Addition & Subtraction

Master The Curriculum

1

Fluency Teaching Slides

Part-whole Model

1

Fluency Teaching Slides

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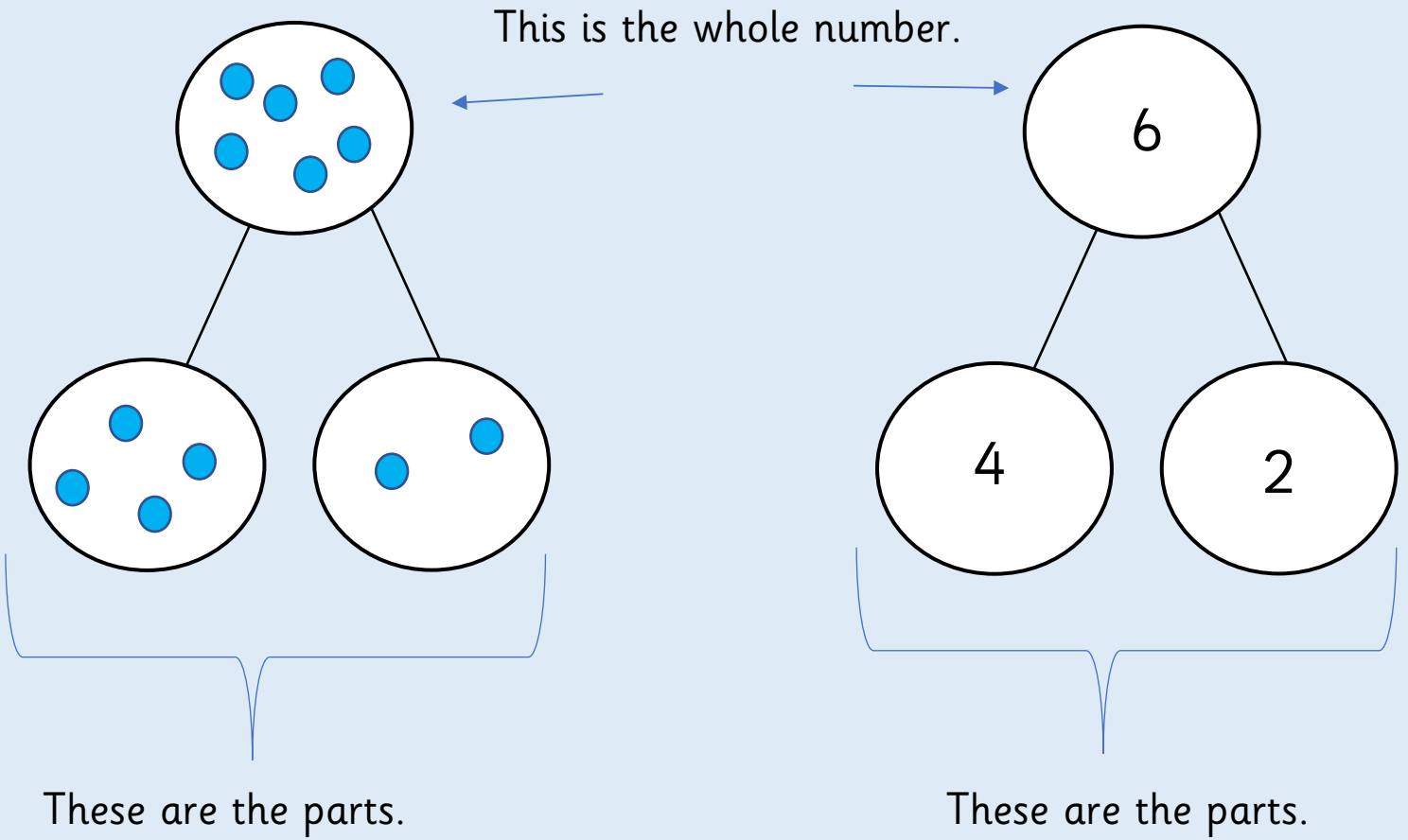
Lesson 1 Part – whole Model

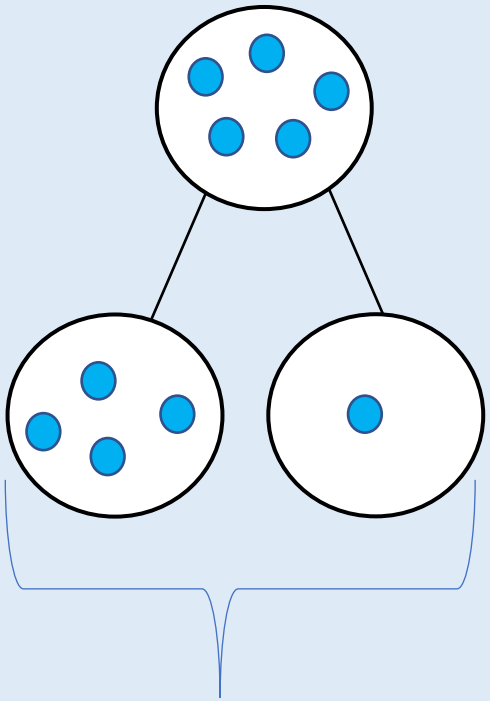
A number can be partitioned into two or more parts.



The number 6 can be made from 4 and 2.

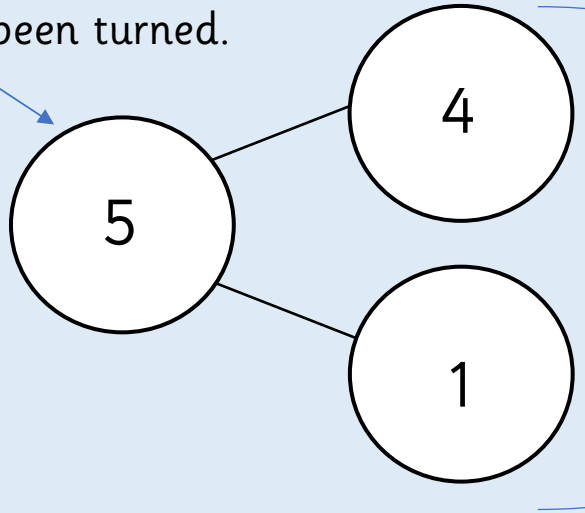
Part – whole Model

Part whole models can look different.
Look at the number 5.



These are the parts.

This is still the whole number.
It has just been turned.

