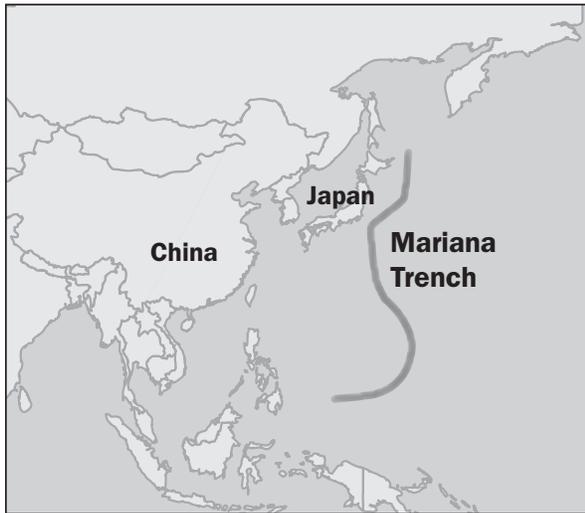


# Mission #1: The Deepest Place on Earth

You are going on a mission almost seven miles deep (that's over 11,000 meters) in the ocean, to the bottom of the Mariana Trench. Down that deep in the ocean, it will be totally dark—pitch black! The weight of the water above you will press down very hard on you. You may find the shells of very tiny creatures that don't live anywhere else in the ocean.

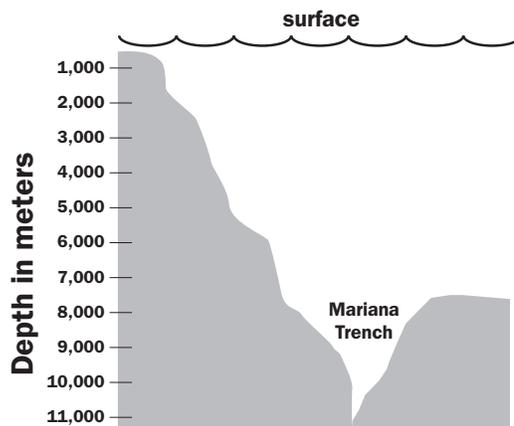


The Mariana Trench is deeper than anywhere else in the ocean. It is so deep that if you put Mt. Everest on the ocean floor in the Mariana Trench, there would still be more than one mile of water above the top of the mountain! The walls of the trench are very steep.

Until about 140 years ago, no one knew about the Mariana Trench. Scientists found the Mariana Trench by measuring depth using rope and

weights. In 1960, scientists went in a submarine down to the trench on the ocean floor. The submarine had thick walls to protect the scientists from the weight of all the water outside. No other person has ever been to the bottom of the Mariana Trench since then. You will be the first person to go there in more than 50 years!

The Mariana Trench is in the Pacific, near Japan. The diagram below shows the shape of the ocean floor around the Mariana Trench.



## Mission #2: The Longest Mountain Range on Earth

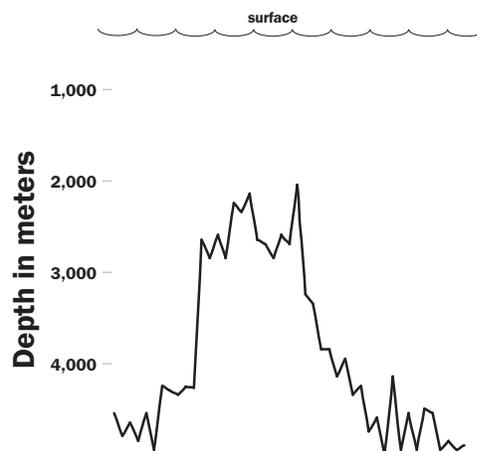
You are going on a mission to the ocean floor in the very middle of the Atlantic. The depth here is about 2,000 meters. Down that deep, it will be totally dark—pitch black! Even though you are going *down* to get there, you will be exploring the tops of mountains—underwater mountains. On either side of you, the ocean floor will slope down deeper for miles. Be careful during



your mission—there are places where hot gas or lava erupts in these mountains! The mountains you will explore are part of a long line of mountains called a mountain range. It is about 6,000 miles (over 9,500,000 meters) long! That’s 1,700 miles longer than the longest mountain range on land.

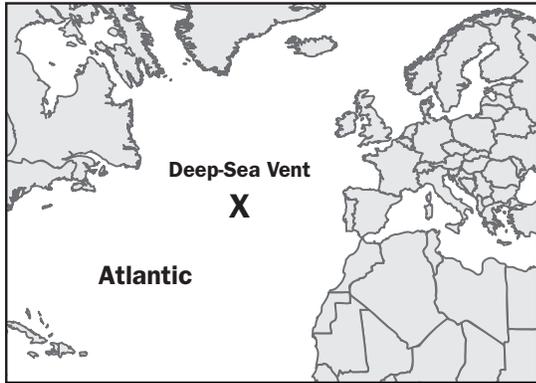
About 160 years ago, scientists traveled back and forth across the Atlantic measuring the depths of the ocean. Every time the ship got to the middle of the Atlantic, they found that the water was much less deep. This evidence seemed to show that there was a long line of mountains here. Scientists have explored this mountain range with sonar, submarines, and robots. However, it is such a long mountain range that there are many places that no one has explored.

