Unit 1: Earth's Surface Quiz

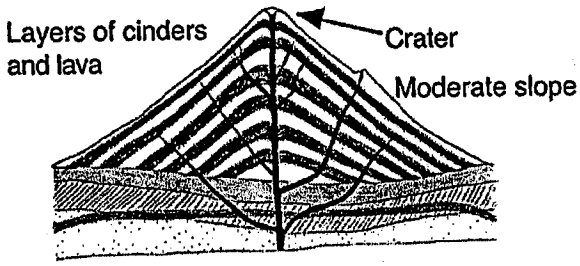
Topic: Volcanism (A)

Name _____

1. A hot volcanic mudflow is known as a _____

2. What type of cone is shown on the right?

_____



3. Give 3 benefits of volcanoes.

_____

_____

_____

4. A huge volcanic crater formed by explosion or implosion is known as a

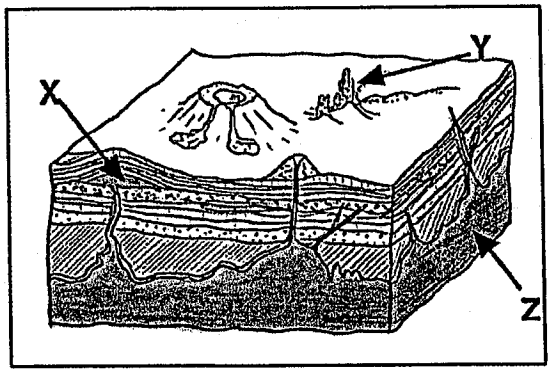
_____

5. Name features X, Y, and Z shown on the diagram on the right.

X _____

Y _____

Z _____



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Unit 1: Earth's Surface Quiz

Topic: Volcanism (B) Name _____

1. The Hawaiian Islands are volcanic islands but they are far from any plate margin. Why has this island chain formed in this part of the Pacific Ocean?

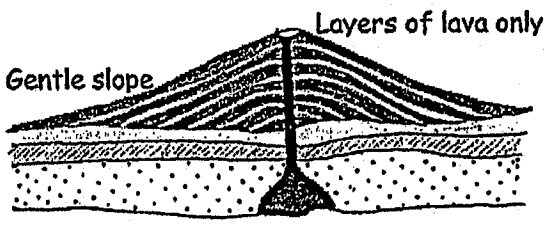
_____

2. Why is there a chain of islands in Hawaii and not just one large island?

_____

_____

3. What type of volcanic cone is shown on the right? _____



4. _____ refers to any material blasted out of a volcano.

