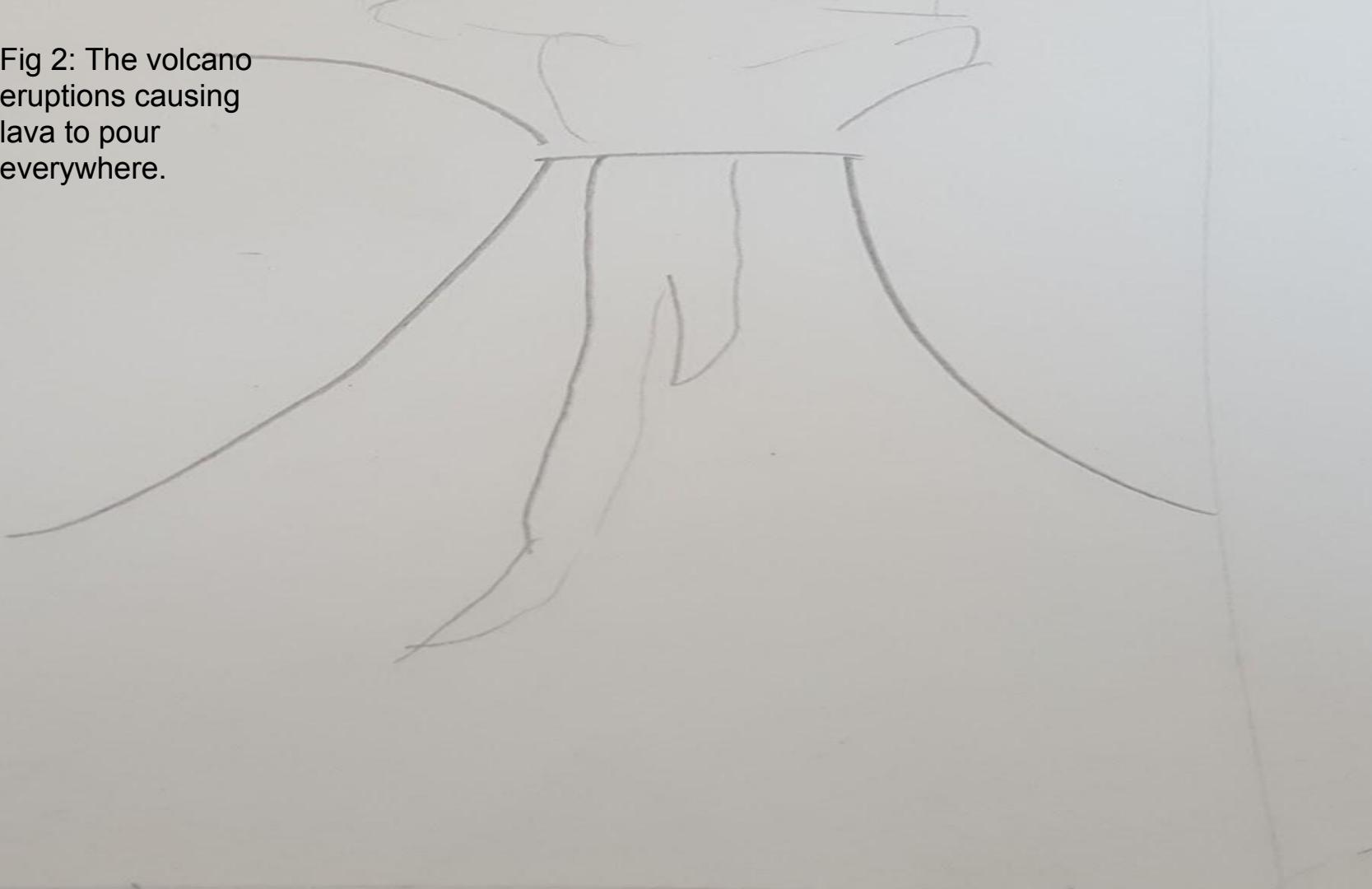


Fig 3: As the Lava
comes up bubbles form
in the Lava.

