

## Add two or more fractions

### Notes and guidance

Building from Year 3, in this small step children add two or more fractions with the same denominator. They add proper fractions in this step and then add fractions and mixed numbers in the next step.

Children start by folding strips of paper and shading the equal parts. They transfer this knowledge to using diagrams and bar models to add two fractions, before progressing to adding more than two fractions. Children also explore adding by using a number line and counting on.

Addition with totals greater than 1 is covered in this step, but first ensure that children are secure in adding fractions within 1. Encourage children to convert improper fractions to mixed numbers, although this is not essential in this step.

### Things to look out for

- If using two bar models to add two fractions, children may think the two bar models together make 1 whole and will be unable to find the correct denominator.
- Children may add both the numerators and denominators, for example  $\frac{1}{3} + \frac{1}{3} = \frac{2}{6}$

### Key questions

- Are the denominators the same? Why is this important?
- How can you show the addition in a diagram/bar model?
- How could a number line help you?
- Is your answer greater or smaller than 1? How do you know?
- How do you convert an improper fraction to a mixed number?
- How is adding three fractions different from adding two fractions?
- How would you explain how to add fractions to someone who does not understand?

### Possible sentence stems

- When the denominators are the same, to add the fractions add the \_\_\_\_\_
- $\frac{\square}{\square}$  is the same as \_\_\_\_\_ (for example,  $\frac{5}{4}$  is the same as  $1\frac{1}{4}$ )

### National Curriculum links

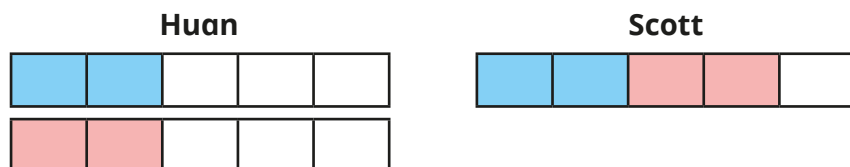
- Add and subtract fractions with the same denominator

# Add two or more fractions

## Key learning

- Take two identical strips of paper.  
Fold each strip in half and then in half again to make quarters.  
Use the strips to work out  $\frac{1}{4} + \frac{1}{4}$

- Huan and Scott use bar models to represent  $\frac{2}{5} + \frac{2}{5} = \frac{4}{5}$



Are their methods the same or different?

Use your preferred method to work out the additions.

$$\frac{3}{8} + \frac{1}{8}$$

$$\frac{2}{7} + \frac{4}{7}$$

$$\frac{3}{10} + \frac{7}{10}$$

- Dani uses bar models to show that  $\frac{3}{5} + \frac{4}{5} = \frac{7}{5} = 1\frac{2}{5}$



Use Dani's method to work out the additions.

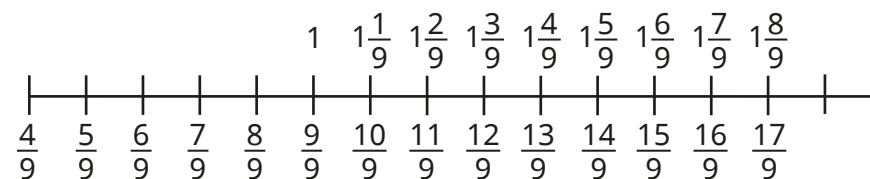
$$\frac{2}{5} + \frac{4}{5}$$

$$\frac{4}{5} + \frac{4}{5}$$

$$\frac{3}{10} + \frac{9}{10}$$

$$\frac{7}{10} + \frac{9}{10}$$

- Use the number line to add the fractions.

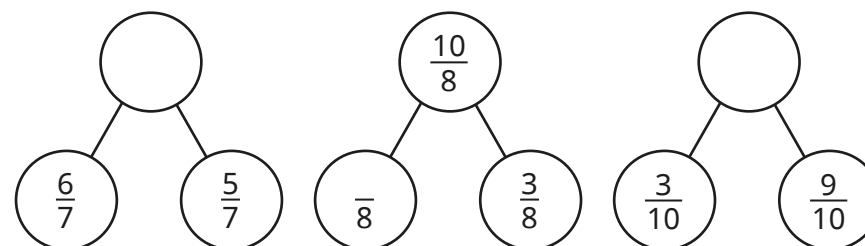


$$\frac{4}{9} + \frac{8}{9}$$

$$\frac{5}{9} + \frac{6}{9}$$

$$\frac{8}{9} + \frac{8}{9}$$

- Complete the part-whole models.



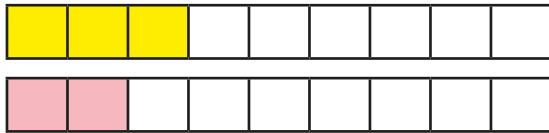
- Filip walks  $\frac{7}{10}$  km to school.  
After school, he walks  $\frac{9}{10}$  km to Aisha's house.  
How far has Filip walked in total?

## Add two or more fractions

### Reasoning and problem solving



Tiny is adding fractions.



$$\frac{3}{9} + \frac{2}{9} = \frac{5}{18}$$

Is Tiny correct?

How do you know?



No

Find as many ways as possible to complete the calculation.

$$\frac{\square}{\square} + \frac{\square}{\square} = \frac{11}{9}$$



multiple possible answers, e.g.  $\frac{3}{9} + \frac{8}{9}$

Jo and Max are working out the addition.

$$\frac{6}{13} + \frac{5}{13} + \frac{7}{13}$$



Jo

The answer is 1 and  $\frac{5}{13}$

The answer is  $\frac{18}{13}$



Max

Both are correct.

Who do you agree with?

Explain your answer.