5. What type of lava forms spectacular columns when it cools?

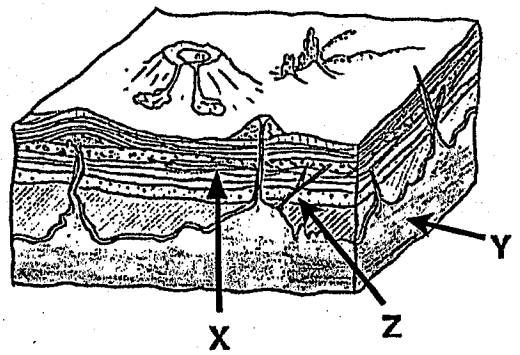
_____

6. Name features X, Y, and Z shown on the diagram on the right.

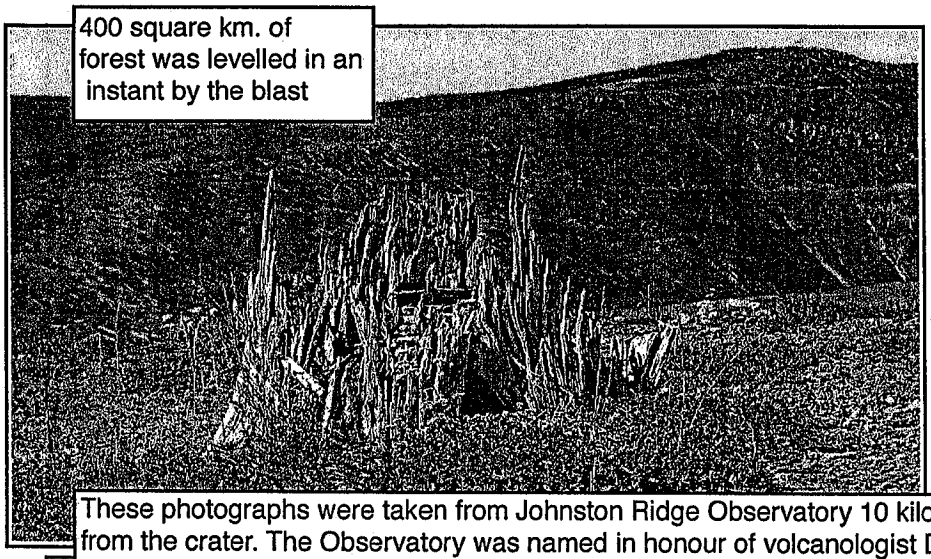
X _____

Y _____

Z _____

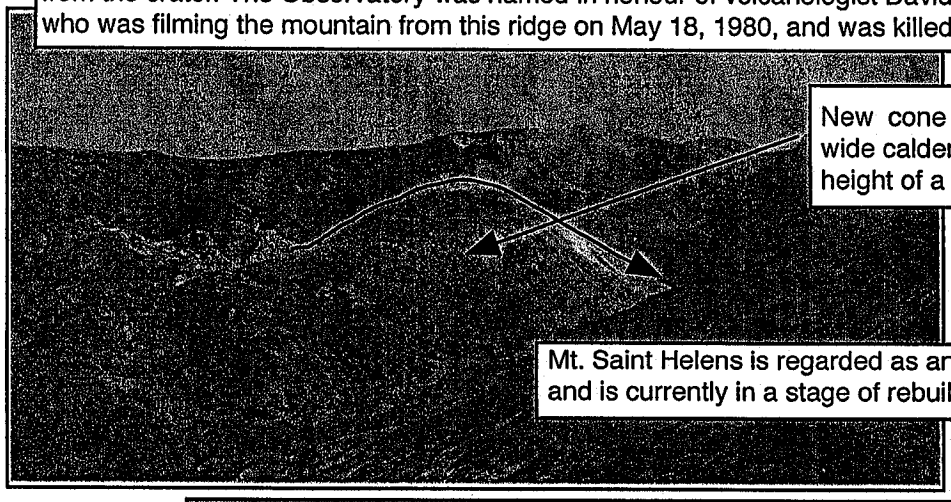


Mount Saint Helens



400 square km. of forest was levelled in an instant by the blast

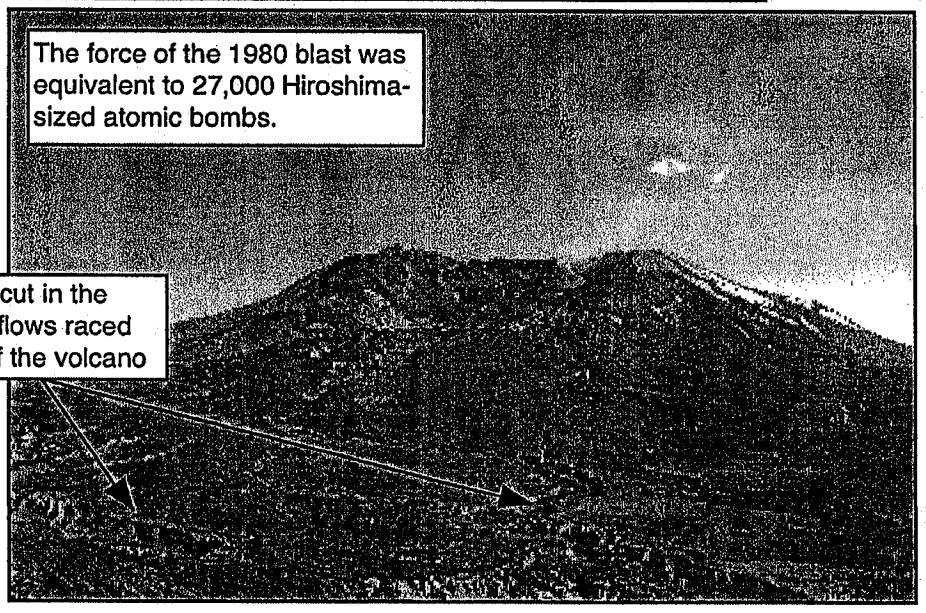
These photographs were taken from Johnston Ridge Observatory 10 kilometres from the crater. The Observatory was named in honour of volcanologist David Johnston who was filming the mountain from this ridge on May 18, 1980, and was killed by the blast.