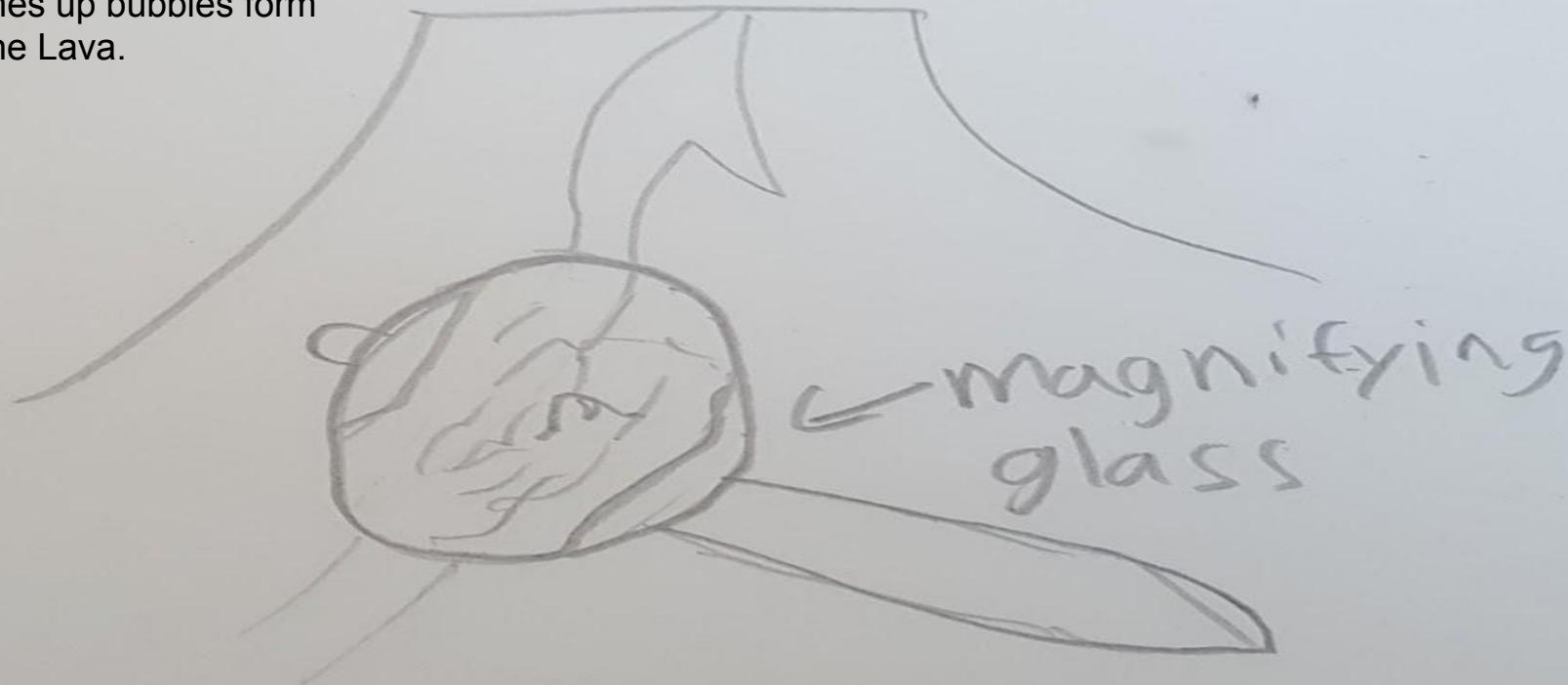


Fig 4: The Lava cools down causing the bubbles to cool with it.

Cools Down



Fig 5: Mineral Rich water starts falling.

