

## Year 5 Mathematics: Exploring Negative Numbers

*Learning objective: To interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers, and calculate intervals across zero.*

Read each question carefully. Show your working out where possible. You may use the provided number lines to help you solve the problems.

Max the monkey is helping his friends organise their winter supplies. He is using a thermometer to check the temperature in the forest, and a number line to track the depth of the underground tunnels where the animals store their food. Help Max solve these mathematical puzzles.

*Word bank: Negative · Positive · Interval · Decrease · Increase · Below zero · Difference*

**1. The temperature in the forest is  $3^{\circ}\text{C}$ . During the night, it drops by 5 degrees. What is the new temperature? Show your working. (2 marks)**

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**2. Max is looking at a tunnel depth chart. If he is at -2 metres and climbs up 4 metres, what depth is he at now? (2 marks)**

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**3. Order these temperatures from coldest to warmest:  $4^{\circ}\text{C}$ ,  $-3^{\circ}\text{C}$ ,  $0^{\circ}\text{C}$ ,  $-7^{\circ}\text{C}$ ,  $2^{\circ}\text{C}$ . (2 marks)**

**4. Leo the lion records the temperature at midday as  $-1^{\circ}\text{C}$ . By midnight, the temperature has decreased by 6 degrees. What is the temperature at midnight? (2 marks)**

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**5. Nova the owl is watching a mountain climber. They start at 5 metres above sea level and climb down into a valley that is 8 metres below sea level. What is the total vertical distance the climber has travelled? (4 marks)**

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**6. Explain why -10 is smaller than -2. You may use a number line in your explanation. (3 marks)**

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7. Max has £5 in his pocket. He buys a special nut snack for £8. How much money does Max have now? Explain what this means in terms of negative numbers. (5 marks)

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8. What is the difference between -4 and 3? (3 marks)

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**Draw:** Draw a thermometer showing the temperature at  $-5^{\circ}\text{C}$  and a vertical number line showing the journey from 3 metres above ground to 4 metres below ground.

*Extension challenge: Total: /25*