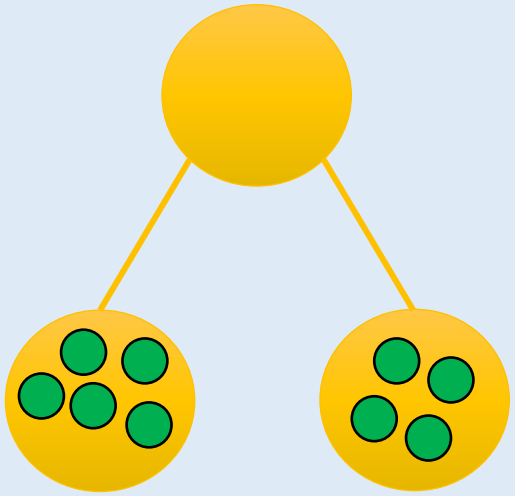


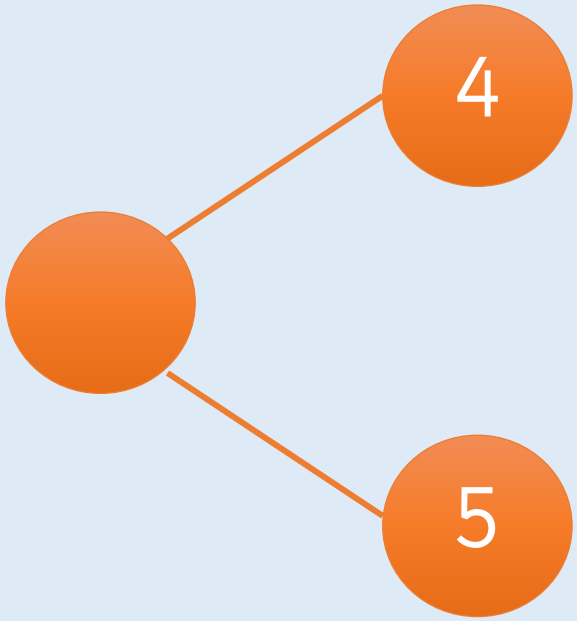
These are the parts.

The number 5 can be made from 4 and 1.

Activity 1 Part – whole Model

Complete the part-whole models by drawing counters and then writing the numerals.

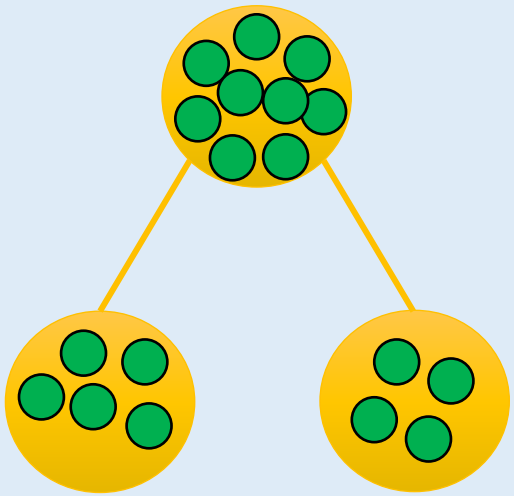


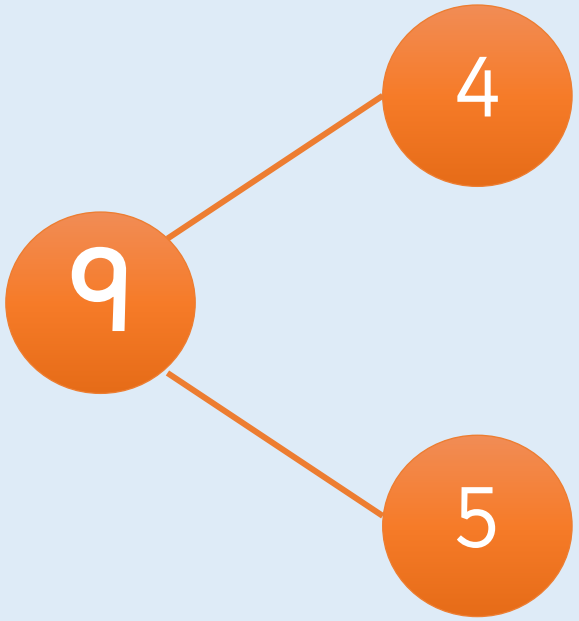


What does whole mean?

Activity 1 Part – whole Model

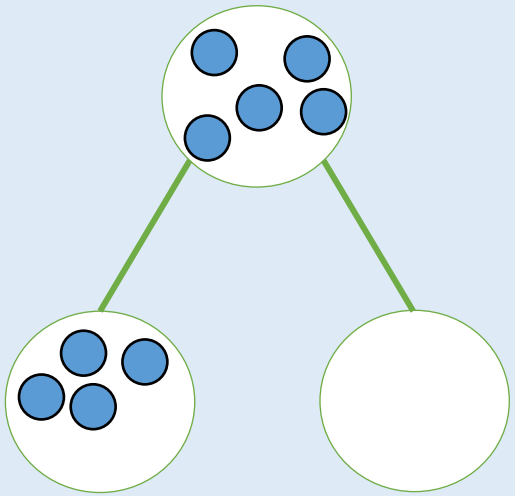
Complete the part-whole models by drawing counters and then writing the numerals.

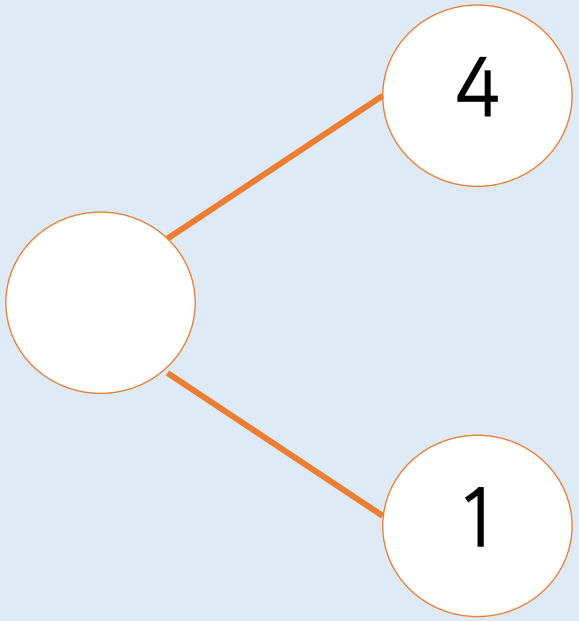




Activity 1 Part – whole Model

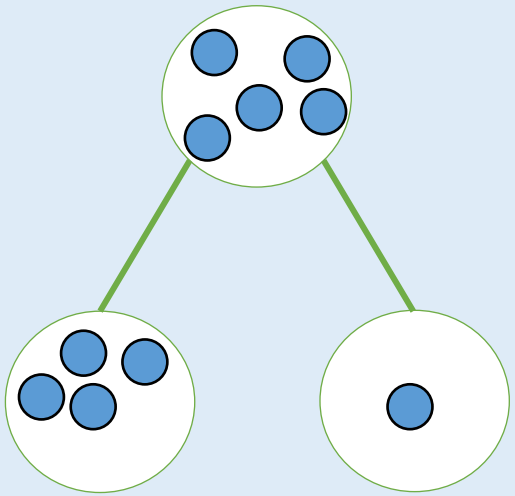
Complete the part-whole models by drawing counters and then writing the numerals.