New cone inside the nearly 2 km. wide caldera has grown to the height of a 30 storey building

Mt. Saint Helens is regarded as an active volcano and is currently in a stage of rebuilding.

The force of the 1980 blast was equivalent to 27,000 Hiroshima-sized atomic bombs.

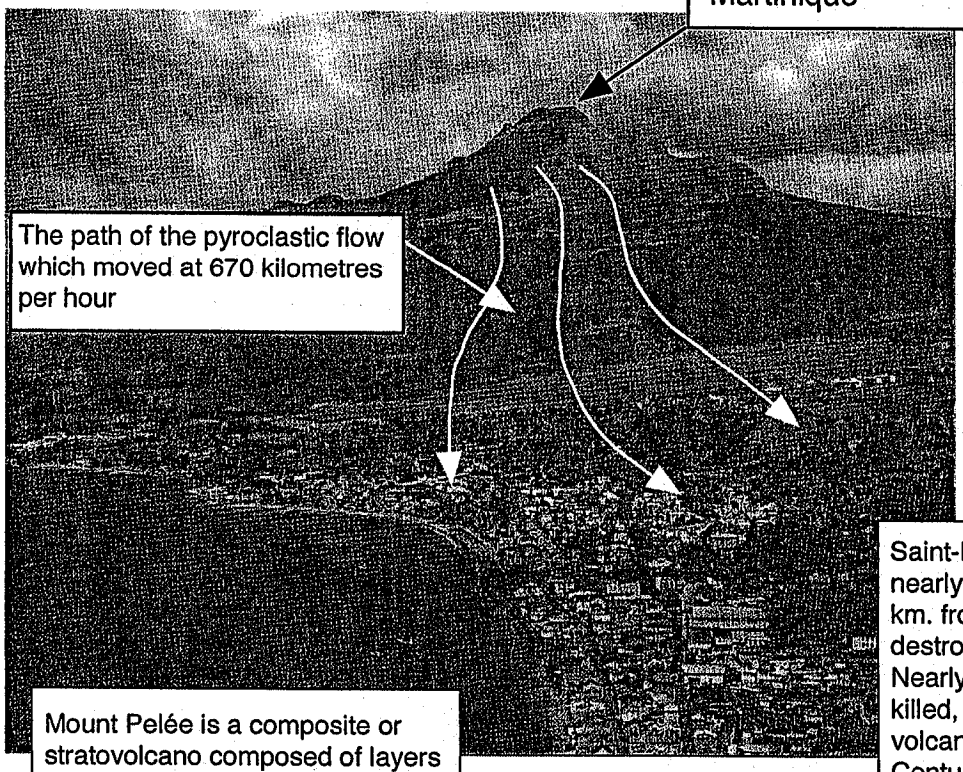


Huge gullies were cut in the landscape as mudflows raced down the slopes of the volcano