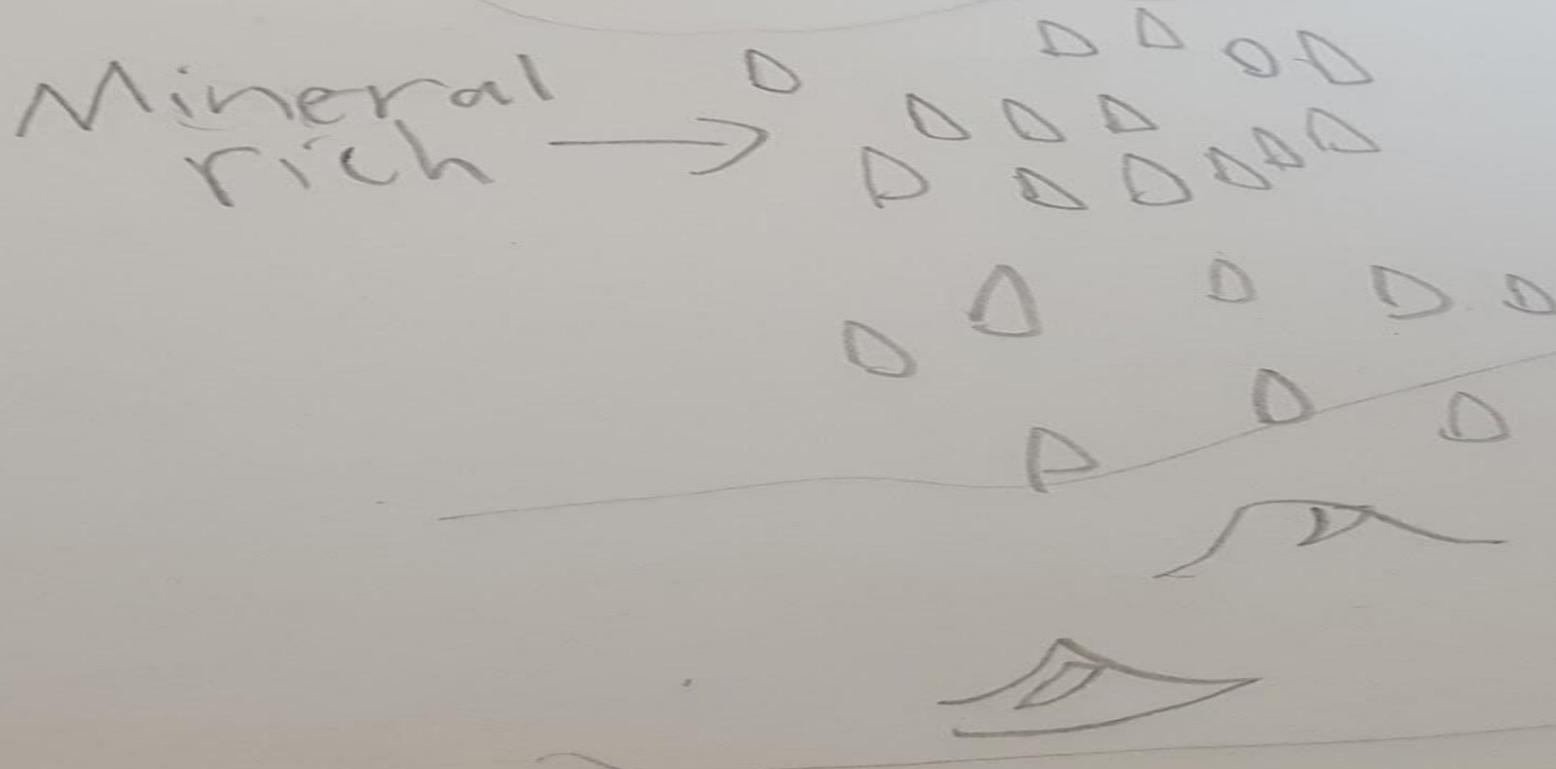


Fig 5 ½: Mineral rich water seeps in..

Fig 6 :Years pass and the geodes form

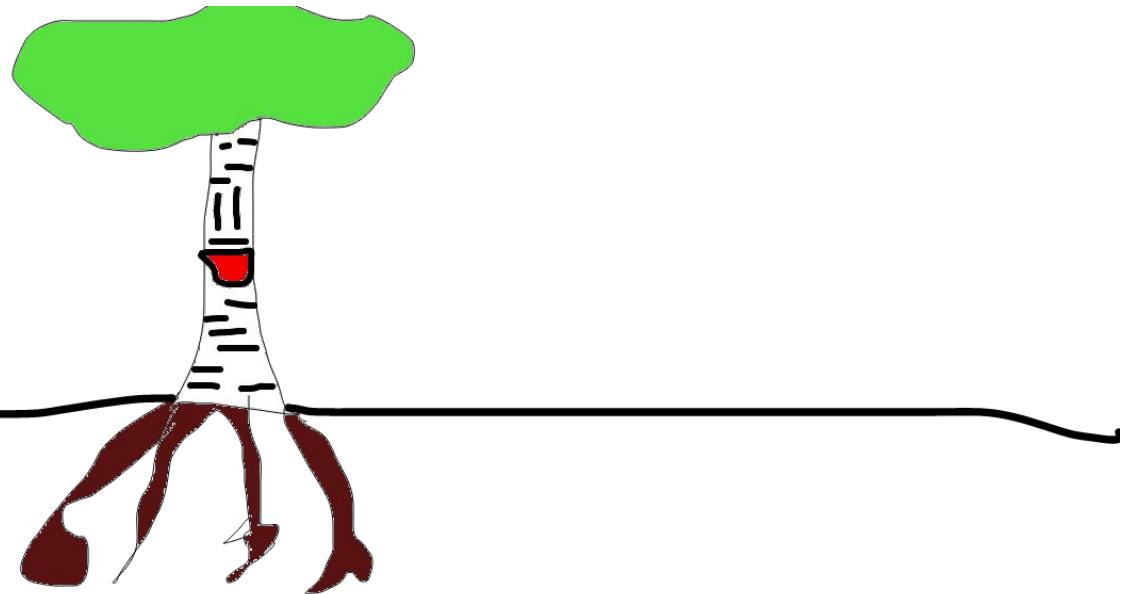
Some Years later.

