Kit’s Binary Code Breaker

1. 0011 (2 marks)

Working: 8(0) + 4(0) + 2(1) + 1(1) = 3

1 mark for correct binary sequence, 1 mark for correct place value alignment.

2. 0101 (2 marks)

Working: 8(0) + 4(1) + 2(0) + 1(1) = 5

1 mark for correct binary sequence, 1 mark for correct place value alignment.

3. 1001 (2 marks)

Working: 8(1) + 4(0) + 2(0) + 1(1) = 9

1 mark for correct binary sequence, 1 mark for correct place value alignment.

4. 15 (1 mark)

Working: 8 + 4 + 2 + 1 = 15

Award 1 mark for the correct denary number.

5. 11 (2 marks)

Working: 8(1) + 4(0) + 2(1) + 1(1) = 8 + 2 + 1 = 11

1 mark for correct calculation, 1 mark for correct denary total.

What a secure answer looks like

A secure answer shows the child understands that each column represents a power of two and that they must sum the columns containing a '1'.

If your child is stuck

Ask the child to draw a table with four columns labelled 8, 4, 2, and 1, then place a '1' in the columns that add up to their target number.

Common mistakes to watch for

Children often confuse the place values (e.g., starting from 1 on the left) or forget to include zeros as placeholders for values not used.