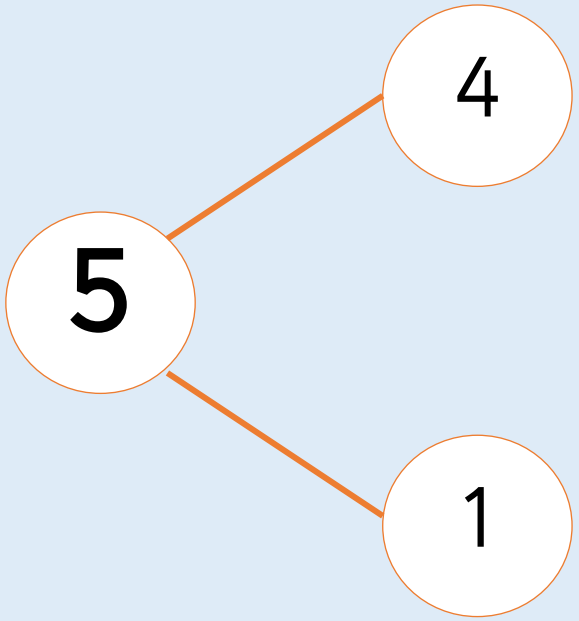




Activity 1 Part – whole Model

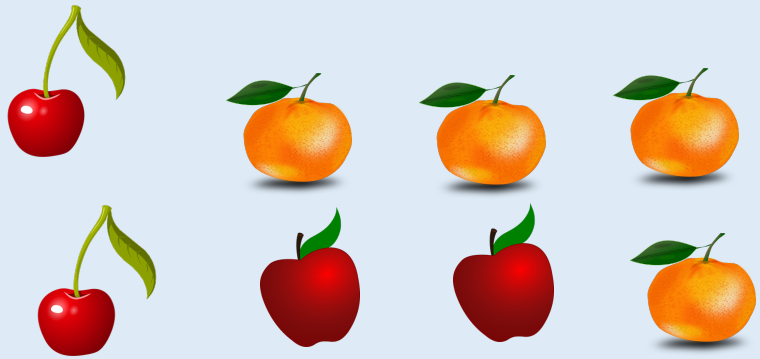
Complete the part-whole models by drawing counters and then writing the numerals.

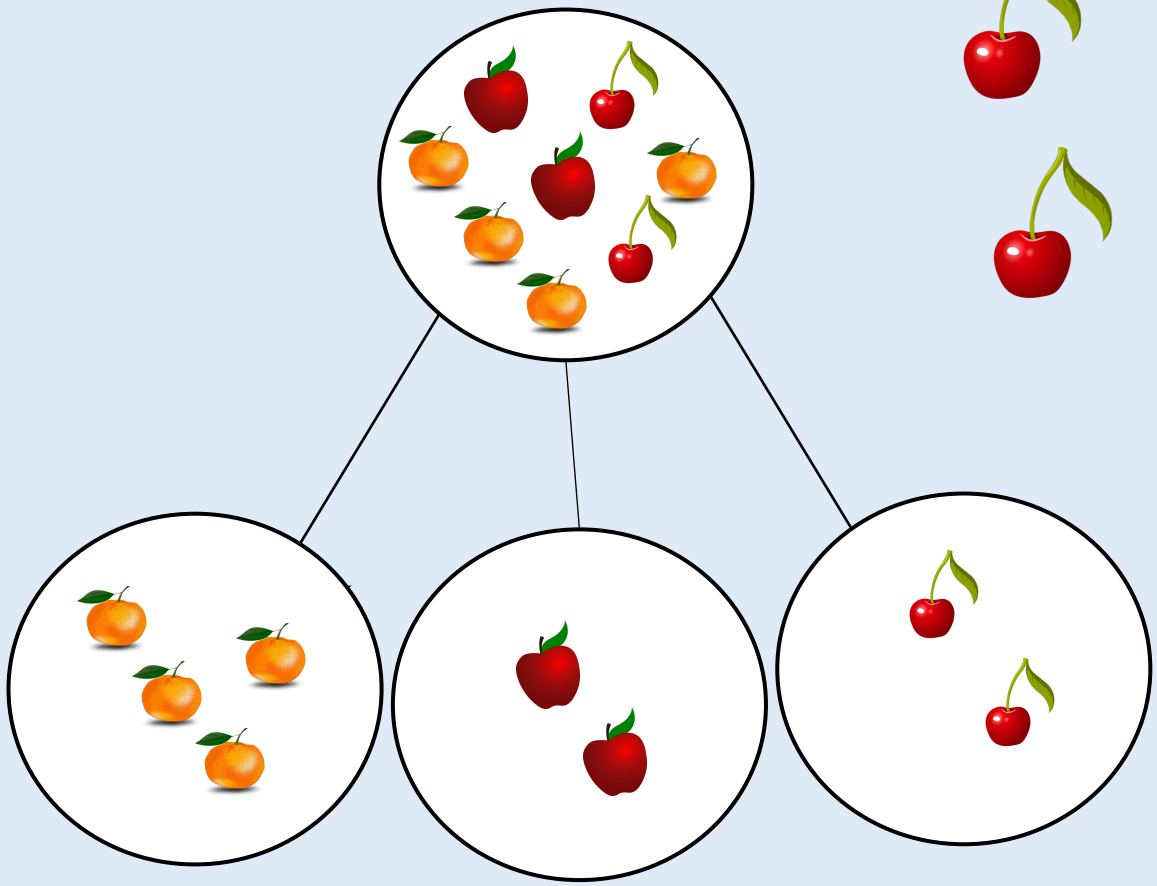




Activity 2 Part – whole Model

Here are eight pieces of fruit.





Complete the sentences.