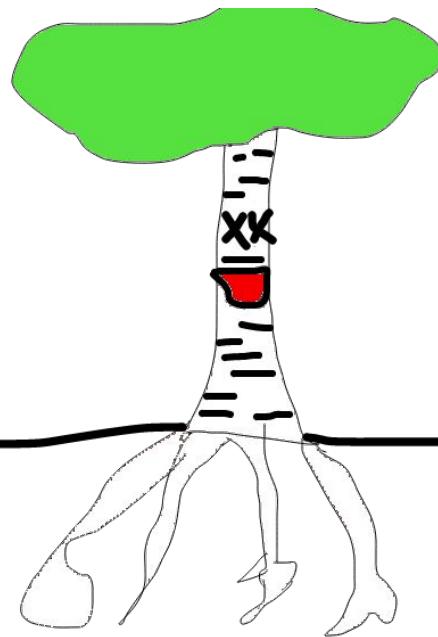
How are Sedimentary Geodes formed?

Sedimentary Geodes are formed when a hollow space like an abandoned animal den/ tree root cavities gets sediment rich water on it. The sediment constantly makes layers thus making a geode. Another way is that it starts as a nodule (similar to a geode except filled, not hollow) and slowly over time it dissolves in the inside.

EXAMPLE

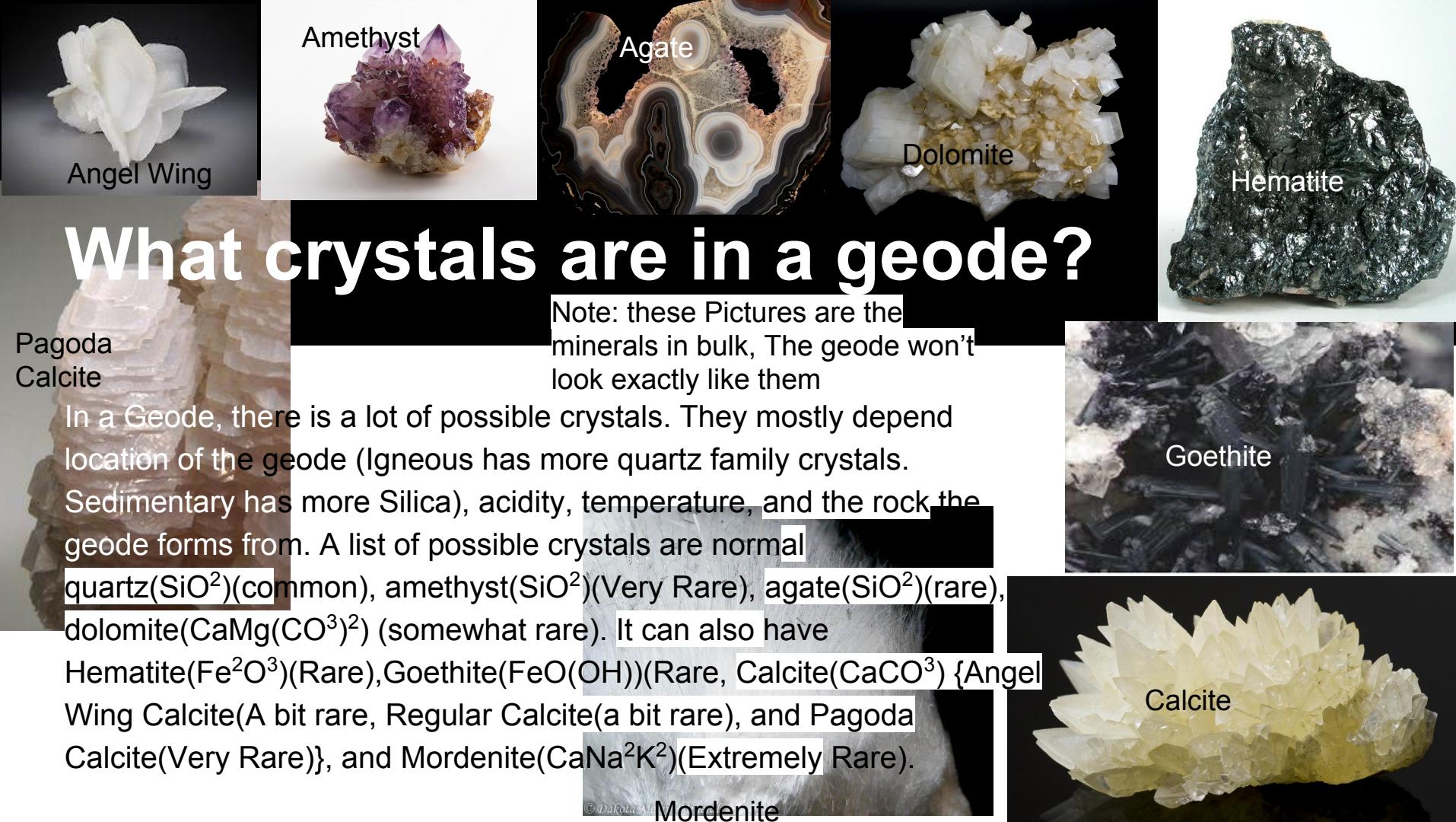
FIG. 1











What crystals are in a geode?

Note: these Pictures are the minerals in bulk, The geode won't look exactly like them

In a Geode, there is a lot of possible crystals. They mostly depend location of the geode (Igneous has more quartz family crystals).

Sedimentary has more Silica), acidity, temperature, and the rock the geode forms from. A list of possible crystals are normal

quartz(SiO^2)(common), amethyst(SiO^2)(Very Rare), agate(SiO^2)(rare),

dolomite($\text{CaMg(CO}^3\text{)}^2$) (somewhat rare). It can also have

Hematite(Fe^2O^3)(Rare), Goethite(FeO(OH))(Rare, Calcite(CaCO^3) {Angel

Wing Calcite(A bit rare, Regular Calcite(a bit rare), and Pagoda

Calcite(Very Rare)}, and Mordenite(CaNa^2K^2)(Extremely Rare).



