

• • • | What do Gollum and Batman have in common?



<http://www.freewebs.com/footballthoughts/gollum.png>



<http://i.livescience.com/images/batcave-companion-02.jpg>



They both live in
Karst!

umm... What's a Karst?



Karst is a landscape formed when acidic water dissolves carbonate bedrock, creating unique drainage patterns, caves, and other rock formations.



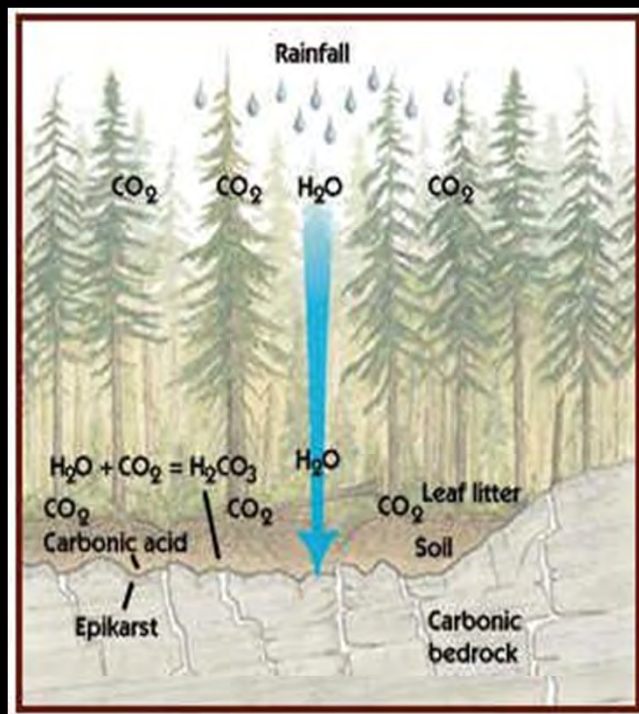
Global Significance

- Karst covers 20 million Km² (12%) of the Earth's land surface
- ¼ of the world's population is supplied by water from karst aquifers

Aquifer: an underground zone of rock or soil that contains and yields water

● ● ● | Part 1: Carbonic Acid

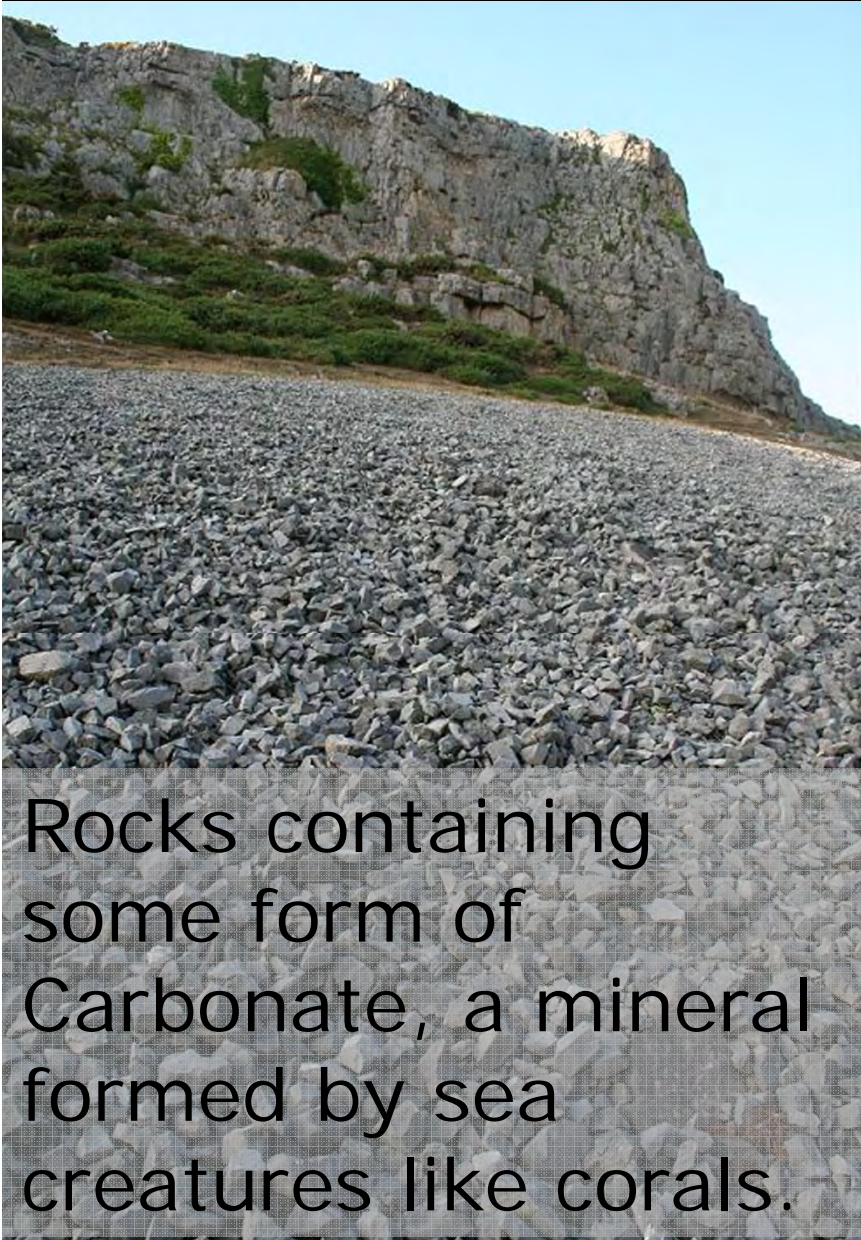
Rain Water + Carbon Dioxide = Carbonic Acid