_____ is the whole.

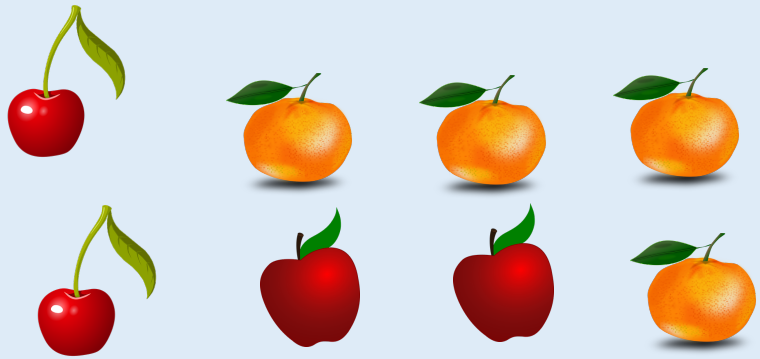
_____ is a part,

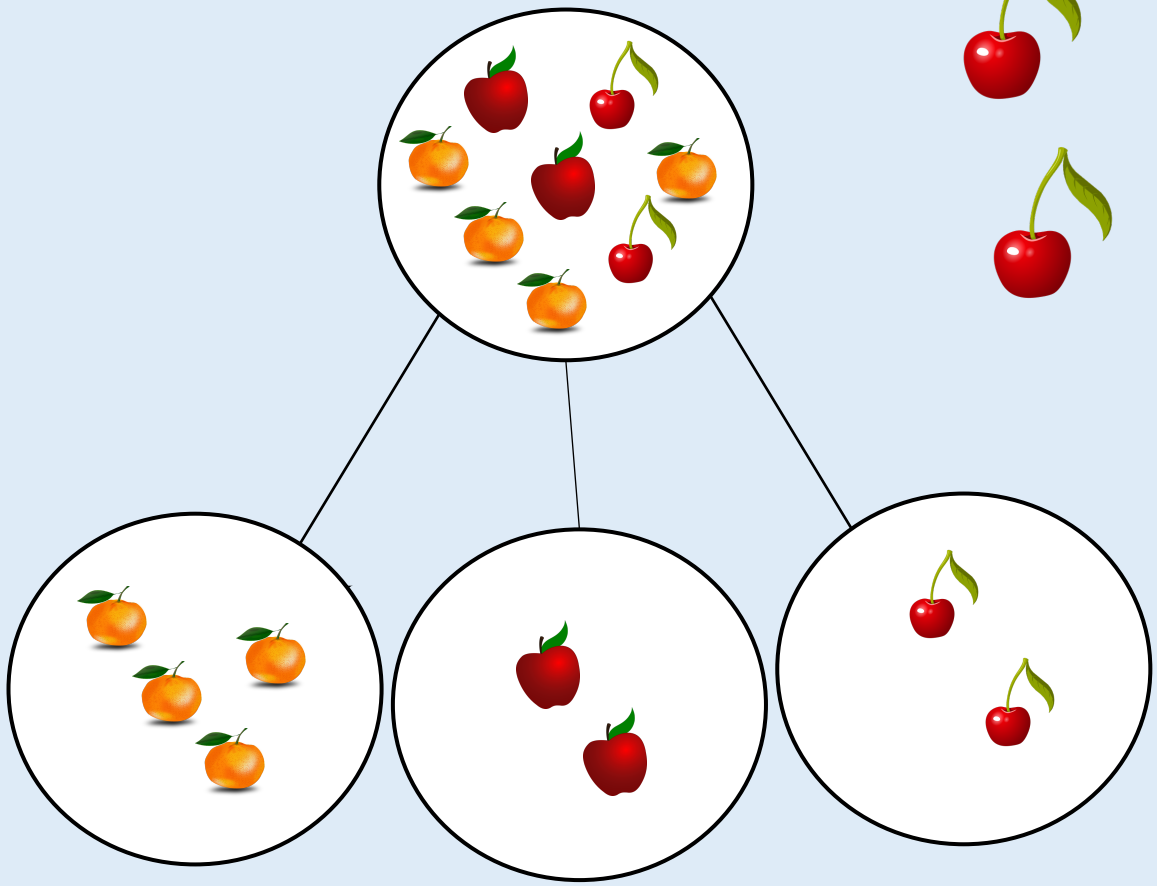
_____ is a part and

_____ is a part.

Activity 2 Part – whole Model

Here are eight pieces of fruit.





Complete the sentences.

_____8_____ is the whole.

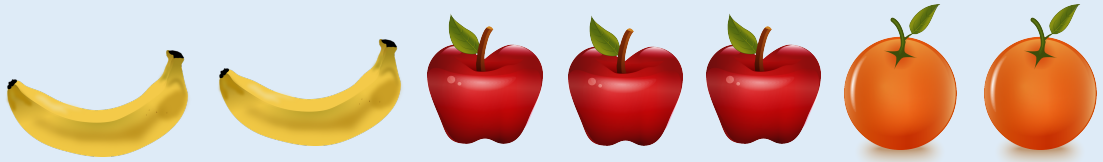
_____4_____ is a part,

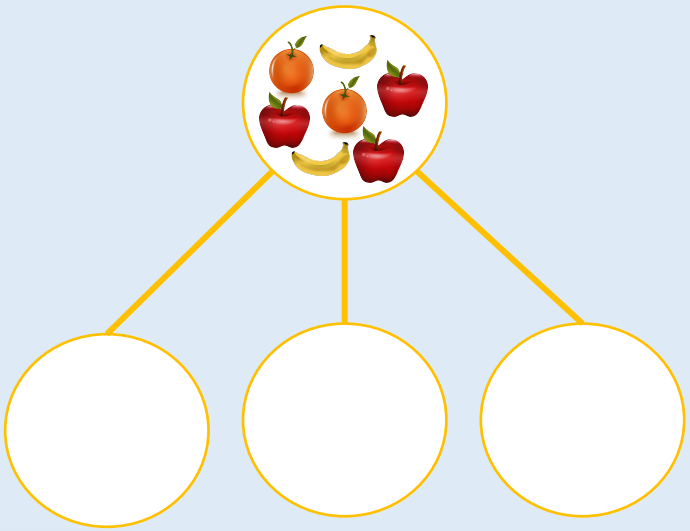
_____2_____ is a part and

_____2_____ is a part.

Activity 2 Part – whole Model

Here are seven pieces of fruit.





Put the fruit into a part-whole model.
Complete the sentences.

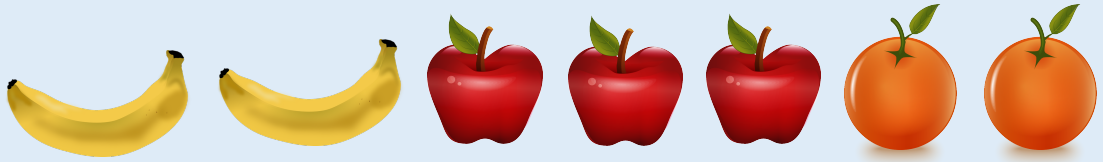
_____ is the whole.

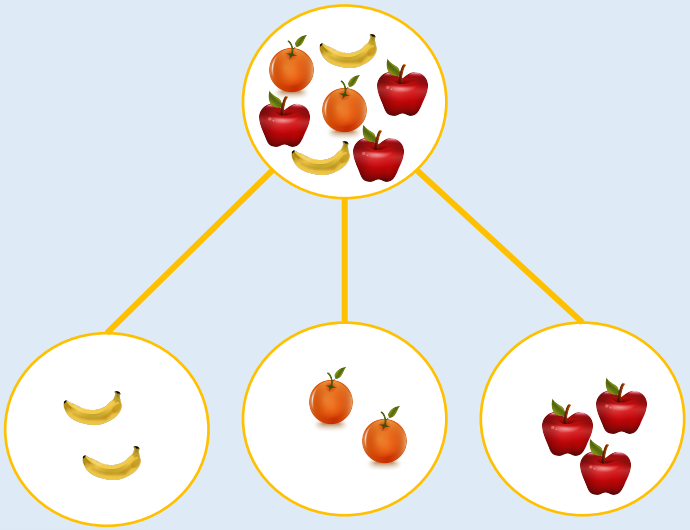
_____ is a part, _____ is a part and _____ is a part.

What does part mean?

Activity 2 Part – whole Model

Here are seven pieces of fruit.





Put the fruit into a part-whole model.
Complete the sentences.

7 is the whole.

2 is a part, 2 is a part and 3 is a part.

What does part mean?

Activity 3

Part – whole Model

Draw the part-whole model that represents the stem sentences.

A part is 4

A part is 3

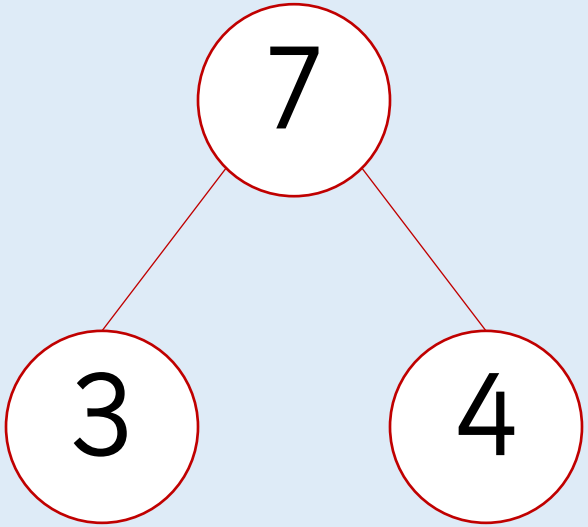
The whole is 7

How can we represent the whole/parts?

Activity 3 Part – whole Model

Draw the part-whole model that represents the stem sentences.

