

### Number and Place Value Prior Assessment Question 1:

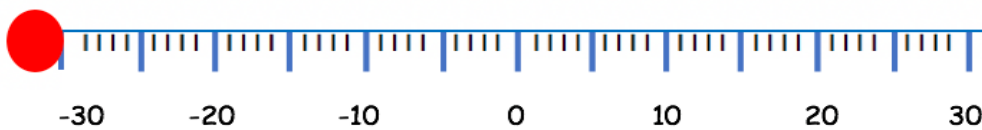
Q1 : I can place numbers including negative numbers on to a number line.

I can read number lines and I understand the intervals used.

NPV3: interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers, including through zero.

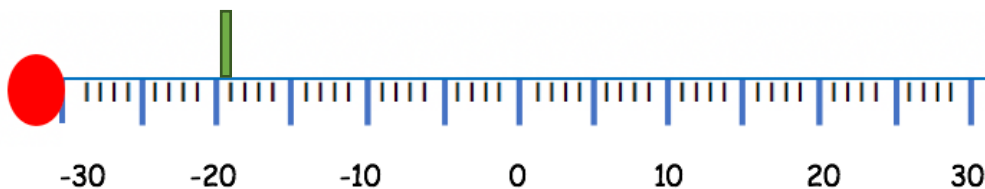
#### Teacher Input Ideas:

- Provide the children with a number line on the board or create a large whole class number line out of string on the floor/playground. Place marked and unmarked intervals on there for the children to discuss.



In pairs or groups, give the children cards with different values on. This can be differentiated dependent on the needs of the class. Ensure you include positive and negative numbers. Encourage discussions about the correct positions and the use of key knowledge and give the children time to prove where the correct position on the number line is. What do they notice? How does the scale work? Focus on negative numbers and how they work. Which one has the lowest value? How do they know? Can you prove that  $-17$  has a lower value than  $-3$ ? Some children may believe that  $-17$  has a higher value than  $-3$  as  $17$  is higher than  $3$ . Look at how  $-17$  is 17 intervals/numbers away from 0 whereas  $-3$  is only 3 intervals/numbers away. Compare and discuss.

- Discuss how the number line below is organised and how a scale works. Place markers at different points and ask the children to identify the value for each mark. For example place a bean bag at  $-19$ .



Some children may say  $-21$  as they are used to reading number lines from left to right. Encourage the children to discuss differing answers.

- If the children show understanding of reading intervals including those with positive and negative amounts, you may also want to include positive and negative decimal amounts, such as looking at negative numbers with 0.5 intervals.

## Practice Activities

**Purple Practice:** Most suited for children who demonstrated errors in Q1a and b and demonstrate difficulty when reading number lines with negative amounts.

The children are provided with images of thermometers. The children are to read the thermometers and to work out the temperature that is shown each time. Ensure the children understand how the scale should be read. Some children may need to count along the unmarked intervals and some children will begin to use the marked intervals to read other amounts. Some children are used to working left to right so often confuse -19 with -21.

**Green Practice:** Most suited for children who demonstrated errors in Q1c and d and demonstrate difficulty when placing values on to number lines.

The children are provided with images of blank thermometers. The children are to read the thermometers and to work out the temperature that is shown each time. Ensure the children understand how the scale should be read. Some children may need to count along the unmarked intervals and some children will begin to use the marked intervals.

**Yellow Practice** Most suited for children who demonstrate understanding in Question 1 and will benefit from further exploring negative number lines and negative values with decimals.

For the yellow activity the children are provided with number lines that only contain some marked intervals. The children are to complete the number lines demonstrating understanding of how they are read and the position of negative integers. As the questions progress, the children should identify that they will need to use decimal amounts too due to position of the marked intervals they are given.

**Mastery** - problem solving and fluency

For this task the children are provided with the opportunity to create their own number lines so will need to demonstrate fluency of how number lines with negative integers are structured. They are to explore as many different ways they can create a number line for the numbers between -6 to 6. Provide the children with time to think about how they will approach this problem and then share ideas with others.

