ACTIVITY: Volcanic Landforms

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Objective: Learners will use diagrams to identify and describe the formation of the various landforms that are evidence of past volcanic activity.

Introduction: Volcanic landforms encompass a diverse array of features shaped by volcanic activity. While volcanoes themselves can be iconic landscapes, many other landforms exist where dormant volcanoes or past eruptions have occurred. Calderas are immense depressions often formed by the collapse of a volcanic summit during a major eruption that empties the magma chamber underneath it. Additionally, volcanic fissures, vents, and lava domes are notable features that contribute to the varied landscape shaped by volcanic forces. Understanding these diverse landforms is crucial to studying past volcanic impacts and the dynamic processes shaping the Earth's surface.

Have learners:

1. Compare images of volcanic craters and volcanic calderas.
   - **a.** Convert the diameters of all four features to the same units to compare their size (meters is recommended).
   - **b.** Match each feature to its likely **cause**.
2. Consider how volcanic activity leads to the formation of **hydrothermal features**.
   - **a.** Explore **more detail**, including temperature the temperature range, of hydrothermal features.
   - **b.** Explore a park with numerous fumaroles and hydrothermal features:
     - **Yellowstone National Park**
     - **Lassen Volcanic National Park**
3. Explore NPS Units with **erosional volcanic landforms**.

HANDOUT: Volcanic Landforms

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Volcanic Craters

SUNSET CRATER. 1 MILE DIAMETER

CINDER CONE. 900 FT DIAMETER

Credit: both: NPS

Volcanic Calderas

ANIAKCHAK CALDERA. 10.5 KM DIAMETER

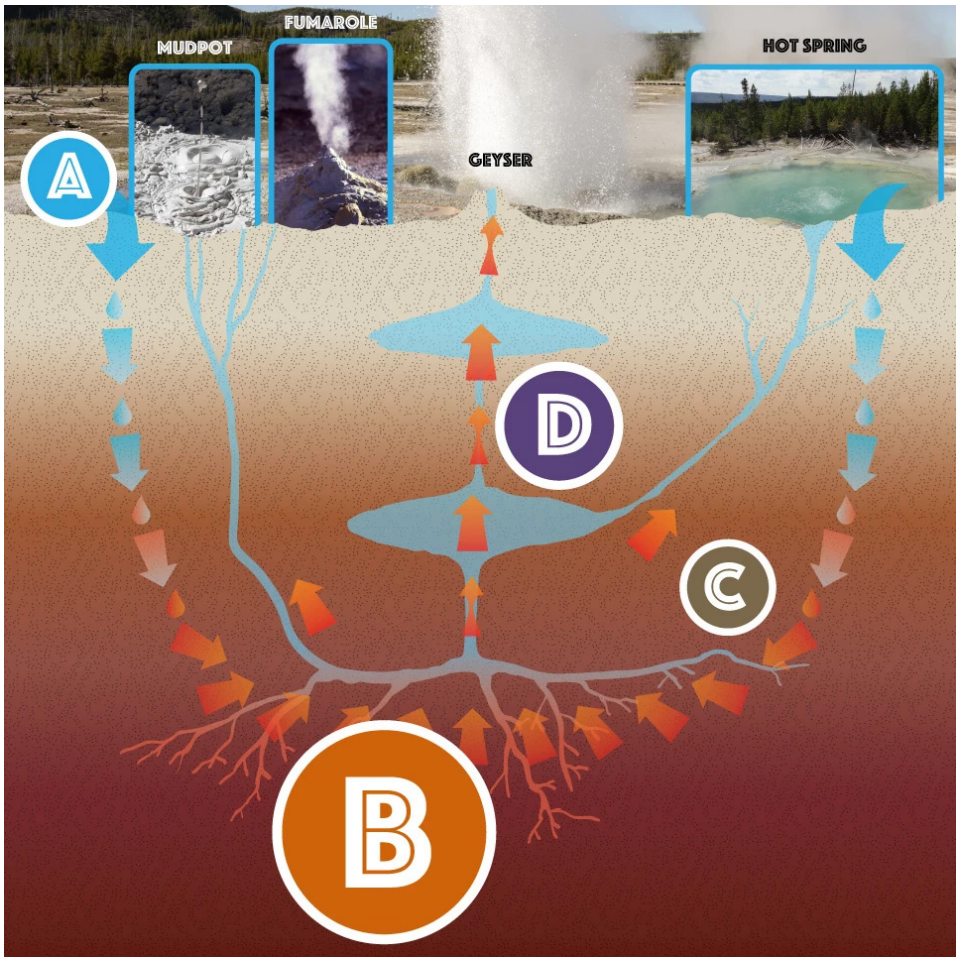
CRATER LAKE. 6 MILE DIAMETER

Credit: both: NPS

▶ Compare the size of each volcanic crater and caldera. List them from largest to smallest.

- Match these two landforms to its likely cause:
  - The collapse of land following an eruption can form a _____ .
  - The collapse of land located above a volcano's primary magma chamber that has emptied forms a _____ .
- Give reasoning for your answer.

Hydrothermal Features



Credit: **Tom Pittenger, NPS**

- In your own words, describe the processes shown in the diagram of hydrothermal features that occur near volcanic activity.