CLASSROOM ACTIVITY
Monitoring Mount Etna: Magma on the Move

Volcanologists in Sicily are collecting an enormous amount of data to monitor moving magma inside Mount Etna, one of the most active volcanoes in the world.

CLASS DISCUSSION

Establish Prior Knowledge
Point out that Italy's Mount Etna is one of the most active volcanoes in the world, erupting at least once a year. Nearly one million people live on the volcanoe's flanks so being able to predict when an eruption might occur could be a matter of life and death. Call on students to share what they know about how scientists predict eruptions. *(Answers could include: measure seismic activity, monitor activity from the volcano's crater, monitor gasses being emitted from the volcano.)*

Exploration
Have students watch the video and read the synopsis. Suggest that as they watch the video, they take notes about the kinds of data scientists are collecting and how that data helps them to predict when Mt. Etna might erupt. Use the following questions to guide a class discussion.

- Besides the four summit craters where else do eruptions occur on Mt. Etna?
  (Answer: Some eruptions occur at fracture points that open along the flanks of the volcano.)
- Gas drives magma to the surface. What gasses do scientists monitor at the volcano?
  (Answer: Sulfur dioxide and carbon dioxide.)
  What do increases in the amount of the gasses emitted indicate?
  (Answer: An increase in sulfuric dioxide indicates that magma is rising to the surface. It also indicates how much magma is rising to the surface. Carbon dioxide is measured along the volcano's flanks. High levels indicate that there is activity 5 to 7 kilometers below the surface and is an early indicator that an eruption is brewing.)
- What do the seismic stations measure?
  (Answer: The seismic stations measure tremors. The data helps scientists monitor the movement of magma and fluids within the volcano. From seismic data scientists can determine if there is a change in the position of the magma from depth to the surface.)
- What data does thermal imaging provide scientists with?
  (Answer: Thermal imaging can detect fractures that are potential pathways for magma to reach the surface. Thermal images allow scientists to monitor differences in temperature so they can identify regions that are more dangerous than others.)

Wrap-Up
Use this question to wrap-up the discussion:

- What are some limiting factors in predicting volcanic eruptions?
  (Accept reasonable answers. Scientists are able to predict that an eruption is eminent, but are not able to say definitively when it will happen. They can't predict how severe an eruption will be or whether it will even break the surface.)