This will encourage the children to also apply other skills such as accuracy with a number line with the use of a ruler. Encourage the children to demonstrate that each interval should be of equal distance so the use of a ruler may help. The children are to suggest different intervals that can be used between -6 and 6 and think about which

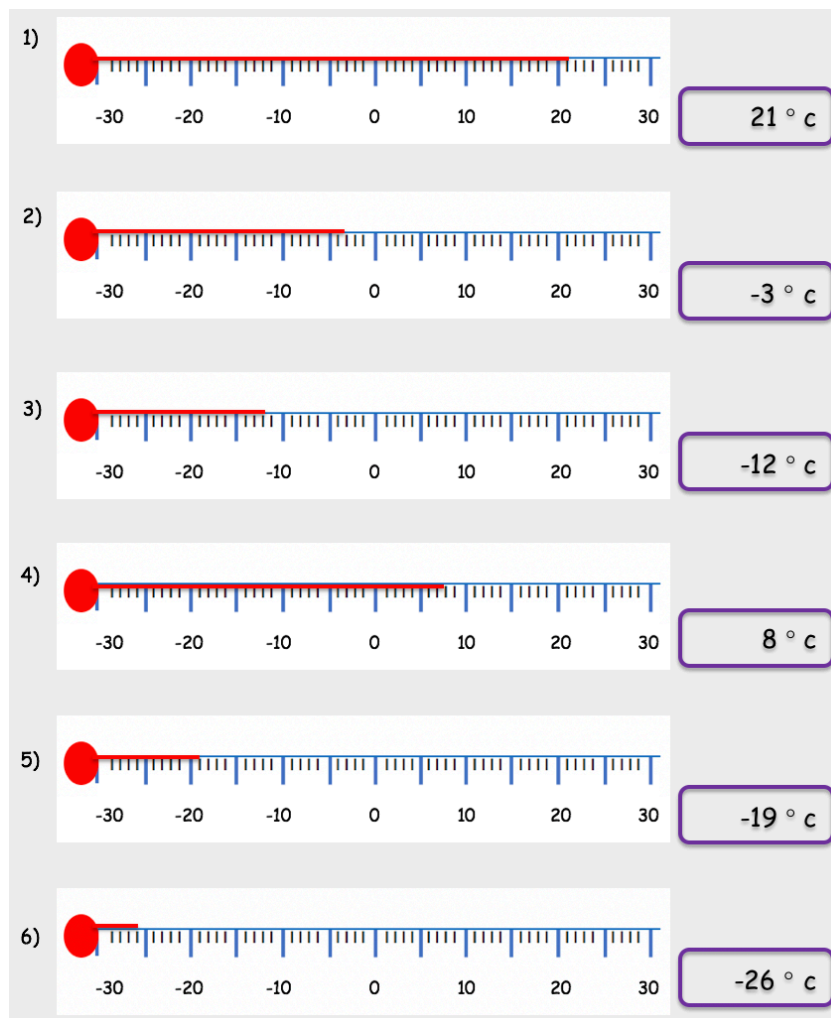
ones will be marked and which will be unmarked. See the answers for some suggestions that can be modelled as starting points if some children are demonstrating difficulty.

