

Max's Mountain Expedition: Navigating Negative Numbers

Learning objective: To interpret negative numbers in context and calculate intervals across zero.

Max the monkey is exploring the Frosty Peaks. The base of the mountain is at 0 metres. As Max climbs, the altitude increases; as he explores deep ice caves, the altitude goes below zero. Use the mountain number line provided to help Max solve these puzzles. Match the situation to the correct integer and calculate the difference.

Word bank: Altitude · Interval · Ascend · Descend · Below zero · Integer

1. Max starts at the mountain base (0m). He climbs up 15 metres, then discovers an ice cave that is 8 metres deep below the base. What integer represents the depth of the cave? (2 marks)

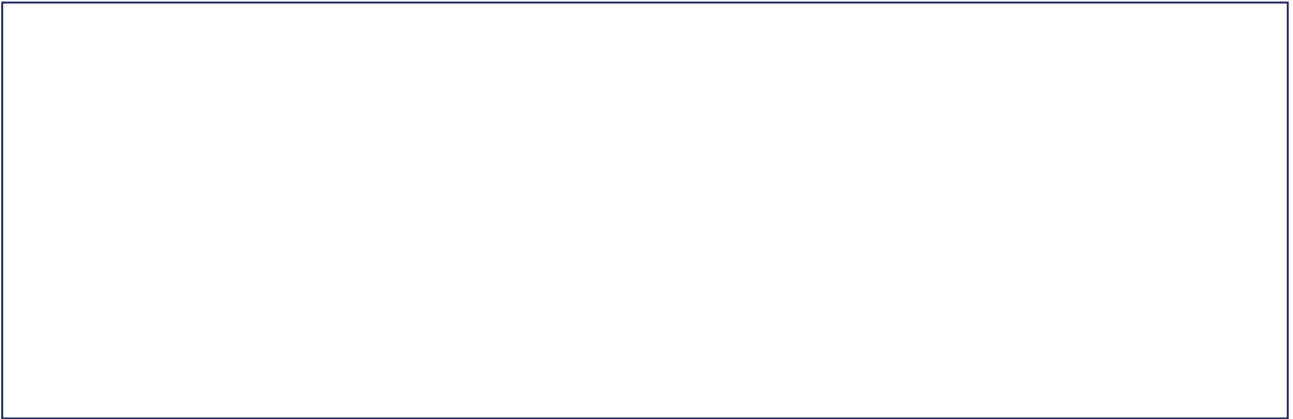
2. If Max is at -5m in an ice cave and climbs up 12 metres, what altitude is he at now? (2 marks)

3. The temperature at the mountain base is 2°C. In the ice cave, it is 6 degrees colder. What is the temperature in the cave? (2 marks)

4. Max finds a frozen coin at -4m and a shiny pebble at 3m. How many metres apart are the coin and the pebble? (2 marks)

5. Explain why -10 is smaller than -2, even though 10 is bigger than 2. (2 marks)

Draw: Draw a vertical number line representing the mountain. Label the base '0', draw Max at '+10' near the peak, and draw an ice cave at '-5'.



Extension challenge: Max finds a treasure chest at -12m. If he is currently at 4m, how many metres does he need to descend to reach the chest? Write a number sentence to show your working.