A part is 4
A part is 3
The whole is 7



Activity 3

Part – whole Model

Draw the part-whole model that represents the stem sentences.

A part is 9

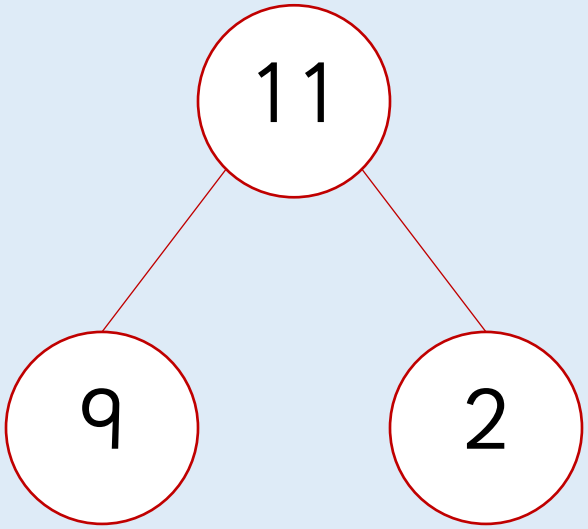
A part is 2

The whole is 11

Activity 3 Part – whole Model

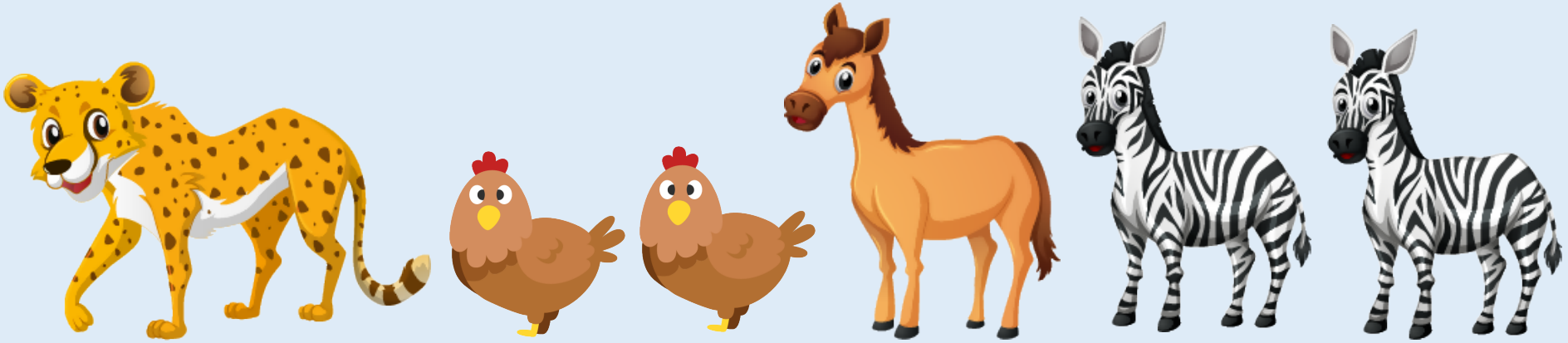
Draw the part-whole model that represents the stem sentences.

A part is 9
A part is 2
The whole is 11



Reasoning - 1 Part – whole Model

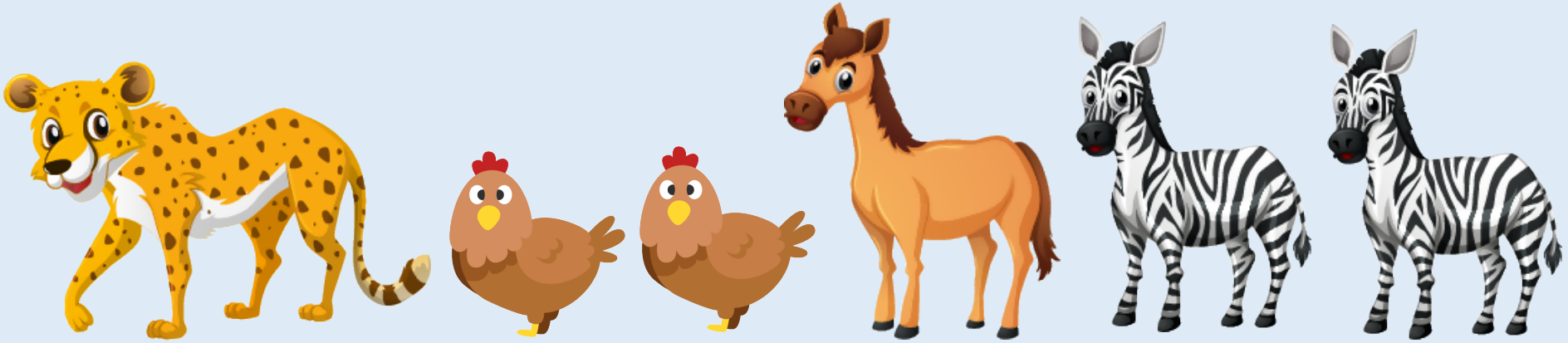
There are 6 animals.



How many different ways can you sort the animals?
Complete a part-whole model for each way.
Can you partition the animals into more than 2 groups?

Reasoning - 1 Part – whole Model

There are 6 animals.

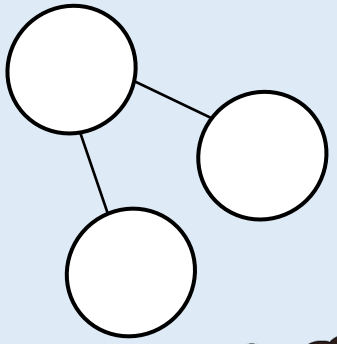


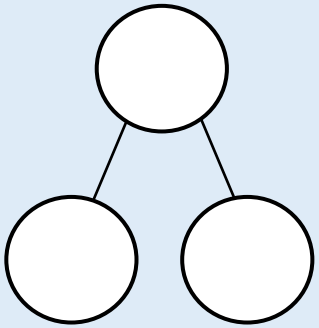
Various answers:
E.g. Brown and not brown, 4 legs and 2 legs.
Multiple groups could be the type of animal.
Part-whole models should accurately represent children's sorting.

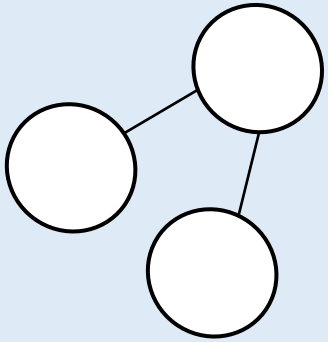
Reasoning - 2 Part – whole Model

5 is the whole.

How many **different** part-whole models can you draw to show this?
Use different numbers for the parts each time.







Are any the same? Why?

Reasoning - 2 Part – whole Model

5 is the whole.

How many **different** part-whole models can you draw to show this?
Use different numbers for the parts each time.

5 and 0, 0 and 5, 1 and 4, 4 and 1, 3 and 2.

Children should recognise 5 and 0 and 0 and 5 being the same.

Reasoning - 3 Part – whole Model

Work in groups of up to 6 children.

Can you split yourselves into different groups?

Think of different ways to group yourselves: hair colour, eye colour, gender, shoe size etc.

Complete a part-whole model for each way.

Can you partition into more than 2 groups?

Reasoning - 3 Part – whole Model

Work in groups of up to 6 children.

