

# Our Dynamic Planet: Earthquakes and Volcanoes

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## **WEEK 1: INTRODUCING EARTHQUAKES**

- What is an earthquake?
- The context of earthquakes — plate tectonics.
- Where do earthquakes occur?
- Faulting and the generation of earthquake energy?
- How does earthquake energy pass through the Earth?
- Detecting earthquakes with seismographs.

## **WEEK 2: THE DAMAGE DUE TO EARTHQUAKES**

- Measuring the size of earthquakes; intensity vs. magnitude.
- The nature of ground shaking and its consequences.
- Earthquake-triggered landslides and liquefaction.
- Earthquake-triggered fire storms.
- Can we predict earthquakes and produce hazard maps?
- A megathrust disaster for the NW coast of the USA?
- Mitigating the effects of earthquakes.

## **WEEK 3: INTRODUCING VOLCANOES**

- Why does the Earth melt where it does?
- Magma vs. lava, and the rocks that form from them.
- Where do volcanoes occur? (In the context of plate tectonics)
- Types of volcanic eruptions.

## **WEEK 4: THE DAMAGE DUE TO ERUPTIONS**

- The hazard of lava flows.
- Dangerous volcanic gases.
- Ash falls and ash flows.
- Can eruptions be predicted and mitigated?

## **BONUS TOPIC (If there's time): Tsunamis**

- What is a tsunami and how are they caused?
- How do tsunamis differ from wind-driven waves?
- Why can tsunamis cause so much damage?