Bermuda Geology Month - Week 2

Formation of Limestone Caves

Our island is made up of a limestone cap on top of an extinct volcano! Calcium carbonate is a natural mineral found in the ocean that corals and marine life (seashells and crabs) use to build their skeletons. When the sea level fell, the corals died and broke up into carbonate sand. Over thousands of years, this sand cemented into limestone rock. Soil and plants grew on top of the limestone. When it rains, the water runs through the ground and dissolves the limestone from within. Over thousands of years, beautiful caves and unique formations develop. There are 150 known caves in Bermuda! Some of these caves are underwater, which tells us that the sea level was much lower than it is today, as limestone caves need fresh acidic rainwater to develop. The size of formations in these underwater caves gives researchers an idea of exactly how long the periods of lower sea levels lasted.

Math question: It takes a stalactite 100 years to grow 1 inch! How long will a 2 foot stalactite take to form?

Experiment

Find a piece of limestone rock in your garden or on the street. Drip household vinegar onto the limestone. Watch it bubble and fizz! The acid in the vinegar is eating away at the limestone. This is a quick, concentrated version of what is happening with rainwater on limestone. The acidity in rainwater dissolves the rock. You can observe this on the rough surface of old limestone walls around Bermuda.

Activity - Make a Cave

For this activity, you will need sugar cubes, clay (preferably green or brown), blue food coloring, a pencil, water, and a big clear lunch box plastic container. Against one side of your plastic container build a wall with the sugar cubes, the base can be thicker than the top. Then stretch the clay out so that you cap the sugar cubes against one side of your plastic container. Use a pencil to make small holes on the top. Fill a cup of water and drip some blue food coloring into it, you are making rainwater. Slowly drip water down the holes and watch what happens to the sugar cubes. This is how limestone caves form underground over millions of years.

Call to action - Eco-schools pathway - Waste and Litter Pathway

Caves are peaceful environments that have entire ecosystems thriving in them. What may seem like a dark hole to you can be a home to many creatures. When entering caves and exploring them, it is important to “take nothing but pictures and leave nothing but footprints.” Trash that ends up in caves rarely leaves them. Thousands of years of evolution should not be destroyed by human negligence. Let’s protect these fragile and beautiful habitats.