Children may split themselves into groups in many different ways.

E.g. hair colour, month of birth, shoe size, gender etc.

Part-whole models should accurately represent children's sorting.

Discussion

Part – whole Model

What does whole mean?

What does part mean?

How can we represent the whole/parts?

Are the parts smaller or larger the more you partition them? Why?

Can zero be a part?

Can the parts be swapped around?

Can the whole be swapped with a part?

The Addition Symbol

1

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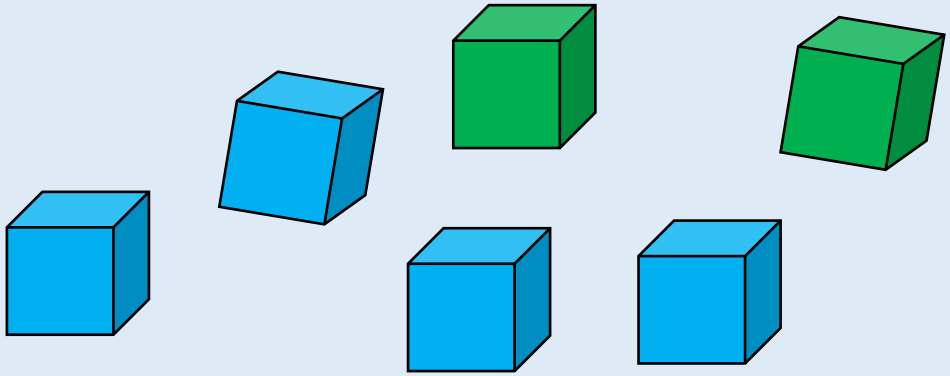
The Addition Symbol

4 blue cubes plus 2 green cubes is equal to 6 cubes.

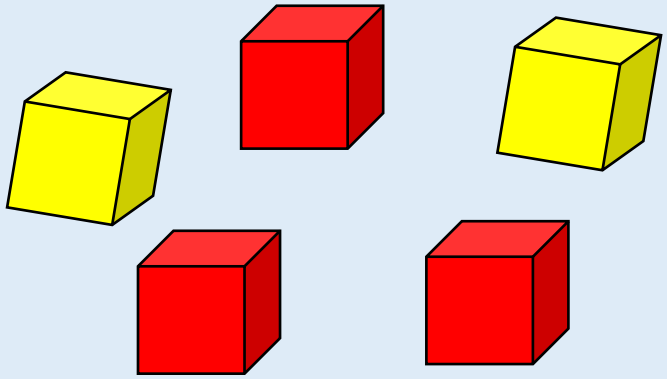


As a number sentence this is:

$$4 + 2 = 6$$

Activity 1 The Addition Symbol

Show that 3 red cubes add 2 yellow cubes is equal to 5 cubes.



What does the 3 represent?

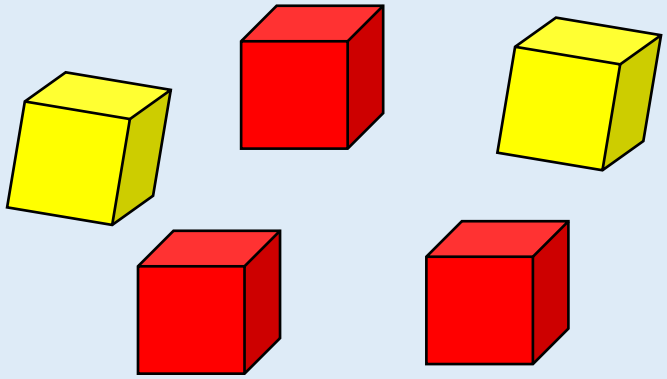
What does the 2 represent?

As a number sentence this is:

What does the 5 represent?

Activity 1 The Addition Symbol

Show that 3 red cubes add 2 yellow cubes is equal to 5 cubes.



What does the 3 represent?

What does the 2 represent?

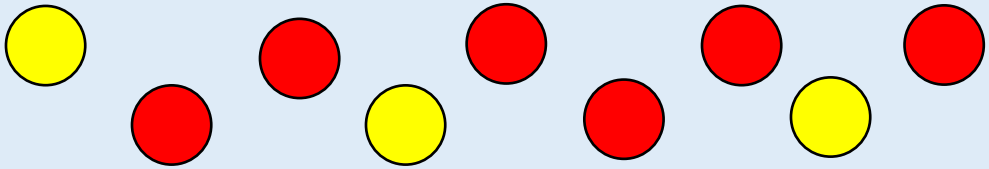
As a number sentence this is:

What does the 5 represent?

$$3 + 2 = 5$$

Activity 2 The Addition Symbol

Here are some counters.

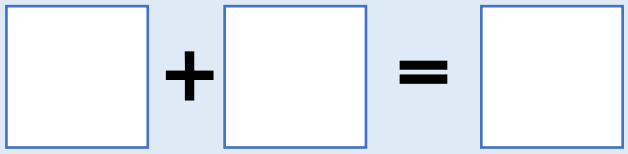


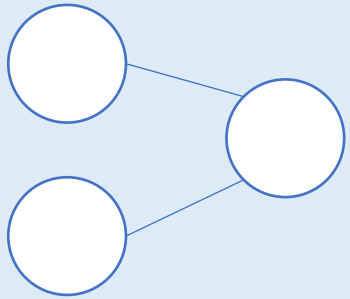
Group the counters by colour.

Fill in the gaps in the sentence and say it out loud.

_____ red counters plus _____ yellow counters is equal to _____ counters.

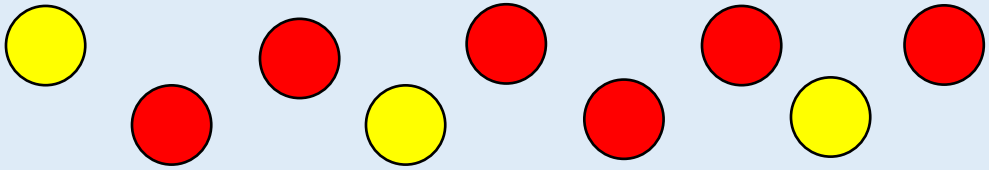
Complete the part-whole model and the number sentence.





Activity 2 The Addition Symbol

Here are some counters.



Group the counters by colour

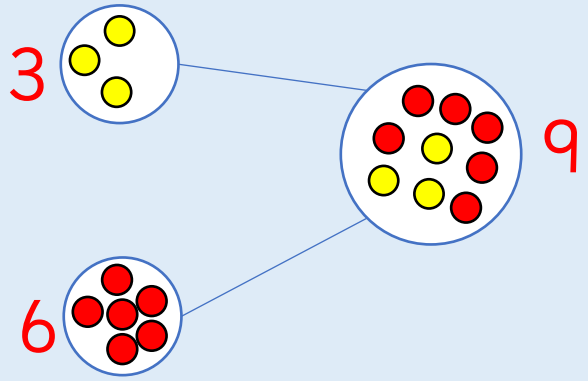
.

Fill in the gaps in the sentence and say it out loud.

6 red counters plus 3 yellow counters is equal to 9 counters.

Complete the part-whole model and the number sentence.

