Max’s Mountain Maths: Understanding Negative Numbers

Learning objective: To count backwards through zero to include negative numbers and solve problems involving temperature and money.

Read the story about Max the monkey’s mountain adventure, then use your knowledge of number lines to solve the problems below. Remember, when the temperature drops below zero, we use a minus sign (-).

Max the monkey is climbing the frosty peaks of Snowy Summit. At the bottom of the mountain, the temperature is a warm 5°C. As Max climbs higher, the temperature drops by 2°C every hour. By the time Max reaches the halfway point, the temperature has fallen below zero. Max is also checking his supplies. He started his journey with £10, but he had to pay £12 for a special climbing rope, leaving him with a debt at the local mountain shop.

Word bank: negative · positive · zero · below · above · difference · decrease · increase

1. If the temperature is 3°C and it drops by 5°C, what will the new temperature be? (2 marks)

2. Max owes the mountain shop £2. If he finds a £5 note on the path, how much money will he have after paying off his debt? (2 marks)

3. Order these temperatures from coldest to warmest: 4°C, -3°C, 0°C, -7°C, 2°C. (2 marks)

4. The temperature at midnight is -4°C. By midday, it has risen by 6°C. What is the temperature at midday? (2 marks)

5. Explain why -1 is greater than -5. You may draw a number line to help you. (2 marks)

Draw: Draw a vertical thermometer showing the temperature at -5°C, 0°C, and 5°C. Label which part is 'below zero' and which part is 'above zero'.

Extension challenge: Max finds a hidden cave where the temperature is -10°C. If he stays there for 3 hours and the temperature rises by 2°C each hour, will it reach a positive number? Show your working out.