This mountain range is called the Mid-Atlantic Ridge. The diagram below shows the shape of the ocean floor around one part of the Mid-Atlantic Ridge.



## Mission #3: The Hottest Place in the Ocean

You are going on a mission to the hottest place in the ocean—a deep-sea vent. Deep-sea vents are cracks in the ocean floor. They lead far down to hot, melted rock. The water there gets as hot as 750° F—as hot as a pizza oven! The water is so hot that it breaks down parts of the rocks it passes. Around the vent, you will



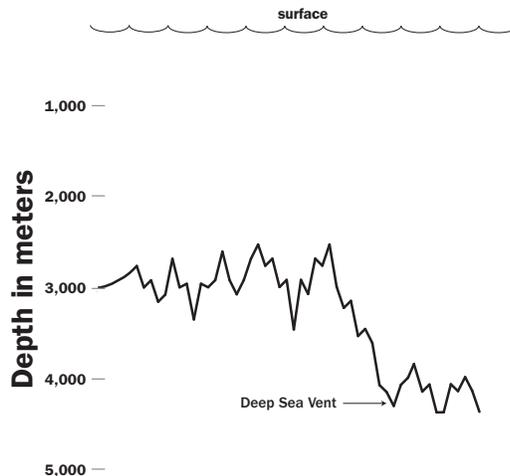
see chimneys—tall tubes. These chimneys are made from the rock parts in the black water. There are living things here that can only live near deep-sea vents. You may see giant tube worms or giant clams!

The deep-sea vent that you will explore is on the line of mountains in the middle of the Atlantic. The ocean floor around this vent has many sharp mountains and deep

cracks. The vent is in one of those cracks.

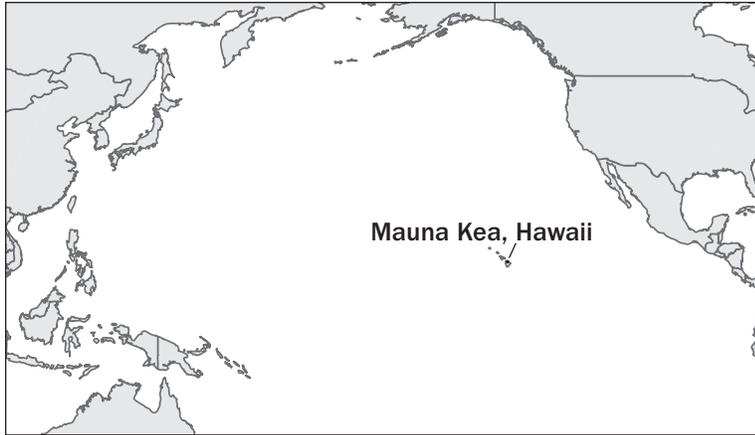
About 35 years ago, some scientists were exploring the ocean floor in a submarine. They noticed that the cold water around them was suddenly getting much warmer. They had discovered deep-sea vents. Luckily, scientists didn't go too close because the deep-sea vent would have melted the plastic parts of their submarine! For your mission, you will need a submarine that can stay safe in very hot water.

This deep-sea vent is in the middle of the Atlantic. The diagram below shows the shape of the ocean floor around this deep-sea vent.



## Mission #4: The Tallest Mountain on Earth

You are going on a mission to the tallest mountain on the planet. No, not Mount Everest. This mountain starts underwater! Mauna Kea is a mountain that starts on the ocean floor. It rises almost 4 miles (over 6,000 meters) up to the surface. Then, it rises another 2.5 miles (over 4,000 meters) above the surface.



You will travel down the side of Mauna Kea to the ocean floor. Mauna Kea is in Hawaii. When you start your trip, you will be in warm, clear water. You might see dolphins or sea turtles. As you travel down the slope of the mountain, the water will get colder and darker. At the ocean floor,

it will be totally dark. The water will be almost as cold as ice! Mauna Kea is a volcano. It has not exploded for almost 5,000 years. As you travel down the side of the mountain, you will see rocks that were made by lava.

At the bottom of Mauna Kea, on the ocean floor, the depth is almost 6,000 meters. To go that deep, you will need a submarine with thick walls. It will protect you from the weight of all the water above you.

Mauna Kea is in Hawaii in the middle of the Pacific. The diagram below shows the shape of the ocean floor around Mauna Kea.

