

# Number lines with mixed numbers

## Notes and guidance

In this small step, children build on their learning from Step 2 in this block, developing a deeper understanding of how mixed numbers are represented on a number line.

Children label the fractions on any given number line by identifying the number of intervals between each of the whole numbers. A common mistake is counting the number of divisions between consecutive integers. For example, a number line split into quarters has three dividing lines between each integer, so children may conclude that the number line is counting in thirds.

Children estimate the positions of mixed numbers on blank number lines. To support this, it is important that children understand which integer a mixed number is closer to, and the mixed number's relationship to the point halfway between the two wholes either side of it.

### Things to look out for

- Children may incorrectly count the number of intervals when working out what fraction the number line is counting in.
- Children may struggle to estimate on a number line if they are not secure in their knowledge of which whole a fraction is closer to.

## Key questions

- On the number line, how many intervals are there between these two consecutive whole numbers, \_\_\_\_\_ and \_\_\_\_\_?
- What is each interval worth on the number line?
- Is it more efficient to count on from the previous whole number or back from the next whole number when labelling \_\_\_\_\_?
- What is the whole number before and after \_\_\_\_\_?
- Is \_\_\_\_\_ closer to the previous or the next whole number? How do you know?

## Possible sentence stems

- The difference between the start and end of the number line is \_\_\_\_\_  
There are \_\_\_\_\_ intervals.  
Each interval is worth \_\_\_\_\_
- \_\_\_\_\_  $\frac{\square}{\square}$  is closer to \_\_\_\_\_ than \_\_\_\_\_

## National Curriculum links

- This small step is not taken from the Year 4 National Curriculum. It is included to take into account the non-statutory DfE Ready to Progress guidance.

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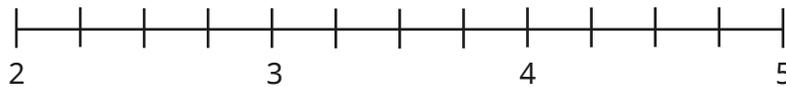
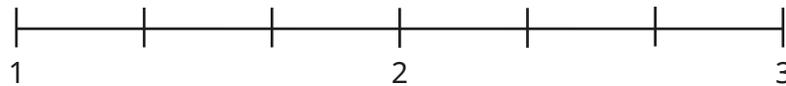
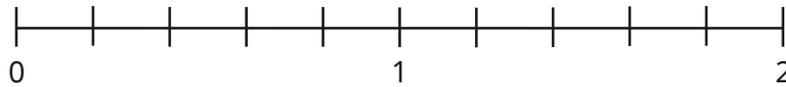
## Key learning

- What is the number line counting up in?

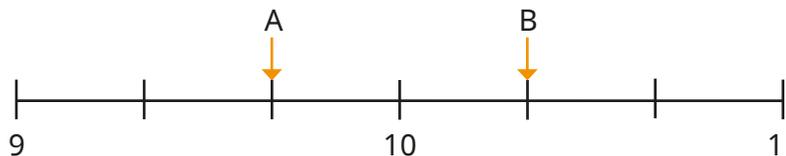


How do you know?

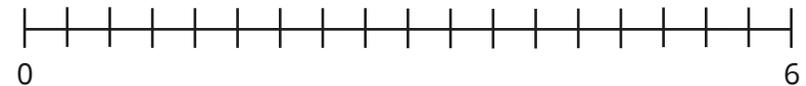
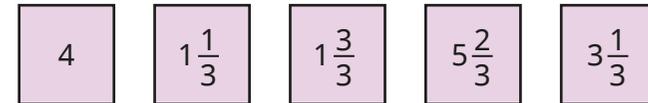
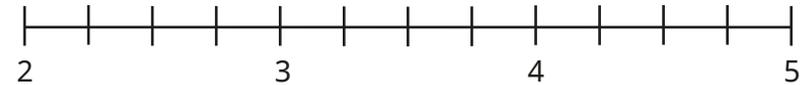
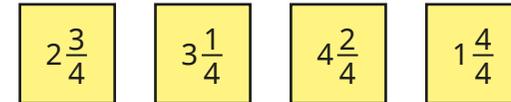
- Complete the number lines.



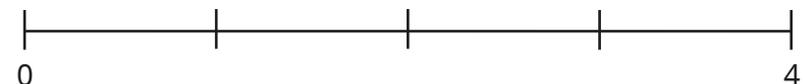
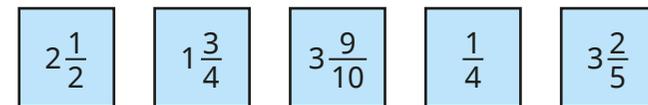
- What number is each arrow pointing to?



- Label the numbers on the number lines.



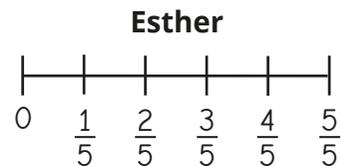
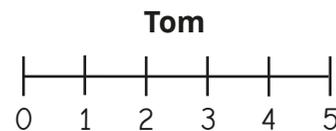
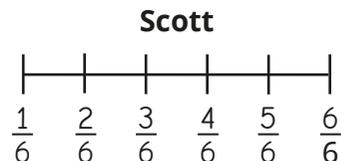
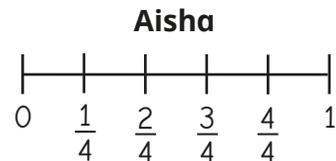
- Draw arrows to estimate the positions of the numbers on the number line.



# Number lines with mixed numbers

## Reasoning and problem solving

Four children are labelling a blank number line that starts at zero.



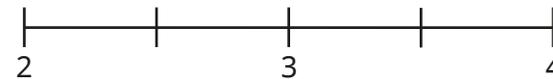
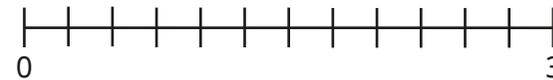
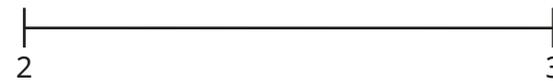
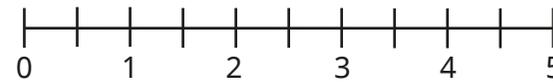
Who could be correct?

Who **cannot** be correct?

Talk about it with a partner.

Tom and Esther could be correct.  
Aisha and Scott cannot be correct.

Draw arrows to estimate the position of  $2\frac{5}{6}$  on each number line.



arrow in the correct place on each number line

Which number line did you find easiest/hardest to estimate on?

Why?