Hey Heidi! Let's Rock and Roll with the Rock Cycle!

Welcome to a super cool journey deep into the Earth (and sometimes right under your feet!) to explore the amazing rock cycle. Ever wonder how rocks are made or how they change? Let's find out!

What are Rocks Made Of?

Rocks are made of minerals, which are like the Earth's building blocks. Different combinations of minerals make different kinds of rocks.

The Three Rock Stars!

There are three main types of rocks, each formed in a unique way:

- **Igneous Rocks:** Think 'ignite' or fire! These rocks are formed from cooled magma (molten rock underground) or lava (molten rock above ground). Imagine volcanic eruptions! Examples: Granite, Basalt, Obsidian.
- **Sedimentary Rocks:** These are made from tiny bits (sediments) of other rocks, plants, or animals that get squished together over a long, long time. Think layers! Examples: Sandstone, Shale, Limestone.
- **Metamorphic Rocks:** These rocks started as one type (igneous or sedimentary) but got changed ('morphed') by intense heat and pressure deep inside the Earth. They didn't melt, but they sure got transformed! Examples: Marble (from Limestone), Slate (from Shale).

The Never-Ending Cycle!

The coolest part? Rocks don't stay the same forever! They are constantly changing from one type to another in the **Rock Cycle**. Here’s how:

1. **Weathering & Erosion:** Rocks on the surface get broken down by wind, water, ice, and plants. These tiny pieces (sediments) are then carried away.
2. **Deposition:** Sediments settle down in layers, often in water bodies.
3. **Compaction & Cementation:** Over time, the weight of layers above squishes the lower layers (compaction), and minerals dissolved in water act like glue to stick the sediments together (cementation), forming Sedimentary Rock.
4. **Heat & Pressure:** If rocks get buried deep underground, intense heat and pressure can change them into Metamorphic Rock.
5. **Melting:** If the heat is high enough, rocks melt back into magma.
6. **Cooling & Crystallization:** When magma or lava cools down, it hardens and forms crystals, creating Igneous Rock.

And guess what? Any rock type can be weathered down, be subjected to heat and pressure, or melt! It's a continuous loop!

Activity Time! Let's Get Hands-On!

Activity 1: Rock Detective

If you have any rocks around the house or yard, try to guess what type they might be based on their appearance (layers? crystals? glassy?). You can also look up pictures online! Search for 'granite',

'sandstone', 'marble' images.

Activity 2: Edible Rock Cycle! (Yum!)

Let's model the rock cycle with chocolate!

1. **Weathering:** 'Shave' different types of chocolate (white, milk, dark) onto wax paper using a plastic knife or grater. These are your sediments!
2. **Erosion & Deposition:** Carefully scoop your chocolate 'sediments' into a small pile on a piece of aluminum foil.
3. **Compaction & Cementation (Sedimentary):** Fold the foil over and press down firmly on the shavings. Unwrap – you have a sedimentary 'rock' (likely crumbly).
4. **Heat & Pressure (Metamorphic):** Rewrap the 'rock' tightly. Hold it in your warm hands for a few minutes, applying pressure (don't melt it completely!). Unwrap. Notice how it's changed? More solid, maybe swirled? That's your metamorphic 'rock'.
5. **Melting (Magma):** Place the foil packet in a bowl of warm water (ask for help if needed!) until the chocolate melts completely.
6. **Cooling (Igneous):** Carefully remove the foil and place it in the fridge or freezer to cool and harden. Unwrap your delicious igneous 'rock'!

Activity 3: Draw Your Own Cycle

Grab paper and crayons/markers. Draw a big circle and illustrate the rock cycle! Draw the three rock types and use arrows to show how they can change from one to another, labeling the processes (melting, cooling, weathering, etc.).

Wrap Up!

Awesome job, Heidi! You've learned about the three types of rocks and the incredible, never-ending cycle that transforms them. Keep an eye out for different rocks next time you're outside – you're now a rock expert in training!