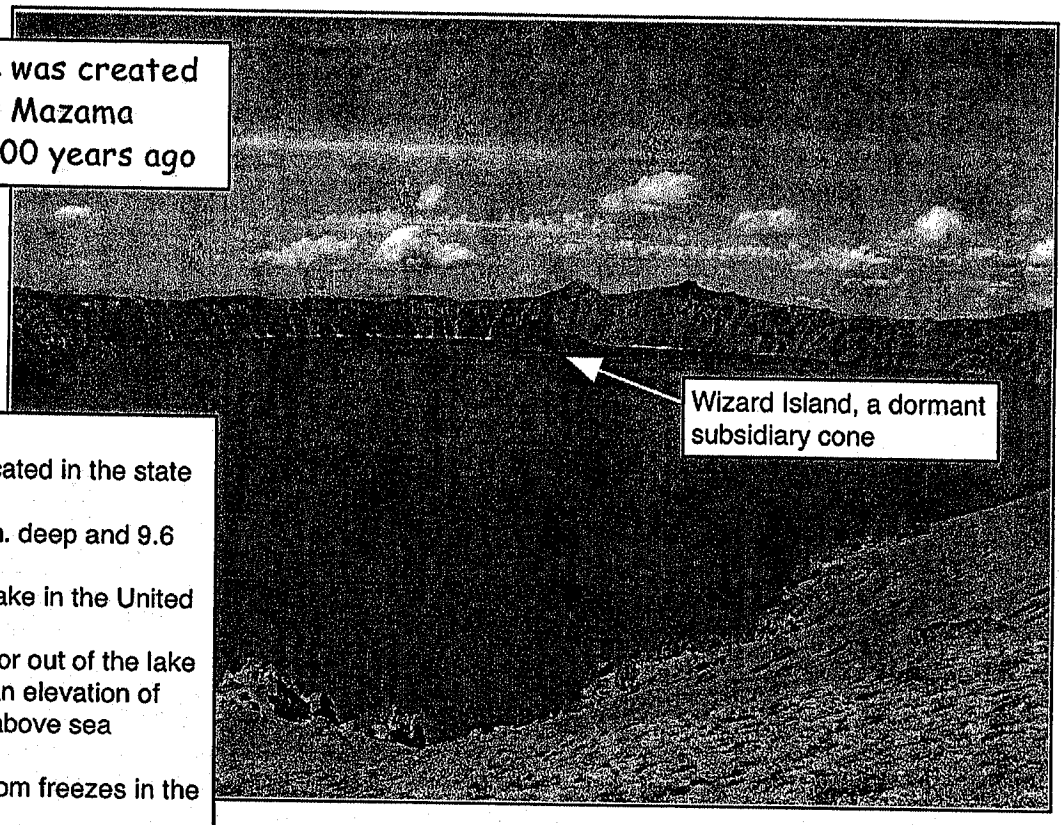
Name _____

Mount Pelée

-is the most active volcano in the Lesser Antilles volcanic arc where the oceanic crust of the South American Plate is subducting beneath the Caribbean Plate. Last eruptions were in 1902 and 1929.



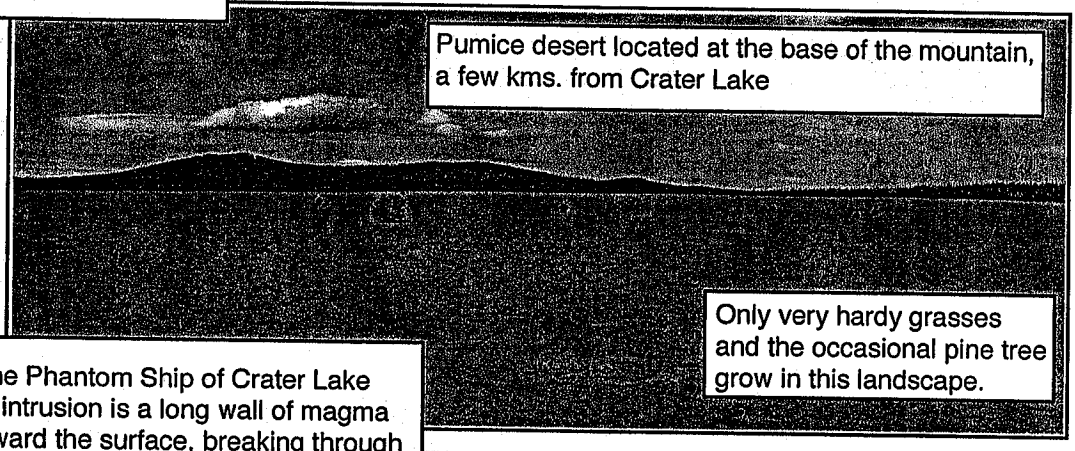
Crater Lake was created when Mount Mazama erupted 7,700 years ago