Rain water picks up carbon dioxide (CO₂) from the air and soil, turning into Carbonic Acid.

Carbonic Acid is the same stuff that makes pop fizz

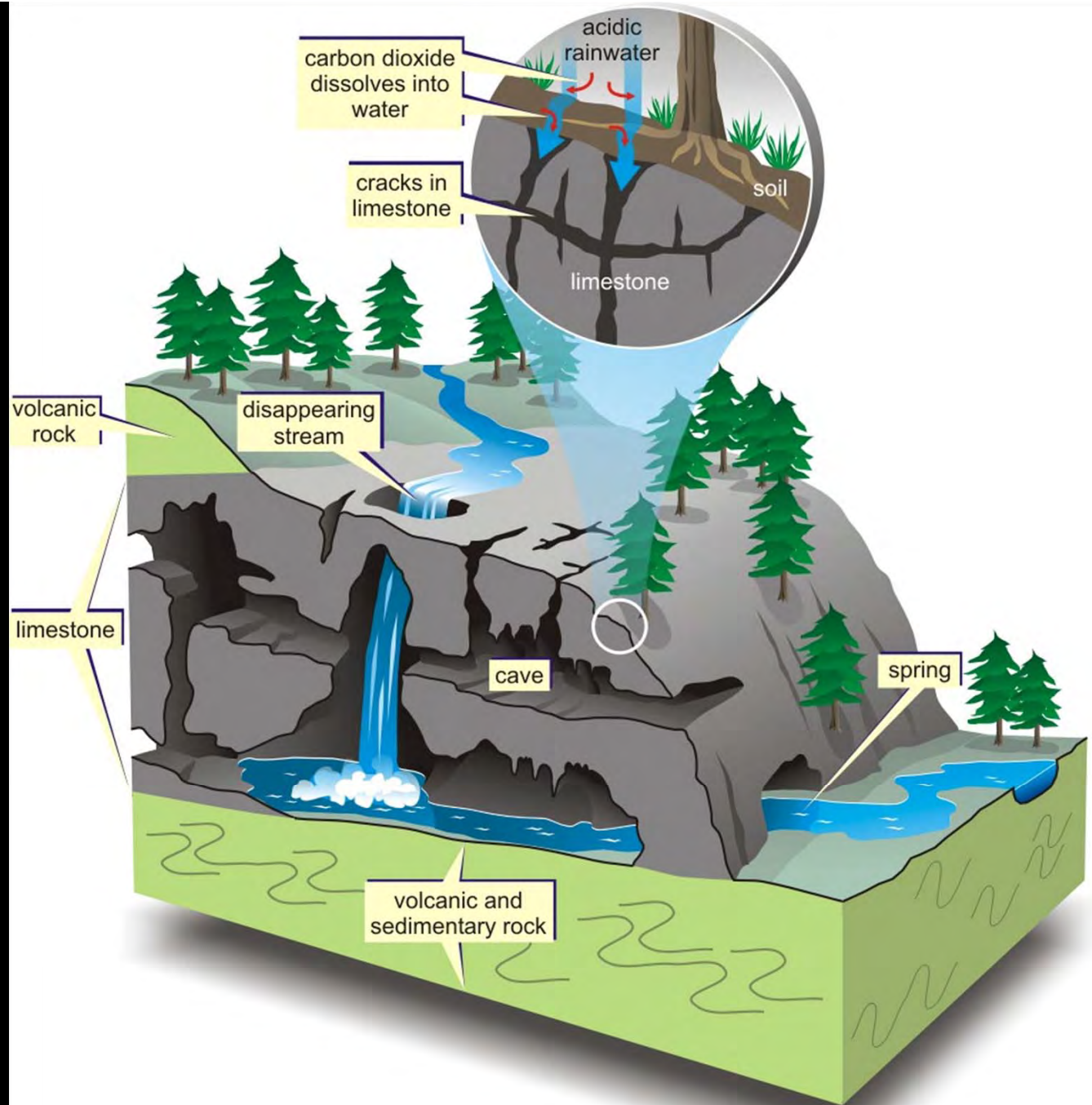
Part 2: Carbonate Bedrock



Rocks containing some form of Carbonate, a mineral formed by sea creatures like corals.

- Limestone
 - Calcium Carbonate
 - Dissolves easily in weak acid
 - Forms karst easily
- Dolostone
 - Magnesium Carbonate
 - Dissolves slowly in weak acid
 - Forms karst slowly
 - Most common rock at the Eramosa Karst

Carbonic acid
SLOWLY dissolves
carbonate bedrock,
creating
underground
channels for water
to flow through





Try It Yourself!

Part 1: Testing for limestone vs. dolostone

Acetic Acid (vinegar) will bubble on limestone
but not on dolostone

Dilute hydrochloric acid (HCL) will effervesce
(spark or glow) on limestone but not on
dolostone



Try it Yourself!

