

HOW TALL IS TALL?

Questions • Section 3.2



SCIENCE
TOPIC
OUTREACH
POSTERS

Name

Grade/Class #

Name

Grade/Class #

Level ONE Questions (#1-3)

1. Where would you find the base of Mauna Kea?

- a) at sea level
- b) on the equator
- c) in New Hampshire
- d) at the bottom of the ocean

2. If we could shrink the Earth to the size of a basketball, would the highest mountain be taller or shorter than an inch?

3. To what planet would you travel if you wanted to find the tallest mountain in our Solar System?

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Level TWO Questions (#4-6)

4. Suppose you are standing at the North Pole (brr!) and your friend is standing on a beach at the equator (nice!). Which one of you is closer to the center of the Earth? Why?

5. Mauna Kea means “White Mountain” in the native Hawaiian language. What does the “white” refer to in the name of the mountain?

6. Large planes generally fly at altitudes of almost 40,000 feet (12,192 meters). Is that higher or lower than the tops of the tallest mountains on Earth? What about the tallest mountain on Mars?

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Level THREE Questions (#7-10)

7. Sir Edmund Hillary was the first person to climb Mt. Everest. If Sir Edmund's kids went to elementary school 8000 meters (8 kilometers, or 5 miles) from their house, is that distance larger or smaller than the height of Mt. Everest?

8. Starting from sea level, is it farther to the top or the bottom of Mauna Kea?

9. If you stacked Mt. Chimborazo and all of Mauna Kea on top of Mt. Everest, which would be higher, that stack of mountains, or Olympus Mons? By how much?

HOW TALL IS TALL?

Answers • Section 3.2



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Level ONE Questions (#1-3)

1. Where would you find the base of Mauna Kea? **Answer: d) at the bottom of the ocean**
2. If we could shrink the Earth to the size of a basketball, would the highest mountain be taller or shorter than an inch?
Answer: It would be much shorter than an inch.
3. To what planet would you travel if you wanted to find the tallest mountain in our Solar System?
Answer: Mars

Level TWO Questions (#4-6)

4. Suppose you are standing at the North Pole (brr!) and your friend is standing on a beach at the equator (nice!). Which one of you is closer to the center of the Earth? Why?
Answer: You are. The rotation of the Earth makes it bulge at the equator, so the surface is farther from the center at the equator than it is at the poles.
5. Mauna Kea means “White Mountain” in the native Hawaiian language. What does the “white” refer to in the name of the mountain?
Answer: The snow that sometimes covers the top of the mountain.
6. Large planes generally fly at altitudes of almost 40,000 feet (12,192 meters). Is that higher or lower than the tops of the tallest mountains on Earth? What about the tallest mountain on Mars?
Answer: This is higher than the tallest mountains on Earth, but lower than the top of Olympus Mons, on Mars.

Level THREE Questions (#7-9)

7. Sir Edmund Hillary was the first person to climb Mt. Everest. If Sir Edmund’s kids went to elementary school 8000 meters (8 kilometers, or 5 miles) from their house, is that distance larger or smaller than the height of Mt. Everest?
Answer: It is smaller. Mt. Everest is 8850 meters high.
8. Starting from sea level, is it farther to the top or the bottom of Mauna Kea?
Answer: Mauna Kea extends 33,500 feet (10,200 m) from the ocean floor, and the peak is about 13,800 feet (4200 m) above sea level. It is thus farther from sea level to the bottom (19,700 feet, or 6000 m).
9. If you stacked Mt. Chimborazo and all of Mauna Kea on top of Mt. Everest, which would be higher, that stack of mountains, or Olympus Mons? By how much?
Answer: The stack of mountains would be $8850\text{ m} + 10200\text{ m} + 6310\text{ m} = 25360\text{ m}$ high (or $29,035\text{ ft} + 33,500\text{ ft} + 20,703\text{ ft} = 83,238\text{ ft}$ high). This would be 1360 m (5238 ft) higher than Olympus Mons.