6	+	3	=	9



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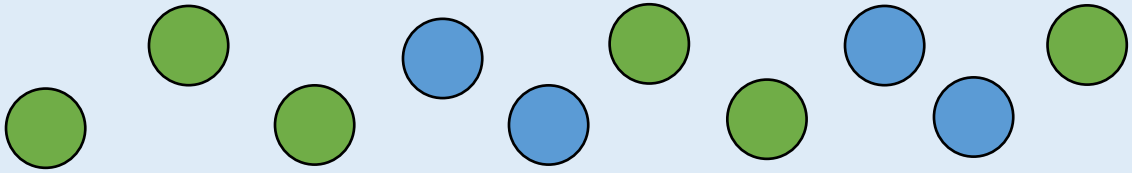
Activity 1 The Addition Symbol

Here are some counters.

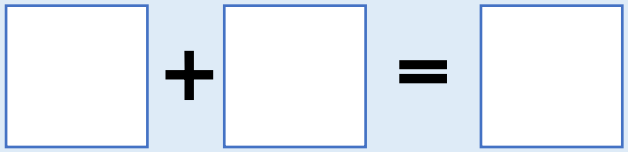


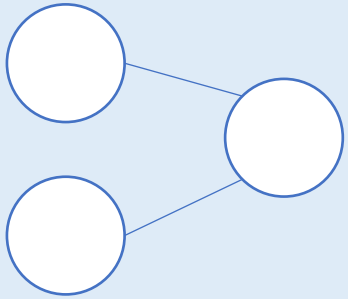
Group the counters by colour.

Fill in the gaps in the sentence and say it out loud.

_____ green counters plus _____ blue counters is equal to _____ counters.

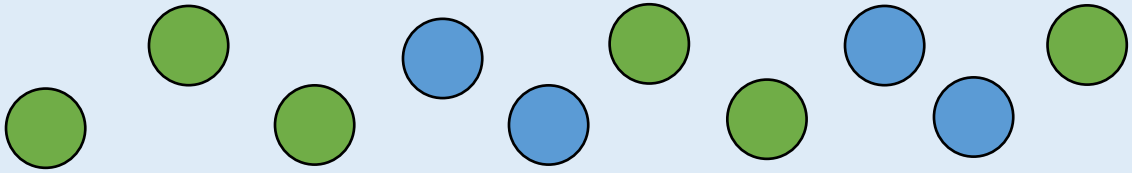
Complete the part-whole model and the number sentence.





Activity 1 The Addition Symbol

Here are some counters.



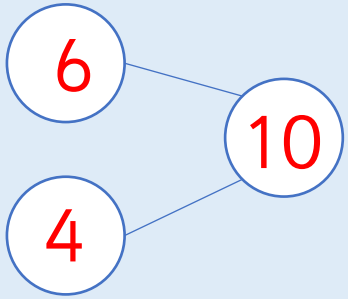
Group the counters by colour.

Fill in the gaps in the sentence and say it out loud.

6 green counters plus 4 blue counters is equal to 10 counters.

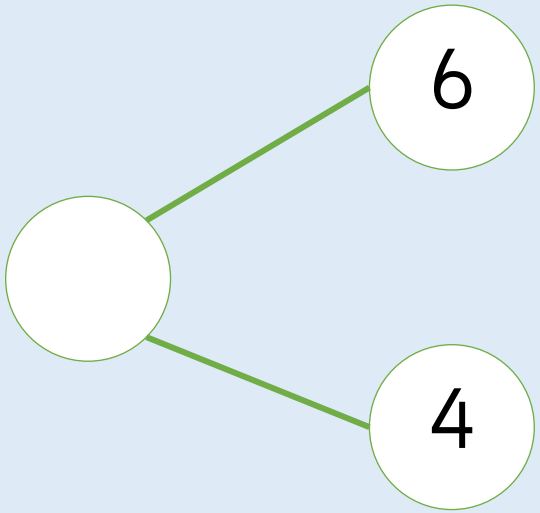
Complete the part-whole model and the number sentence.

6 + 4 = 10



Activity 2 The Addition Symbol

Use cubes to solve the following calculations.



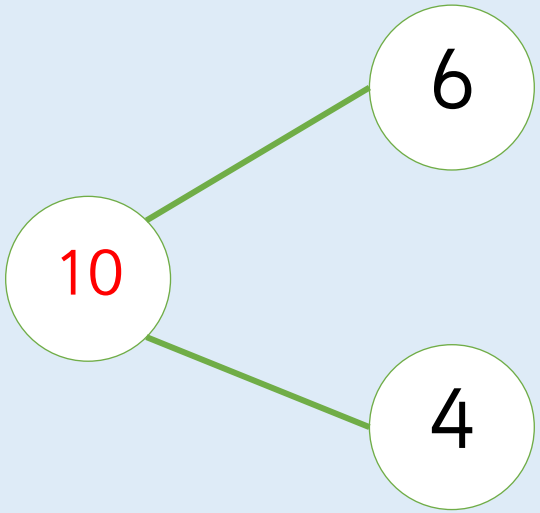
$5 + 3 = \square$

$8 + 1 = \square$

What is the total?

Activity 2 The Addition Symbol

Use cubes to solve the following calculations.

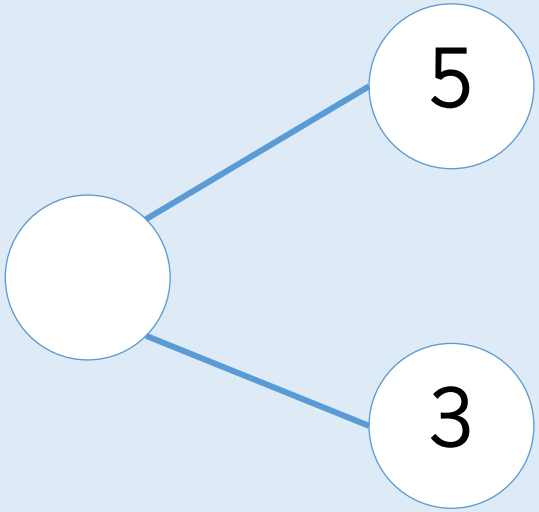


$5 + 3 = 8$

$8 + 1 = 9$

Activity 2 The Addition Symbol

Use cubes to solve the following calculations.

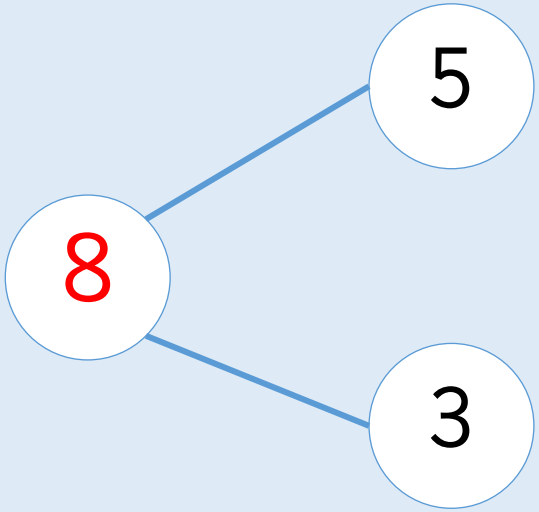


$6 + 2 =$ ☐

$7 + 1 =$ ☐

Activity 2 The Addition Symbol

Use cubes to solve the following calculations.

