

# Geologist: Understanding How the Earth Changes

**NGSS Standard: MS-ESS1-4**



## Adventure Description:

In this adventure, you will think like a geologist and design a VR headset to teach kids about the geologic time scale.

## Activity

### Step 1: Background on Geologists and the Geologic Timescale (10 minutes)

- Show [Video: Understanding How the Earth Changes](#).
- As a class, review what the geologic timescale is. Show [Handout: Geologic Timescale](#).
- Discuss why it is important for geologists to study the geologic time scale. For example, it gives us a way to look back in time and figure out when different things, like the ice age, happened.
- Next, have students brainstorm what could happen if scientists didn't study the geologic time scale. For example, we might not have figured out that all of our continents used to be together in one super continent called Pangea.
- Explain to students that geologists have begun using different types of technology to help people understand how Earth looked in the past. For example, NASA is combining information from 8 micro-satellites to create GIFs that show people how Earth is changing over time.
- Right now, some geologists are working with computer scientists to design VR headsets. Show [Handout: Understanding VR Headsets](#).
- Extra Time? Have students research different reasons that scientists use VR headsets.

### Step 2: Activity Set Up (5 minutes)

- Explain to students that they will design their own VR headset to teach students about the geologic timescale.
- Provide students with [Handout: Steps to Create a VR Headset](#). As a class, review the steps. Discuss how students will create a VR headset with 3 buttons, meaning students who use the VR headset will be able to see 3 different sets of images.

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## Step 3: Creating VR Screens (15-20 minutes)

- Explain to students that they will sketch images and create a script that students will see and hear each time they click on a button on their VR headset. Each set of images will show a different time in history. For example, when students click on the first button, they might see and hear giant insects in the Paleozoic Era and when they click on the second button, they might see and hear dinosaurs in the Mesozoic Era.
- Provide students with [Handout: Geologic History](#).
- Note: Students can work individually, in pairs, or in small groups.
- As students are working, ask the following questions:
  - What was the Earth's surface like during your time periods? Were there oceans?
  - What was the Earth's atmosphere like during your time period? Was it hotter or colder than it is now?
  - What kind of plants and animals lived during your time period? How big were they compared to animals today?

## Step 4: Building the Headset (20+ minutes)

- Explain to students that they will now complete step 2, building a prototype of their VR headset. Remind students that they should make sure all requirements are included in their headset.
- Provide groups with art supplies and building materials (ex: recycled boxes, pipe cleaners, popsicle sticks, construction paper).

## Step 5: Class Discussion and Presentation (5 minutes)

- Have groups present their VR headsets to the rest of the class. They should also show the images that that will be seen when a person puts on the VR headset. Students should explain why they chose these specific time periods and what details are included in their VR scene that would let a user know what time period they are viewing.

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## Materials List

### Provided online:

- Video: Understanding How the Earth Changes
- Handout: Geologic Timescale
- Handout: Understanding VR Headsets
- Handout: Steps to Create a VR Headset
- Handout: Geologic History

### Not Provided online (each student or group needs):

- Art supplies
- Building materials (ex: recycled boxes, pipe cleaners, popsicle sticks, construction paper).

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