**Answers:**

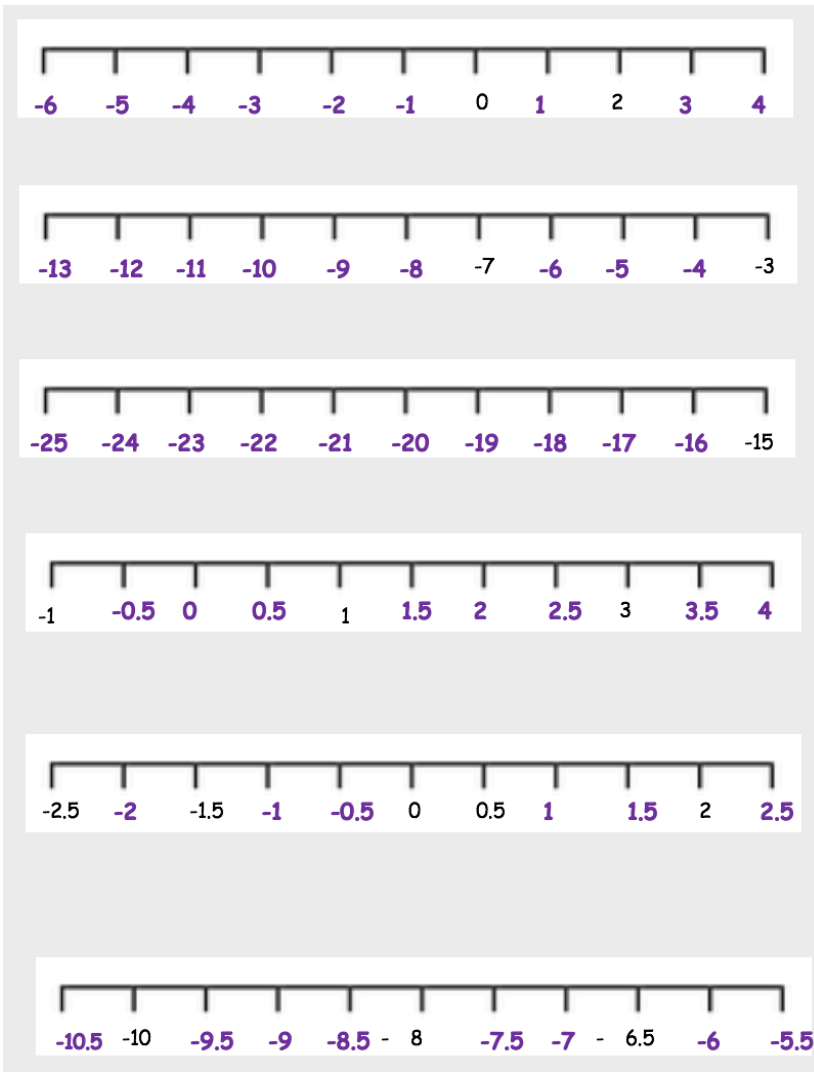
**Purple:**

- 1)  $15^{\circ}\text{C}$
- 2)  $-15^{\circ}\text{C}$
- 3)  $19^{\circ}\text{C}$
- 4)  $-4^{\circ}\text{C}$
- 5)  $-21^{\circ}\text{C}$
- 6)  $-16^{\circ}$

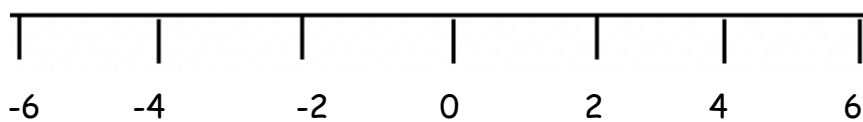
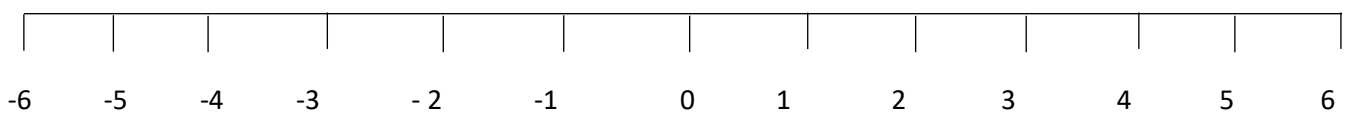
**Green:**



