Watching a Volcano

Questions and tools help communities prepare for Earth changes.

S5E1.c "Ask questions to obtain information on how technology is used to limit and/or predict the impact of constructive and destructive processes."

NAME _____ DATE _____

1 READ AND MARK

Read it twice

YOUR JOB Underline each question scientists ask, circle every technology tool, and write P beside tools that help predict changes or L beside tools that help limit harm.

Tools Near an Active Volcano

1. Volcanoes can build new land when lava cools into rock, a constructive process. They can also destroy forests, homes, and roads with lava, ash, and mudflows. Scientists watch active volcanoes because they cannot predict the exact day of an eruption. At a volcano observatory, teams use several tools to look for changes that may signal rising magma.

2. Seismometers record tiny earthquakes beneath the volcano. GPS stations measure whether the ground is slowly rising or moving sideways. Gas sensors measure gases escaping from cracks, and heat cameras show warmer areas. Scientists ask, "Are small earthquakes becoming more frequent?" and "Is the ground swelling?" Answers from these tools help them estimate whether magma is moving upward.

3. When monitoring shows danger, officials use technology to limit harm. Computer models combine sensor data with information about the landscape to estimate where ash or mudflows may travel. Emergency alerts can warn people by phone, while road cameras and traffic data can guide safe evacuation routes. These tools do not stop an eruption, but they help people make safer choices before and during one.

2 ANSWER WITH EVIDENCE

Use the passage

1. Write the question scientists can ask when they use seismometer data to look for a change before an eruption.

2. Write the question scientists can ask when GPS stations show whether the ground is changing.

3. Write one question scientists could ask about heat-camera data to learn whether volcano activity is changing.

4. Write one question officials could ask road cameras and traffic data to help limit harm during an evacuation.

3 YOUR TURN

Your own words

Choose one destructive or constructive Earth process other than a volcanic eruption. Fill in all three rows with technologies and questions that could help people predict the process or limit its harm.

EARTH PROCESS	TECHNOLOGY	QUESTION TO OBTAIN INFORMATION	HOW THE INFORMATION HELPS

ANSWER KEY

Watching a Volcano

GRADE 5 · S5E1.c

PART 1 · READ AND MARK

Underline each question scientists ask, circle every technology tool, and write P beside tools that help predict changes or L beside tools that help limit harm. Accept any marking that follows this job and points at the right text.

PART 2 · ANSWERS

#	QUESTION	ANSWER
1	Write the question scientists can ask when they use seismometer data to look for a change before an eruption.	**Are small earthquakes becoming more frequent?**
2	Write the question scientists can ask when GPS stations show whether the ground is changing.	**Is the ground swelling?**
3	Write one question scientists could ask about heat-camera data to learn whether volcano activity is changing.	**Are warmer areas appearing near the volcano?**
4	Write one question officials could ask road cameras and traffic data to help limit harm during an evacuation.	**Which evacuation route is safest?**

PART 3 · YOUR TURN (SAMPLE ANSWER)

EARTH PROCESS	TECHNOLOGY	QUESTION TO OBTAIN INFORMATION	HOW THE INFORMATION HELPS
Flooding	Rain gauge	How much rain has fallen in the watershed?	It can warn that streams may rise.
Flooding	Stream gauge	Is the river level rising quickly?	It helps predict flooding near the river.
Flooding	Weather radar	Is heavy rain moving toward town?	It helps officials warn people to move to higher ground.

Accept sensible questions that match the named technology and seek information about predicting an Earth process or limiting its effects. For the table, accept any accurate constructive or destructive process, appropriate technologies, and clear links between the information and safety decisions.