Part 2: Dissolve Limestone

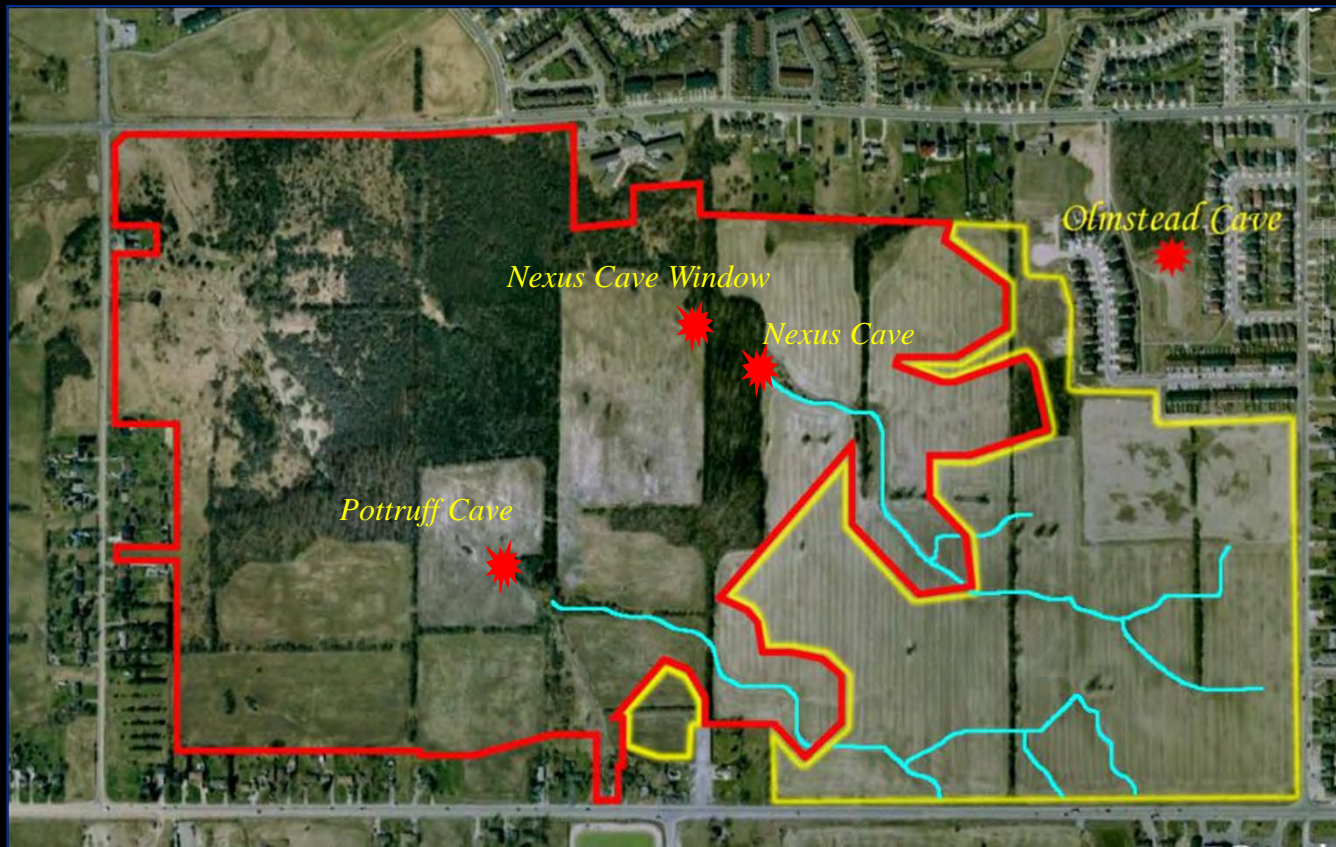
Weigh a small piece of limestone

Place the limestone in a beaker and cover with
Soda Water or 20% Hydrochloric Acid

Take it out after 1 hour, let dry over night.

Weigh the piece of limestone again. Is it lighter?

The Eramosa Karst Conservation Area



- Red line: boundary of the Eramosa Karst Conservation Area
- Yellow line: boundary of the feeder lot, where the karst's streams originate