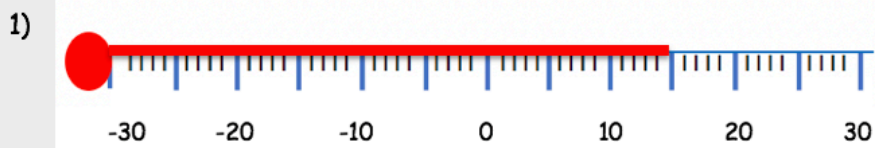
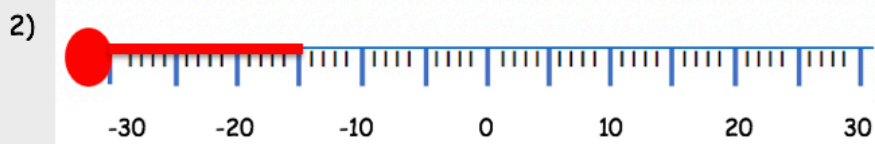
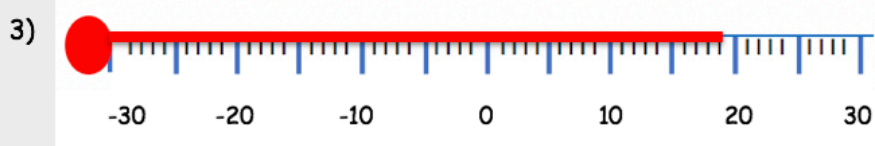
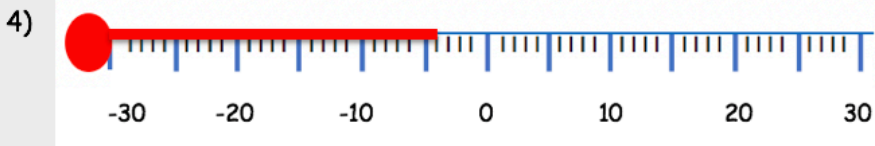
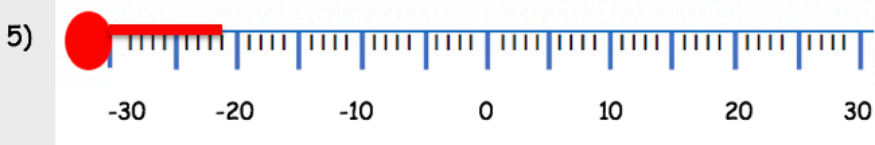
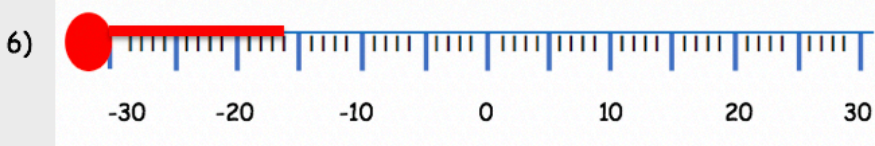
Yellow:



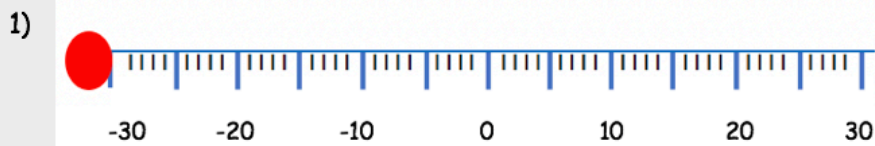
Mastery: Some suggestions



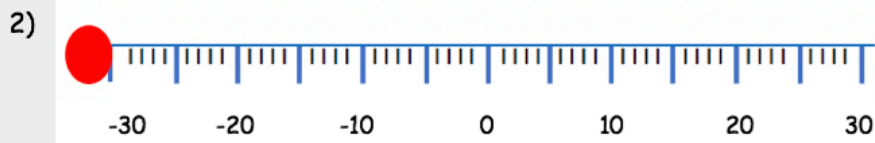
Look at where the mercury in each thermometer has reached.  
Record the temperature for each question.