Amethyst Druzy



Quartz
Scepter



Smoky Quartz

The other Quartz Crystals

I only mentioned amethyst and regular quartz so here are the others: Druzy(SiO^2)(rare), Quartz Scepter(SiO^2)(Rare), Smoky Quartz(SiO^2)(a little rare), Stalactite or Stalagmite Quartz(SiO^2)(rare). Also quartz with a bit of iron(reddish quartz)(SiO^2) and maybe rose quartz(SiO^2).



Rose
Quartz



Stalactite
quartz





This Part

The Inside Rocks

Since this is a volcanic geode, it really has only 5 types of inside rock. They are Quartz (SiO_2)(common), Chalcedony(SiO_2)(A little rare), Banded Agate(SiO_2)(rare to find), Igneous rock(Pretty much (SiO_4))(common), and Siderite(FeCO_3)(common).



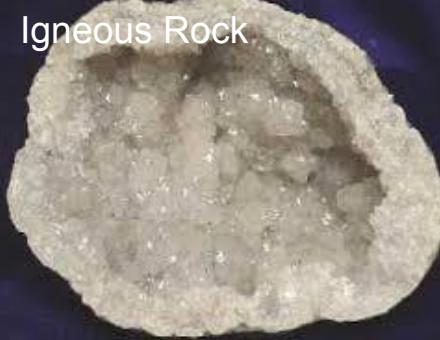
Agate



Chalcedony



Quartz



Igneous Rock



How to break it

You'll need gloves(optional), a hammer, chisels(optional but they make everything easier), a sock(optional), a hard surface, and most importantly patience(also safety). Without patience you will most likely smash your hand or completely destroy it. Now here are a few ways to open it. Most importantly you need the geode.

He that can have
PATIENCE
can have what he will.

