

# Convert mixed numbers to improper fractions

## Notes and guidance

Having now been introduced to both mixed numbers and improper fractions, in this small step children convert a mixed number into an improper fraction.

At this stage, children explore this concept predominantly through the use of pictorial representations and concrete manipulatives such as interlocking cubes. Bar models and number lines are useful representations to allow children to see the links between mixed numbers and improper fractions.

Children use their times-tables knowledge to find the improper fraction equivalent to the integer part of a mixed number before adding on any remaining fractional parts.

### Things to look out for

- Fluent knowledge of times-tables will greatly support children in this step. Times-table grids could support children who are not yet fluent, allowing them to focus on the key learning of this step.
- Children may forget to add on the fractional part of the mixed number.
- Children may add the integer and the fractional part together, for example  $3\frac{4}{5} = \frac{7}{5}$

## Key questions

- What is the integer in the mixed number \_\_\_\_\_?
- What is the fractional part of the mixed number \_\_\_\_\_?
- How do you know if a fraction is improper?
- How many fifths are there in  $\frac{2}{3}$ / $\frac{1}{4}$  wholes? What do you notice?
- If there are 8 quarters in 2, how many more quarters do you need to add for the mixed number  $2\frac{3}{4}$ ?
- What do you notice about the improper fraction equivalences of  $2\frac{2}{9}$ ,  $2\frac{3}{9}$ ,  $2\frac{4}{9}$  /  $2\frac{2}{9}$ ,  $3\frac{2}{9}$ ,  $4\frac{2}{9}$ ?

## Possible sentence stems

- Each whole is worth \_\_\_\_\_

All the wholes are worth \_\_\_\_\_

Adding the fractional part means that altogether there are \_\_\_\_\_

## 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.

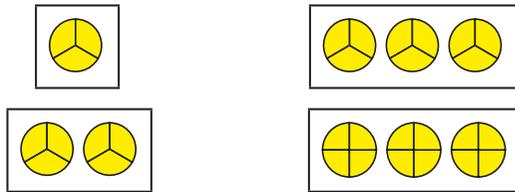
# Convert mixed numbers to improper fractions

## Key learning

- Each circle represents 1 whole.

What do the diagrams show?

Give your answers as an integer and as an improper fraction.



- Complete the sentences for each mixed number.

The integer in the mixed number is \_\_\_\_\_

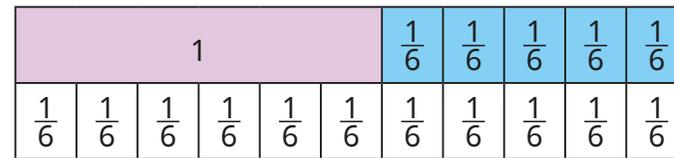
This is equivalent to \_\_\_\_\_ quarters.

There are \_\_\_\_\_ more quarters.

\_\_\_\_\_ + \_\_\_\_\_ = \_\_\_\_\_  
 So the improper fraction is  $\frac{\square}{4}$

- ▶  $1\frac{1}{4}$
- ▶  $1\frac{2}{4}$
- ▶  $2\frac{2}{4}$
- ▶  $3\frac{3}{4}$

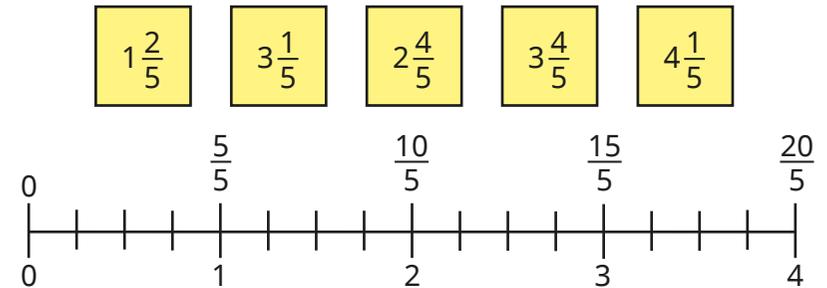
- Use the bar model to convert the mixed number to an improper fraction.



$$1\frac{5}{6} = \frac{\square}{6}$$

Draw a bar model to convert  $3\frac{2}{3}$  to an improper fraction.

- Use the number line to convert the mixed numbers to improper fractions.



- Convert the mixed numbers to improper fractions.

$1\frac{3}{7}$	$2\frac{4}{7}$	$2\frac{5}{7}$	$5\frac{6}{7}$
$1\frac{7}{8}$	$2\frac{7}{8}$	$3\frac{7}{8}$	$5\frac{7}{8}$

What do you notice?

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## Reasoning and problem solving

Teddy and Alex are converting  $3\frac{2}{4}$  into an improper fraction.



Teddy

3 plus 2 is equal to 5, so it is  $\frac{5}{4}$

3 lots of 2 is equal to 6, so it is  $\frac{6}{4}$



Alex

$$\frac{14}{4}$$

What mistake has each child made?

What is the correct answer?



Dora, Ron and Rosie each think of a different number.



Dora

My number has 2 wholes, 3 as a numerator and 8 as a denominator.

My number is greater than Rosie's, but less than Dora's.

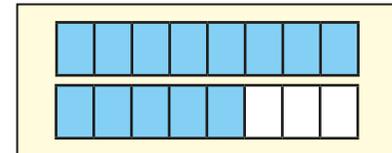


Ron



Rosie

I have drawn my number.



What number could Ron be thinking of?

Write each possible answer as both a mixed number and an improper fraction.

multiple possible answers e.g.  $1\frac{6}{8}$ ,  $\frac{14}{8}$