 °C

 °C

 °C

 °C

 °C

 °C

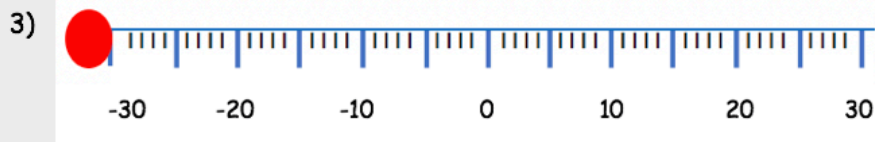
Look at each temperature in the purple box. Mark the correct temperature on each thermometer.



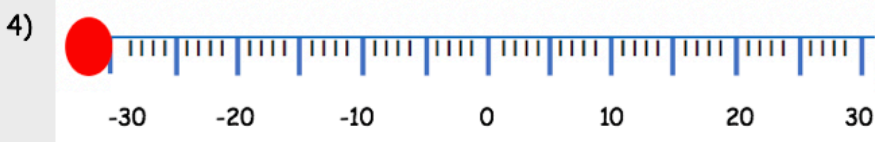
21 ° c



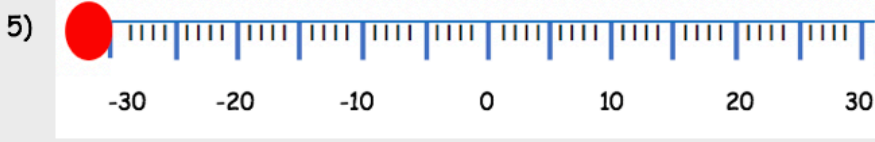
-3 ° c



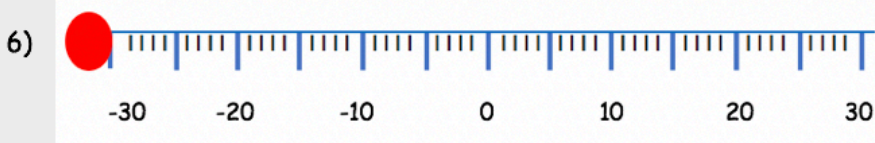
-12 ° c



8 ° c

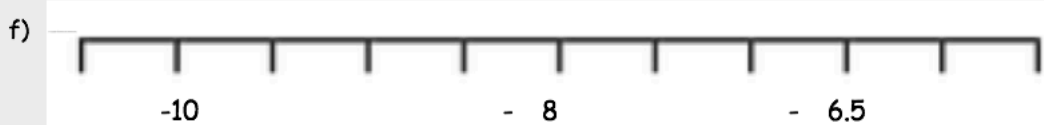
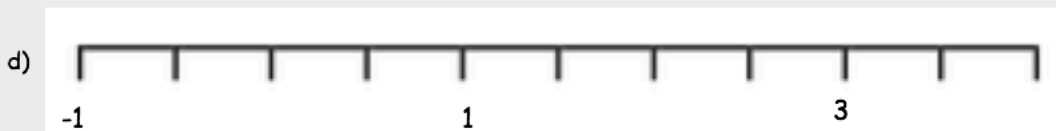


-19 ° c



-26 ° c

Fill in the missing parts of the number lines that have been zoomed into.





Jagroop wants to draw a number line from  $-6$  to  $6$ .

Draw as many different number lines as you can to show him examples of different marked and unmarked intervals he can use.



Place each set of numbers in order from the lowest value to the highest value.

|   |  |   |   |   |
|---|--|---|---|---|
|  7 |  -1 |  3 |  -2 |  6 |
| <input type="text"/>  | <input type="text"/>   | <input type="text"/>  | <input type="text"/>  | <input type="text"/>  |

|   |  |   |   |   |
|---|--|---|---|---|
|  15 |  -13 |  -1 |  7 |  -6 |
| <input type="text"/>  | <input type="text"/>   | <input type="text"/>  | <input type="text"/>  | <input type="text"/>  |

|  |   |  |   |   |
|--|---|--|---|---|
|  -3 |  -17 |  -7 |  -1 |  -10 |
| <input type="text"/>   | <input type="text"/>  | <input type="text"/>   | <input type="text"/>  | <input type="text"/>  |

**Tip**  
Drawing or using a number line may help.