What you'll see at
the Eramosa Karst

Sinkholes



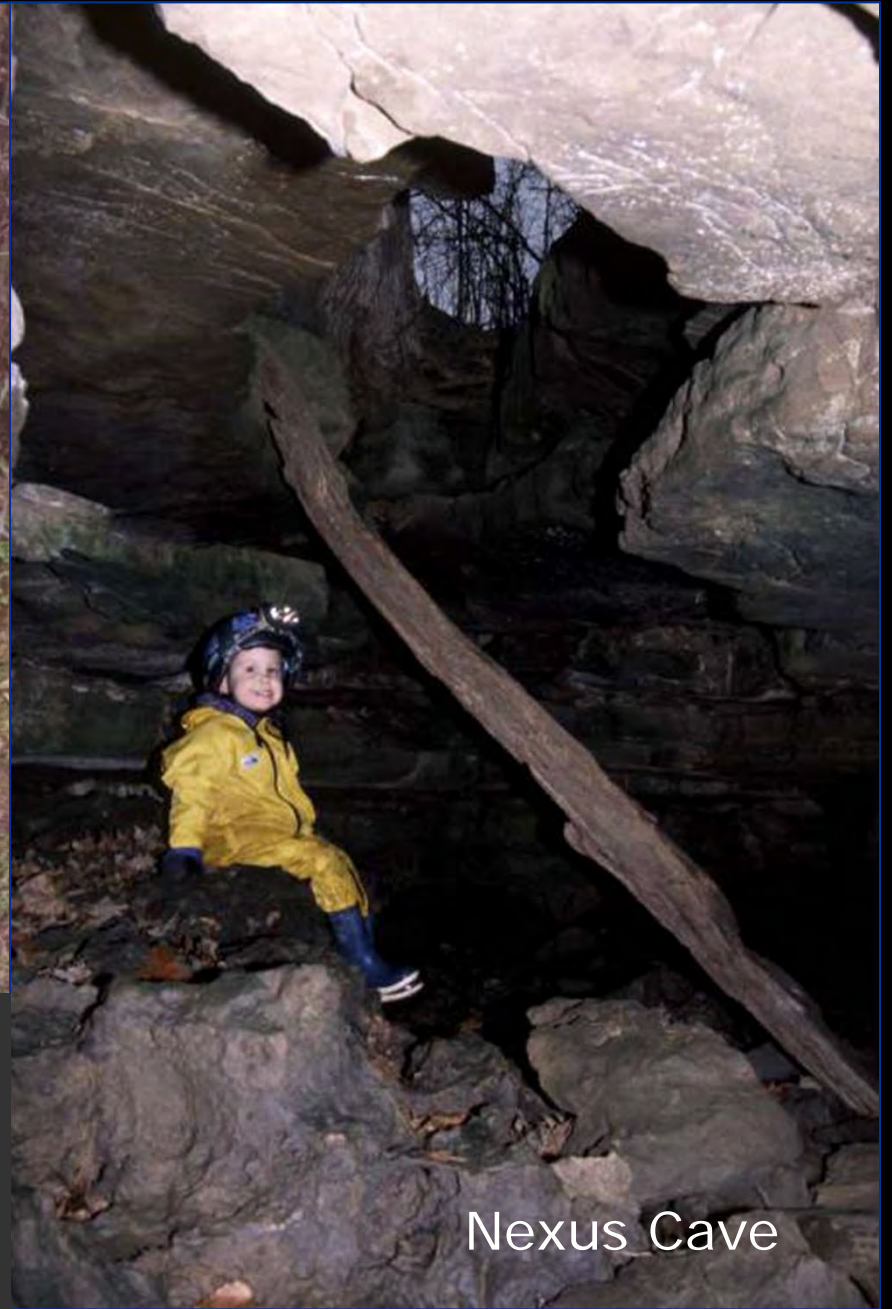
Circular or oval depressions, caused when surface sediments sink into gaps in the bedrock

Caves





Caves: Natural cavities dissolved into bedrock by water. Large enough for human passage



Nexus Cave



Potruff Cave

Karren



Karren: Swiss cheese like features on rocks, formed when acidic water dissolves rock surfaces

Sinking Streams



Streams that run along the surface before disappearing into an underground channel

Springs and Seeps



An area where underground streams resurface

Dye Tracing

Tracking a Sinking Stream

1. Fluorescent dyes are poured into the sinking stream
2. local areas are monitored to see where the dye goes





Changing Water Courses

- Karst areas change every season!



Pottruff Cave- Winter



Outside



Inside –frozen stream



Pottruff Cave - Spring





Water Cress Sink – Late Fall



Sink

Dry
Stream
Bed



Water Cress Sink- Early Spring



Sink

Formerly
Dry
Stream
Bed



Why does Karst Matter?



1. Water is NOT purified as it moves through karst aquifers

Surface water is not filtered through soil but flows directly into underground streams



Spring snow melt trickles into Nexus Cave Window

2. Water can carry contaminants very far, very quickly

Water moves very quickly through underground caves and channels, bringing any contaminants with it



Water flowing in underground portion of Nexus Cave Entrance

● ● ● | Would you drink water that flowed through this?



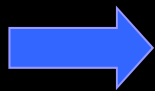
Or this?





○ 25% of people on earth drink water from karst aquifers

○ Many ecosystems (including the Eramosa Karst Conservation Area) depend on the water in karst springs



Karst areas need to be kept clean to ensure water quality remains high and human and environmental health is preserved

So, when you're at a karst, remember:

