

Geology Rocks!

Learning aims:

- Discover the history of the timeline of Earth.
- Understand how fossils are formed and what they can tell us.
- Research Mary Anning, the famous UK fossil collector.
- Imagine what the world might have looked like before humans existed.

Activity 1: Timeline of Earth

Start a **discussion** with the students based on the following questions:

- How old is the Earth?
- When did dinosaurs become extinct and what killed them?
- Did humans and dinosaurs live together?
- If no, when did humans first appear on Earth?

You can write these answers on a board, or create an **interactive timeline** using paper and BluTac.

Now inform the class that there have been **5 major extinctions** in the history of Earth. Explain that each time, large volumes of species were wiped from Earth (just like the dinosaurs), but that not everything was killed. After each mass extinction, the remaining species continued to change into the forms of animals we find today.

Activity 2: How Fossils are Formed

Ask the class what they think a "fossil" is. Explain that it is essentially **rock** which is formed from the remains of organisms, covered in many heavy layers of **sediment** (i.e. sand, clay, mud). The **weight** of the sediment crushes these remains, **heats** them up, and turns them into rock. Also ask the class **where** they think fossils are found.

*Additional Activity: You can use shells and clay/dough to make **fossil impressions**.*

Imagine that them pushing onto the "fossil" is like the weight of the mud. Older students can use clay/plaster of Paris, sand, hard items (like shells) and mark making to create their own fossils.

Activity 3: Mary Anning

Research the "unsung hero" of fossil collecting! The Natural History Museum has some great information: <https://www.nhm.ac.uk/discover/mary-anning-unsung-hero.html>

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You can challenge your class to **create profiles or stories** about Mary herself, or perhaps a **poster/presentation** on a species that she discovered. Add to this activity by showing the students images of the ichthyosaur that was found in Caldecotte lake!

Activity 4: Imagine The World Before Humans

Start a **discussion** with your class about how they imagine the world was **before humans** came along. You can either ask them to just use their imagination, or you can choose a specific time period and provide them with some basic information.

- What **animals** do they expect roamed the land, sky and seas?
- What were the **plants** like? (for older groups you can introduce the timeline of when certain plants had evolved i.e. flowers, grasses etc.)
- What might the **landscapes** have looked like? Were there volcanoes erupting for example?
- What was the **weather** like?

After your discussion, split into smaller groups (or complete the activity as one big team) and have everyone **draw** out their image of the Earth pre-humans. You can use models and other "imagination items" if you'd prefer.

Other Ideas:

- Create **dinosaur masks** and act out the K/T extinction.
- Learn about the different **types of rock** and what creates them.
- **Look for rocks** in the school grounds - What could possibly be a fossil? If it's not a fossil, what type of sediment might have made this rock? If you have stone walls in your school, you can study these too.
- Create a "best of fossils" competition: Who can find information on different **record breaking fossils** (largest, smallest, most unusual, most beautiful)?