GEODE PICTURES





Agate + hundreds of
miniature quartz crystals



Quartz with a
bit of iron?
(It's a bit red)



A calcite crystal that's
protruding (pagoda calcite)



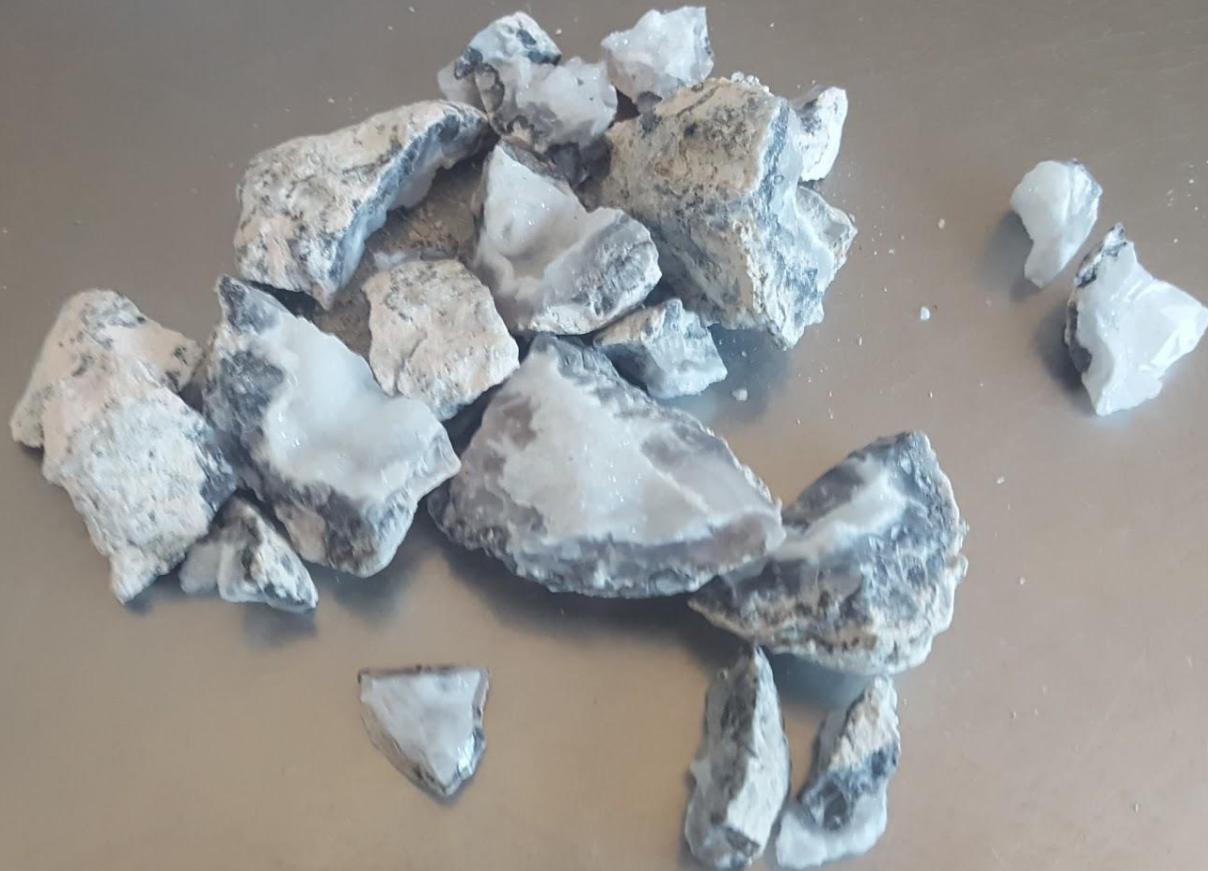
Amethyst crystals



Smoky Quartz



This is what happens when you
SMASH it.



This is a cool rock I found on the ground in iceland. Iceland is an island made of volcanoes. As you can see there's mini geodes.



THANK YOU
FOR
WATCHING :)

My hand

Now you can finally break them

SPECIAL THANKS TO:

GOOGLE, MY PARENTS, MY LITTLE BROTHER PHILIP, MY COMPUTER COMPANY, GOOGLE DRIVE, THE INTERNET, ADVANCES IN SCIENCE, GEODES, THE COMPANY OF THE GEODES YOU HAVE, THE HAMMERS, THE SAFETY GOGGLES, THE COMPANIES THEY COME FROM, MARY BRIDGET, **JACK AND TOM FOR MOTIVATING ME (THANKS GUYS)**, SKETCH.IO, AND FINALLY ALL OF YOU GUYS FOR WATCHING. Thanks again

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