

# Reasoning and Problem Solving

## Step 1: Fact Families Addition

### National Curriculum Objectives:

Mathematics Year 1: (1C1) [Represent and use number bonds and related subtraction facts within 20](#)

Mathematics Year 1: (1C2a) [Add and subtract one-digit and two-digit numbers to 20, including zero](#)

Mathematics Year 1: (1C2b) [Read, write and interpret mathematical statements involving addition \(+\), subtraction \(−\) and equals \(=\) signs](#)

### Differentiation:

Questions 1, 4 and 7 (Problem Solving)

**Developing** Identify 3 Numicon which can be used to write two addition number sentences up to a total of 10, using pictorials.

**Expected** Identify 3 numbers which can be used to write an addition fact family up to a total of 10, using pictorials and numbers.

**Greater Depth** Identify 3 numbers which can be used to write an addition fact family up to a total of 10, using limited pictorials, numerals and words.

Questions 2, 5 and 8 (Reasoning)

**Developing** Identify and explain the one mistake made in the addition number sentences up to a total of 10, using pictorials.

**Expected** Identify and explain the mistake made in fact family addition number sentences up to a total of 10, using numbers.

**Greater Depth** Identify and explain the mistake made in fact family addition number sentences up to a total of 10, using numerals and words.

Questions 3, 6 and 9 (Problem Solving)

**Developing** Draw all the possible missing numbers in an addition number sentence up to a total of 10, using pictorials.

**Expected** Find all the possible missing numbers in fact family addition number sentences up to a total of 10, using pictorials and numbers.

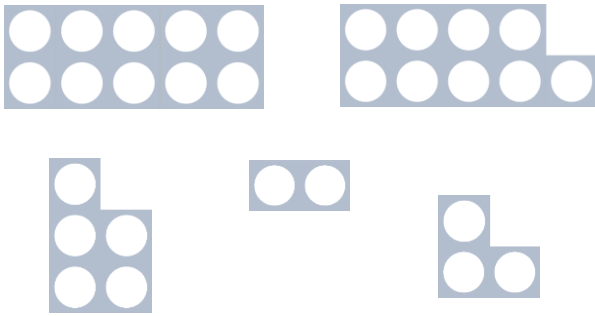
**Greater Depth** Find all the possible missing numbers in fact family addition number sentences up to a total of 10, using numerals and words.

More [Year 1 and Year 2 Addition and Subtraction](#) resources.

Did you like this resource? Don't forget to [review](#) it on our website.

## Fact Families Addition

1a. Circle 3 Numicon which could be used to make a number sentence.



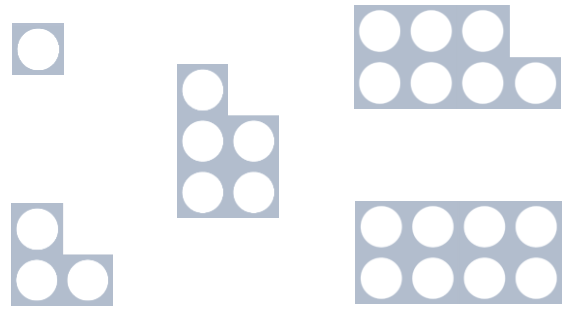
Use them to make 2 addition number sentences.



1 PS

## Fact Families Addition

1b. Circle 3 Numicon which could be used to make a number sentence.



Use them to make 2 addition number sentences.



1 PS

2a. Circle the incorrect number sentence below.

a. + =

b. + =

Explain why it is incorrect.



1 R

2b. Circle the incorrect number sentence below.

a. + =

b. + =

Explain why it is incorrect.



1 R

3a. What could the missing numbers be? Draw all the possibilities.

= +

= +



1 PS

3b. What could the missing numbers be? Draw all the possibilities.

+ =

+ =



1 PS

## Fact Families Addition

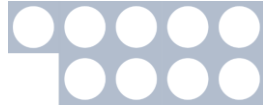
## Fact Families Addition

4a. Circle 3 numbers or Numicon which could be used to make a number sentence.



8

4

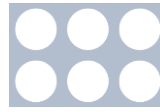


Use them to make 4 fact family number sentences.



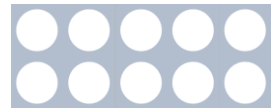
1 PS

4b. Circle 3 numbers or Numicon which could be used to make a number sentence.



7

2



Use them to make 4 fact family number sentences.



1 PS

5a. Circle the incorrect number sentence below.

a.  $2 + 4 =$

b.  $4 +$   $= 2$

c.  $= 4 + 2$

d.  $= 2 + 4$

Explain why it is incorrect.



1 R

5b. Circle the incorrect number sentence below.

a.  $4 + 3 =$

b.  $3 + 4 =$

c.  $= 4 + 7$

d.  $= 3 + 4$

Explain why it is incorrect.



