



Analyzing Rocks using Acid



During this experiment, you'll get outside, dig in the dirt, gather some rocks, and bring them home to conduct an experiment on them to see if you've collected any rocks made of limestone!



What is limestone? Limestone is a type of sedimentary rock that is made mostly of calcium carbonate, or CaCO_3 . In other words, it is mostly made of shell, coral, and algae from a really long time ago (like, thousands of years ago at least).

What You'll Need:

- White distilled vinegar (that's the kind you usually cook or clean with)
- A bowl or jar. Grab a few if you have them!
- A few different kinds of rocks.

Let's Get Started!

- Gather some rocks.** Grab an adult and go on a walk! Collect as many rocks as you want to test- but it is important to find different types of rocks. Here are some different types of rocks to look for:



Igneous rock- these form from hardened lava! They can be smooth and shiny, or dull and bumpy.



Sedimentary rock – These are formed from layers and layers of organic materials.



Metamorphic rock – These are the result of igneous and sedimentary rocks that have changed due to heat and pressure.

Once you've collected your rocks, head home and get ready for step 2!



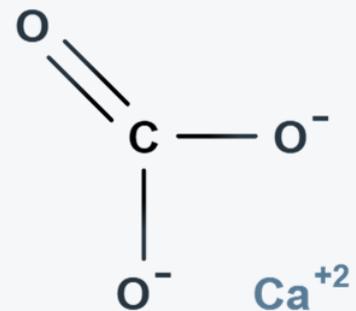
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- Record your Hypothesis.** What do you think is going to happen when we pour vinegar over the rocks? Which ones do you think have limestone? It's helpful to write your guesses down now, so you can look back at them later and see if you were right!
- Place a rock in your bowl** or jar, whatever you're using. If you can, use a glass bowl/jar, or something else that is see-through. Try to avoid using metal, as the metal could change your results.
- Pour vinegar over the rock**, use enough to cover the rock all the way.
- Observe!** Watch the rock for a few minutes. Do you notice anything? If there is limestone in the rock you're testing, bubbles will begin to form. Give it a few minutes, and if there still aren't any bubbles, that rock is not made of limestone.
-  **Check your hypothesis.** Were your guesses correct? If not, what happened?

How does it work?

Earlier, we explained that limestone is made of something called CaCO_3 , A.K.A. "calcium carbonate". When CaCO_3 comes into contact with an acid (in our case, vinegar is the acid), it releases another compound called "carbon dioxide", or CO_2 . When CO_2 is released, it forms tiny bubbles, which is what you may have observed!



Didn't see anything?

If you didn't see any bubbles, it may be because you didn't collect any limestone rocks. If this happens, maybe try again another day with new rocks! A good place to look for these kinds of rocks is near bodies of water, like creek beds or lakes!