

How to measure a mountain



There are many views on how to measure a mountain. Mount Everest is known as the highest mountain in the world. It's 8,848 metres and still growing. That's measuring it from sea-level to its highest peak. But if you measure mountains from their actual base, where they protrude from the earth's crust at land or sea, Mauna Kea, the volcano in Hawaii is the highest, at almost 10,000 metres. When you measure Mauna Kea from sea level, though, it's only about 4,000 metres.

What if we measured mountains from the earth's core to a mountain's peak? Then Chimborazo in Ecuador would be the highest mountain in the world. But because we measure freestanding mountains, from where sea meets land, Mount Everest is the highest.

How tall can mountains grow?

They can't get much bigger than 9,000 metres because gravity is pulling the mountain back towards the earth, and the base of the mountain has to support that pressure. If there is water around the base of the mountain, like the volcano, Mauna Kea, that will help support the weight. If it's a freestanding mountain, and there isn't sufficient support, the base of the mountain will start to liquify.

You can get much higher mountains somewhere with less gravity, like on Mars, where Olympus Mons is 25,000 metres high.

How high will Mount Everest grow? Between its plate tectonics and erosion, it's growing and shrinking at the same time. Perhaps as the erosion of the mountain and its reduced weight allows more crustal uplift. It could also be that its snow caps are protecting it from erosion by the wind and chemical reactions with the air. Nepal and China recently agreed, however, that its measurement of 8,848 metres includes the snowcap on top.

How do you think the height of a mountain should be measured?

The height of mountains can change. What are 3 different factors that you think affect the height of a mountain?

a. _____

b. _____

c. _____