Wizard Island, a dormant subsidiary cone

Facts

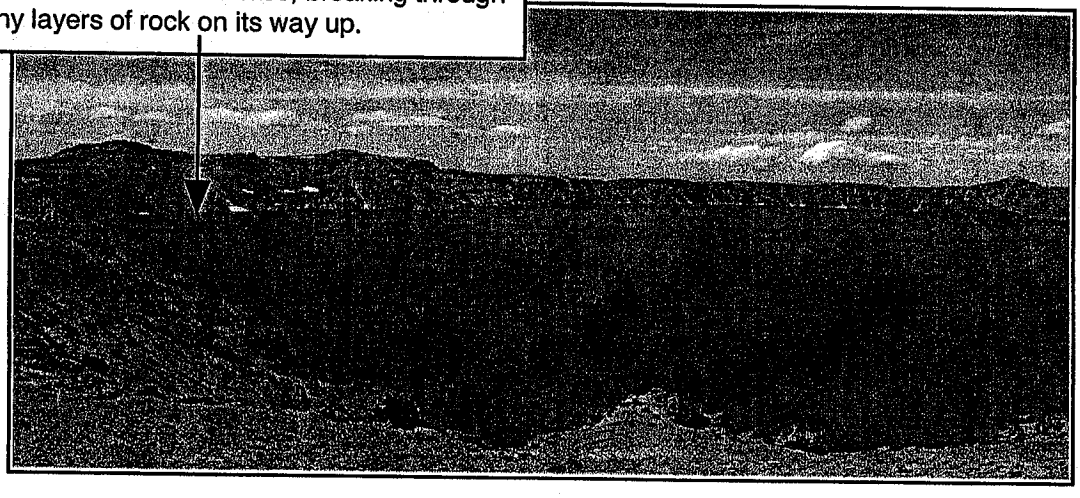
- Crater Lake is located in the state of Oregon, USA
- The lake is 594 m. deep and 9.6 km. across
- it is the deepest lake in the United States
- No rivers flow in or out of the lake
- It is located at an elevation of nearly 2000 m. above sea level
- Crater Lake seldom freezes in the winter



Pumice desert located at the base of the mountain, a few kms. from Crater Lake

Only very hardy grasses and the occasional pine tree grow in this landscape.

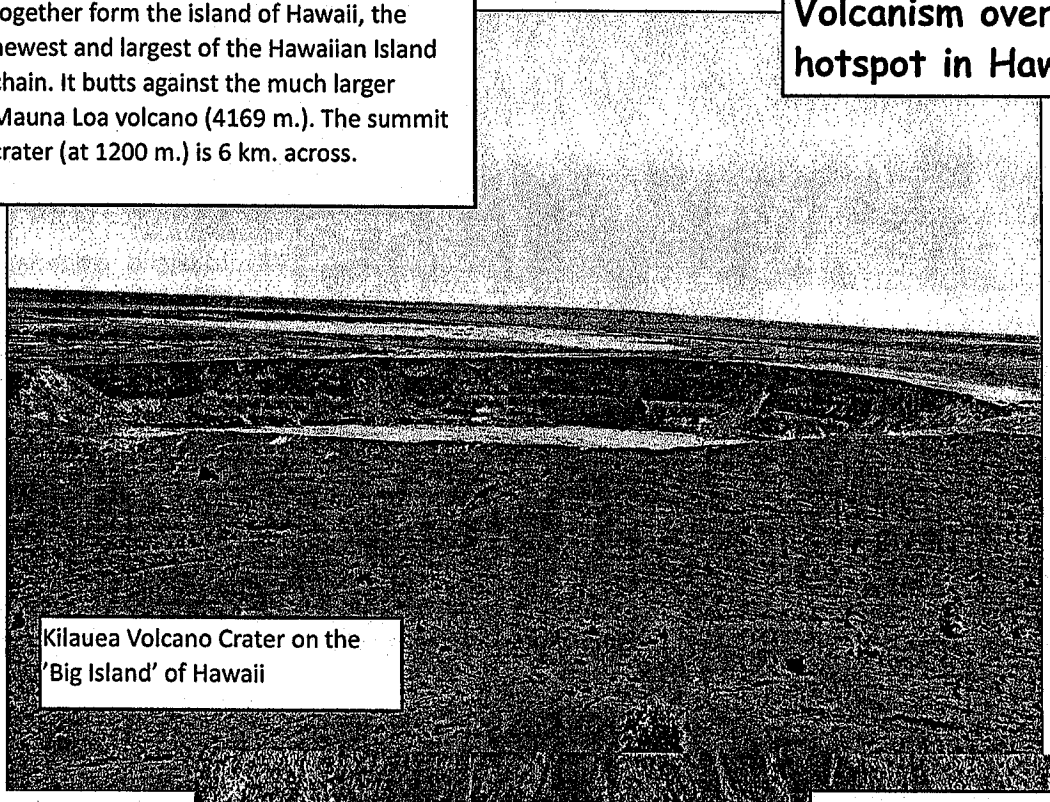
Known as the Phantom Ship of Crater Lake this magma intrusion is a long wall of magma that rose toward the surface, breaking through many layers of rock on its way up.



