Varied Fluency
Negative Numbers

National Curriculum Objectives:

Mathematics Year 6: (6N5) Use negative numbers in context, and calculate intervals across zero
Mathematics Year 6: (6N6) Solve number and practical problems that involve 6N2 - 6N5

Differentiation:

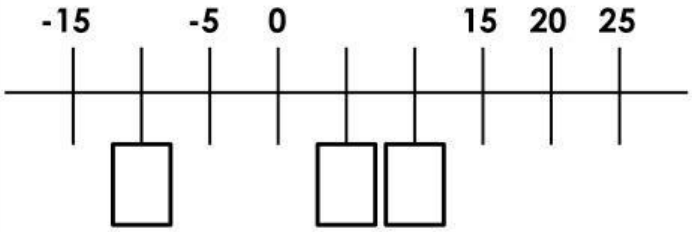
Developing Questions to support counting backwards and forwards through zero. Using numbers up to and including -10.
Expected Questions to support counting backwards and forwards through zero. Some use of halves as decimal numbers in contexts using money.
Greater Depth Questions to support counting backwards and forwards through zero. Includes multi-step problems and use of halves as decimal numbers in contexts.

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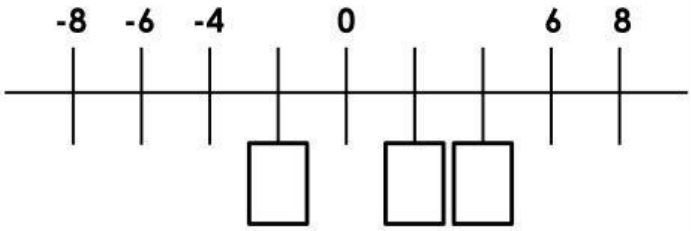
Negative Numbers

1a. Complete the number line.



D VF

1b. Complete the number line.



D VF

2a. The temperature for today is 5°C. The weather forecast predicts a drop of 10°C for the weekend.

What is the predicted temperature for the weekend?

D VF

2b. Joe's heating is broken and the temperature in his house is -1°C. He borrows a heater from his mum and the temperature rises by 9°C.

What is the temperature in Joe's house with the heater?

D VF

3a. True or false?

A car is on the 8th floor in a car park. It moves and parks 10 floors below.

The car is parked 18 floors below ground level.

D VF

3b. True or false?

An anchor on a boat is 3 metres above sea level. It is then dropped 8 metres.

The anchor is 6 metres below sea level.

D VF

4a. Complete these number sentences.

4 – 8 =
-6 + 10 =
9 – 10 =

D VF

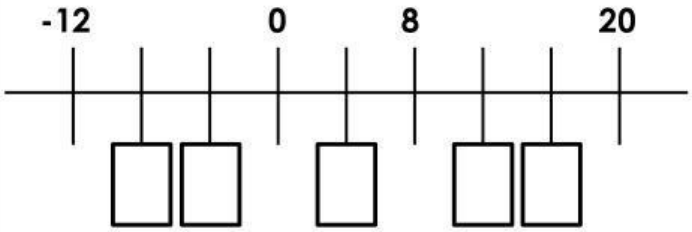
4b. Complete these number sentences.

5 – 9 =
6 – 7 =
-9 + 10 =

D VF

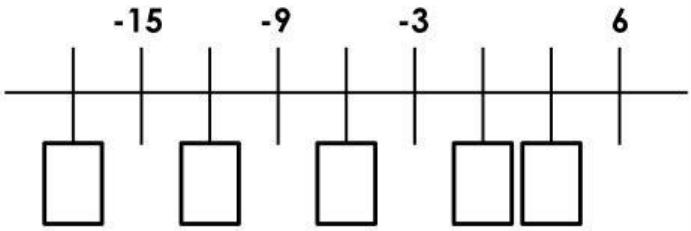
Negative Numbers

5a. Complete the number line.



VF

5b. Complete the number line.



VF

6a. In January, the temperature at the top of Ben Nevis was -5°C. By June, the temperature had increased by 12°C.

What was the temperature at the top of Ben Nevis in June?

VF

6b. Anna's bank balance was £16 on Monday night. On Tuesday evening, she spent £20.50 at the supermarket.

What will her balance be on Wednesday morning if she didn't spend anything else?

VF

7a. True or false?

A lift starts on the 17th floor in a building. It travels down 20 floors.

The lift is 2 floors below ground level.

VF

7b. True or false?