1 R

6a. What could the missing numbers be? Find all the possibilities.

$+$    $=$

$+$    $= 7$

$=$    $+$

$7 =$    $+$



1 PS

6b. What could the missing numbers be? Find all the possibilities.

$+$    $= 8$

$+$    $=$

$8 =$    $+$

$=$    $+$



1 PS

## Fact Families Addition

## Fact Families Addition

7a. Circle 3 numbers which could be used to make a number sentence.

2                      six  
three  
5                      9

Use them to make 4 fact family number sentences.



1 PS

7b. Circle 3 numbers which could be used to make a number sentence.

seven                      9  
six  
8                      2

Use them to make 4 fact family number sentences.



1 PS

8a. Circle the incorrect number sentence below.

- a.  $2 + \text{seven} = 9$
- b.  $\text{seven} + 2 = 9$
- c.  $9 = \text{seven} + 2$
- d.  $\text{seven} = 2 + 9$

Explain why it is incorrect.



1 R

8b. Circle the incorrect number sentence below.

- a.  $5 + \text{three} = 8$
- b.  $\text{three} + 5 = 8$
- c.  $\text{three} = 5 + 8$
- d.  $8 = \text{three} + 5$

Explain why it is incorrect.



1 R

9a. What could the missing numbers be? Find all the possibilities.

$$\begin{array}{l} \boxed{\phantom{00}} + \boxed{\phantom{00}} = \\ \boxed{\phantom{00}} + \boxed{\phantom{00}} = 8 \\ 8 = \boxed{\phantom{00}} + \boxed{\phantom{00}} \\ 8 = \boxed{\phantom{00}} + \boxed{\phantom{00}} \end{array}$$



1 PS

9b. What could the missing numbers be? Find all the possibilities.

$$\begin{array}{l} \boxed{\phantom{00}} + \boxed{\phantom{00}} = \text{ten} \\ \boxed{\phantom{00}} + \boxed{\phantom{00}} = \text{ten} \\ \text{ten} = \boxed{\phantom{00}} + \boxed{\phantom{00}} \\ \text{ten} = \boxed{\phantom{00}} + \boxed{\phantom{00}} \end{array}$$



1 PS

## Reasoning and Problem Solving Fact Families Addition

### Developing

1a. 3, 2 and 5 circled. Any two from the following;  $3 + 2 = 5$ ;  $2 + 3 = 5$ ;  $5 = 3 + 2$ ;  $5 = 2 + 3$ .

2a. B circled.  $4 + 7 = 3$  is not correct because 7 is the total. 4 and 3 are the parts which make 7.

3a. 0 and 6; 1 and 5; 2 and 4; 3 and 3.

### Expected

4a. 5, 4 and 9 circled.  $5 + 4 = 9$ ;  $4 + 5 = 9$ ;  $9 = 5 + 4$ ;  $9 = 4 + 5$

5a. B circled.  $4 + 6 = 2$  is not correct because 6 is the total. 4 and 2 are the parts which make 6.

6a. 0 and 7; 1 and 6; 2 and 5; 3 and 4.

### Greater Depth

7a. three, six and 9 circled.  $3 + 6 = 9$ ;  $6 + 3 = 9$ ;  $9 = 3 + 6$ ;  $9 = 6 + 3$ .

8a. D circled. seven =  $2 + 9$  is not correct because 9 is the total. 7 and 2 are the parts which make 9.

9a. 0 and 8; 1 and 7; 2 and 6; 3 and 5; 4 and 4.

## Reasoning and Problem Solving Fact Families Addition

### Developing

1b. 3, 5 and 8 circled. Any two from the following;  $5 + 3 = 8$ ;  $3 + 5 = 8$ ;  $8 = 5 + 3$ ;  $8 = 3 + 5$ .

2b. A circled.  $4 + 6 = 2$  is not correct because 6 is the total. 4 and 2 are the parts which make 6.

3b. 0 and 7; 1 and 6; 2 and 5; 3 and 4.

### Expected

4b. 7, 3 and 10 circled.  $7 + 3 = 10$ ;  $3 + 7 = 10$ ;  $10 = 7 + 3$ ;  $10 = 3 + 7$

5b. C circled.  $3 = 4 + 7$  is not correct because 7 is the total. 3 and 4 are the parts which make 7.

6b. 0 and 8; 1 and 7; 2 and 6; 3 and 5; 4 and 4.

### Greater Depth

7b. 2, seven and 9 circled.  $2 + 7 = 9$ ;  $7 + 2 = 9$ ;  $9 = 2 + 7$ ;  $9 = 7 + 2$ .

8b. C circled. Three =  $5 + 8$  is not correct because 8 is the total. 3 and 5 are the parts which make 8.

9b. 0 and 10; 1 and 9; 2 and 8; 3 and 7; 4 and 6; 5 and 5.