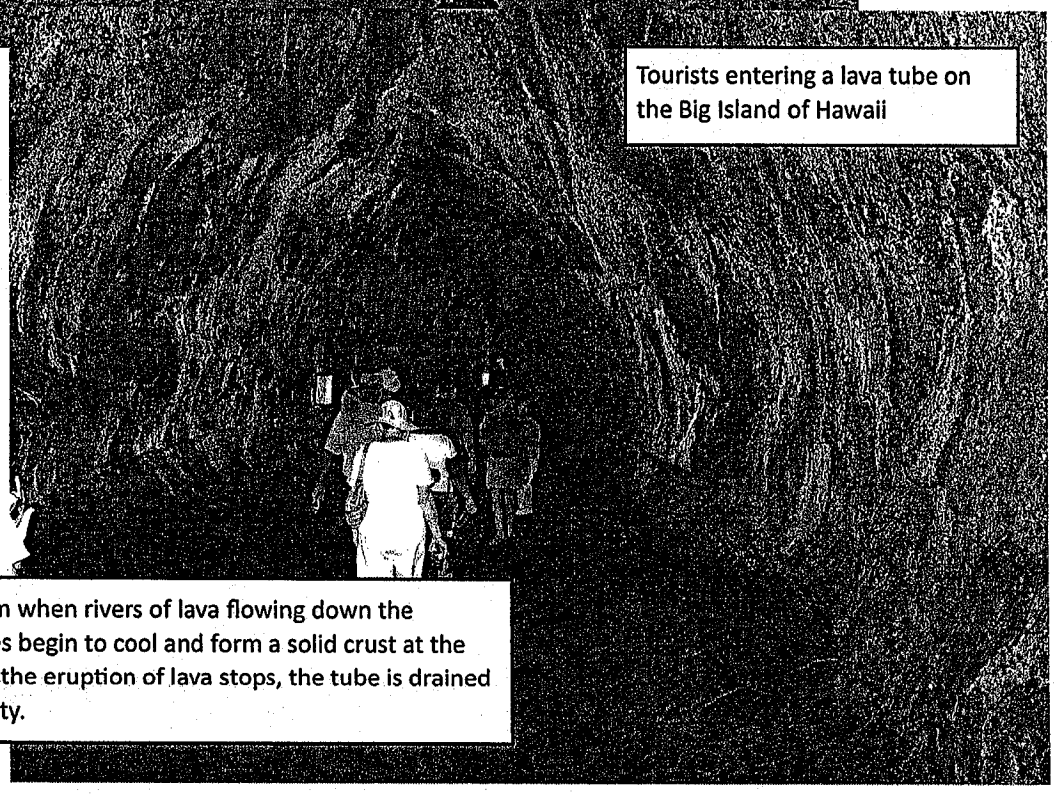
Kilauea

Kilauea is one of the 5 shield volcanoes that together form the island of Hawaii, the newest and largest of the Hawaiian Island chain. It butts against the much larger Mauna Loa volcano (4169 m.). The summit crater (at 1200 m.) is 6 km. across.