A diver is sat on a boat that is 2 metres above sea level. He descends 18 metres.

The diver is 20 metres below sea level.

VF

8a. Complete these number sentences.

12 – 19 =

Josh had £18 in his bank account. He spends £20.50 on a new coat. What is his new bank balance?

The temperature at 3am was -2°C, by midday the temperature had risen by 5°C. What was the temperature at midday?

VF

8b. Complete these number sentences.

-14 + 20 =

A rock is 2 metres above sea level. It falls and sinks 12 metres. How many metres below sea level is the rock?

The temperature was -7°C but then increased by 13°C. What is the new temperature?

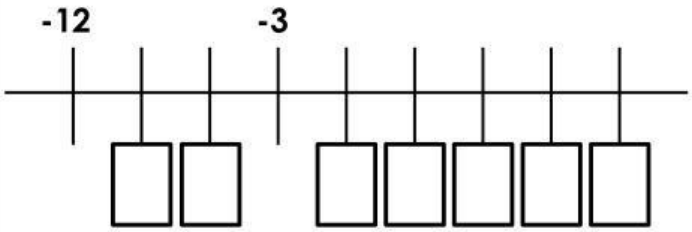
VF

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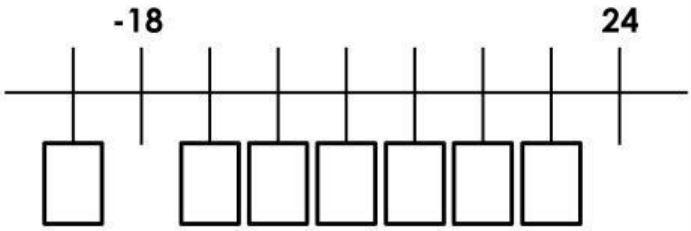
Negative Numbers

9a. Complete the number line.



GD VF

9b. Complete the number line.



GD VF

10a. The temperature in Antarctica was 1.5°C in the morning. Throughout the day, it increased by 3°C and then decreased by 8.5°C.

What was the temperature in Antarctica at the end of the day?

GD VF

10b. John's bank balance was £25.50. He spent £16 on a meal. The bank then notifies him that there has also been an unknown charge of £17.50 taken out of his account.

What is John's new bank balance?

GD VF

11a. True or false?

A scientist is on the 17th floor in a secret facility. He travels down 22 floors but then travels back up 7 floors.

The scientist is 2 floors below ground level.

GD VF

11b. True or false?

A bird is hovering at an altitude of 8.5 metres above sea level. It dives 14.5 metres, but then goes back up 1.5 metres in order to catch a fish.

The bird is 3.5 metres below sea level.

GD VF

12a. Complete these number sentences.

-3 + 17 – 10 =

Jack had £17.50 in his account. He spends £21.50 on a bag and £9.50 on a shirt. What is his new bank balance?

The temperature was -3.5°C at 6am but increased by 3.5°C by 4pm. It then decreased by 7.5°C during the evening. What was the new temperature?

GD VF

12b. Complete these number sentences.

-11 + 15 – 6 =

An anchor is 3.5 metres above sea level. It drops 13.5 metres, but is then wound back up 5.5 metres. How many metres below sea level is the anchor?

Scott has 10.5 points in a game. He loses 17.5 points, but then gains a further 13 points. How many points does Scott have now?

GD VF

Negative Numbers

Developing
1a. -10, 5, 10
2a. -5°C
3a. False. The car is parked 2 floors below ground level (-2).
4a. -4, 4, -1

Expected
5a. -8, -4, 4, 12, 16
6a. 7°C
7a. False. The lift is 3 floors below ground level (-3).
8a. -7, -£2.50, 3°C

Greater Depth
9a. -9, -6, 0, 3, 6, 9, 12
10a. -4°C
11a. False. The scientist will be 2 floors above ground level (2).
12a. 4, -£13.50, -7.5°C

Developing
1b. -2, 2, 4
2b. 8°C
3b. False. The anchor is 5 metres below sea level (-5).
4b. -4, -1, 1

Expected
5b. -18, -12, -6, 0, 3
6b. -£4.50
7b. False. The diver is 16 metres below sea level (-16).
8b. 6, 10 metres below (-10), 6°C

Greater Depth
9b. -24, -12, -6, 0, 6, 12, 18
10b. -£8
11b. False. The bird is 4.5 metres below sea level (-4.5).
12b. -2, 4.5m below (-4.5), 6 points

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