Volcanism over a hotspot in Hawaii



Kilauea Volcano Crater on the 'Big Island' of Hawaii



Tourists entering a lava tube on the Big Island of Hawaii

Lava tubes form when rivers of lava flowing down the volcano's slopes begin to cool and form a solid crust at the surface. When the eruption of lava stops, the tube is drained of lava by gravity.

Name _____

1. What type of volcanic cone is Mount Saint Helens? _____

2. Mount Saint Helens is the youngest in a long line of volcanoes that are located along the Pacific West Coast. In fact, similar volcanic cones exist along the Pacific Coastline from South America up to Alaska and all the way down to Southeast Asia. This horseshoe shaped line of volcanoes is often referred to as the Pacific Ring of Fire. Why are there so many volcanoes along the entire Pacific Rim?

_____

_____

_____

_____

3. After the eruption of Mount Saint Helens, over 400 square kilometres of landscape lay in total ruin. Nothing on the surface survived the blast. Thousands of animals, birds, and all vegetation on the north side of the mountain was obliterated by the violent eruption. A light layer of snow on the ground protected some small plants but nothing else survived. Scientists were amazed at how rapidly plants began to reappear through the thick layer of volcanic dust. Why did the plants grow so well in this volcanic soil?

_____

_____

4. Much of the damage away from the blast zone was caused by mudflows that raced down the Toutle River Valley to Portland Harbour nearly a hundred kilometres away. In a matter of hours, the harbour was choked with thousands of tons of mud and debris.

What is a volcanic mudflow called? _____

Why are mudflows frequently a major problem when continental volcanoes erupt?

_____

_____

5. List 3 ways that volcanoes negatively impact the environment.

a. _____

b. _____

c. _____

6. List 3 positive effects of volcanic eruptions.

a. _____

b. _____

c. _____

7. On May 8, 1902, Mount Pelée on the French island of Martinique in the Caribbean, erupted violently sending a torrent of hot, denser-than-air gas racing down the mountainside toward the town of Saint Pierre 6 kilometres away. In seconds, the town was destroyed and its 30,000 inhabitants killed. What is the proper name for this denser-than-air gas that can reach temperatures of 1000 degrees Celsius?

_____

8. Crater Lake in Oregon USA was created when Mount Mazama erupted 7700 years ago. The large crater is called a **caldera**. Describe 2 ways that a caldera may form.

_____

_____

_____

_____

_____

9. At 594 m. (1943 feet) deep, Crater Lake is the deepest lake in the United States and the seventh deepest in the world. No rivers flow in or out of the crater yet the water level remains relatively stable, fluctuating up or down no more than a few feet throughout the year. Where does the supply of water come from if no streams flow into the lake? What causes the water level in the lake to drop?

_____

_____

_____

_____

10. Mount Pinatubo in the Philippines erupted in June 1991 ejecting more than 5 billion cubic meters of ash and pyroclastic debris into the atmosphere. The ash cloud from Pinatubo was 18 kilometres wide and rose to an altitude of 30 kilometres. The eruption killed 847 people, left thousands homeless, and caused damage to infrastructure that would cost billions of dollars to repair.

What type of volcanic cone is Mount Pinatubo? _____
What type of plate boundary is located in the Philippine Islands region?_____

11. The decade from 1990 to 2000 was (at the time) one of the warmest decades in recorded history, but the years following the eruption of Mount Pinatubo in 1991 were several degrees cooler than average. In fact, 1992 and 1993 have been called by climatologists 'the years without a summer'. How could this volcanic eruption have been responsible for cooling the earth?

_____

_____

12. Hawaii's Kilauea volcano is the currently the world's most active volcano. What type of volcanic cone is this? _____ What type of lava is erupted from Hawaiian volcanoes?

_____

All the Hawaiian Islands have been created by volcanic activity yet they are far from any plate boundaries. Explain why there has been so much volcanic activity in this region of the Pacific Ocean.

_____

_____

_____

13. Why is there a chain of islands in Hawaii and not just one large island?

_____

_____

_____