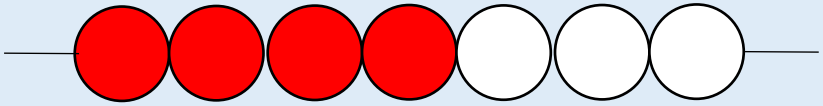


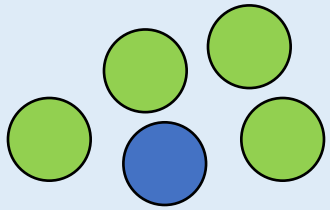
$6 + 2 = 8$

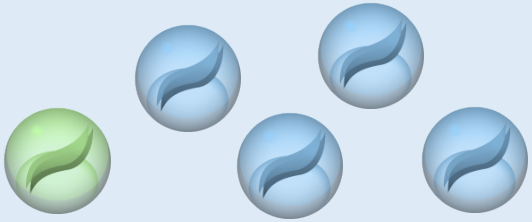
$7 + 1 = 8$

Reasoning - 1

The Addition Symbol







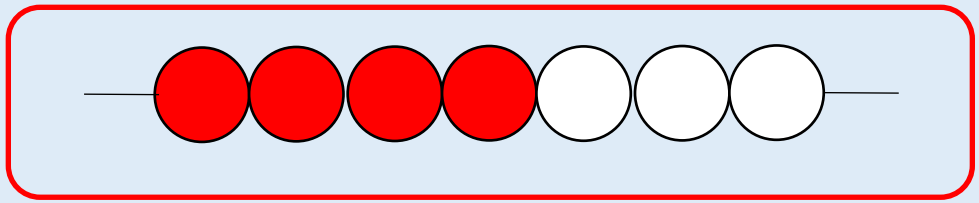
_____ + _____ = 7

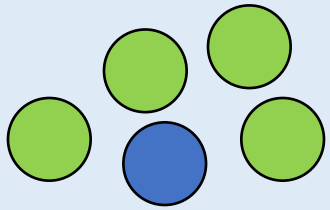
Which of the images could help to complete the number sentence?
Explain why.

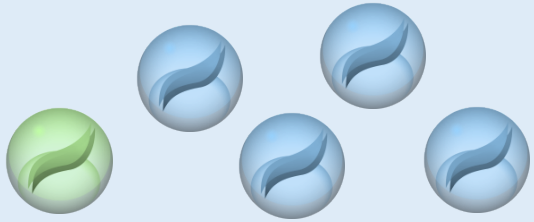
Can you think of a number sentence for each of the two images?

Reasoning - 1

The Addition Symbol







3 + 4 = 7

The bead string could represent 4 + 3 = 7 or 3 + 4 = 7

The counters could represent 4 + 1 = 5 or 1 + 4 = 5

The marbles could represent 1 + 4 = 5 or 4 + 1 = 5

Reasoning - 2 The Addition Symbol

Using numbers 1 – 10, how many ways can you fill in the boxes to make the calculation correct?
You can use each number once.

$\square + \square = \square$

How many different calculations are there?

Reasoning - 2 The Addition Symbol

Using numbers 1 – 10, how many ways can you fill in the boxes to make the calculation correct?
You can use each number once.

$\square + \square = \square$

Examples may include 5 + 1 = 6, 3 + 4 = 7. There are 32 in total.

Children should recognise that the parts can be swapped to create a difference number sentence. There should be a discussion as to why we haven't/can't include 0 in our calculations.

Discussion

The Addition Symbol

How many were there at the start?

Then how many more were added?

What is the total?

What does the = mean?

Which number tells us how many we had to start?

Which number shows what has been added?

Which number represents the total?

Fact Families - Addition 1

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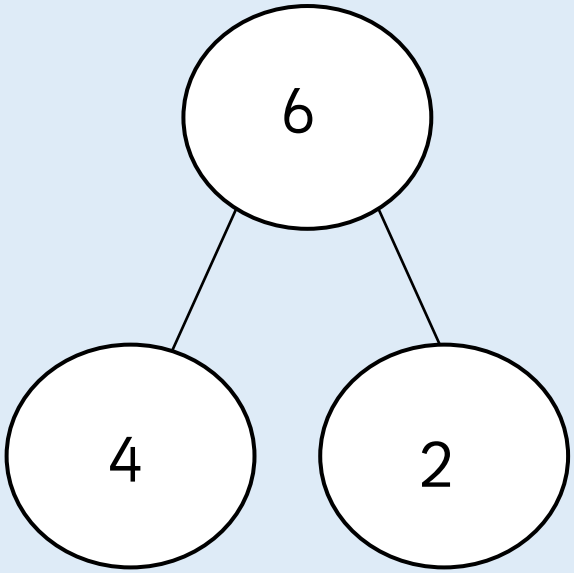
Fact Families - Addition

Look at how the numbers can be moved around.



$4 + 2 = 6$

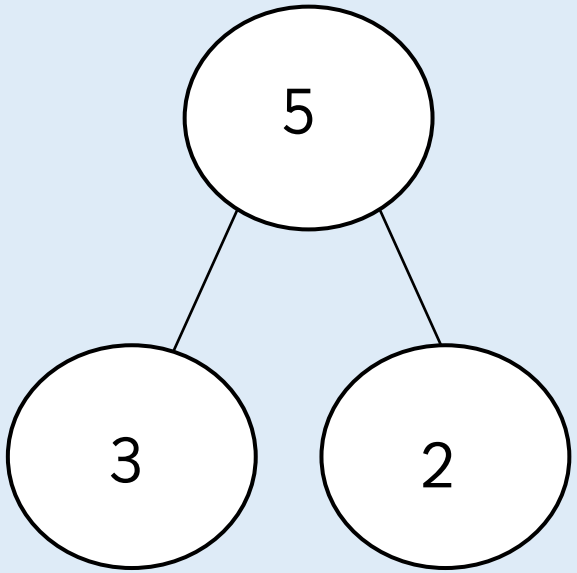
$2 + 4 = 6$

$6 = 4 + 2$

$6 = 2 + 4$

Activity 1 Fact Families - Addition

Use the part-whole model to fill in the missing numbers.



$3 + \square = 5$

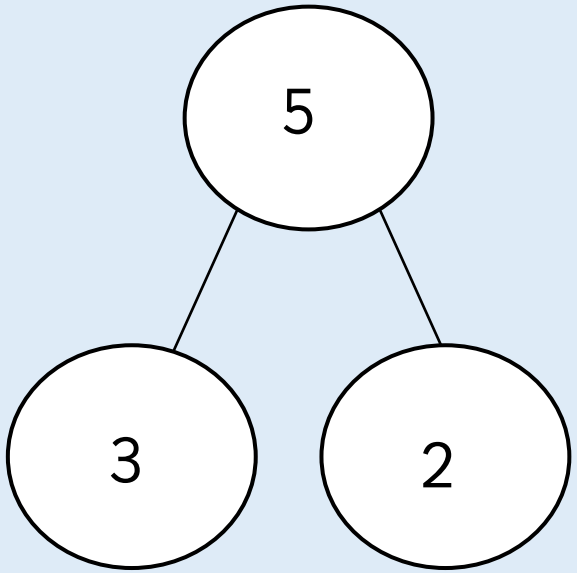
$\square + 3 = 5$

$\square = \square + 3$

$5 = \square + \square$

Activity 1 Fact Families - Addition

Use the part-whole model to fill in the missing numbers.



$3 + \boxed{2} = 5$

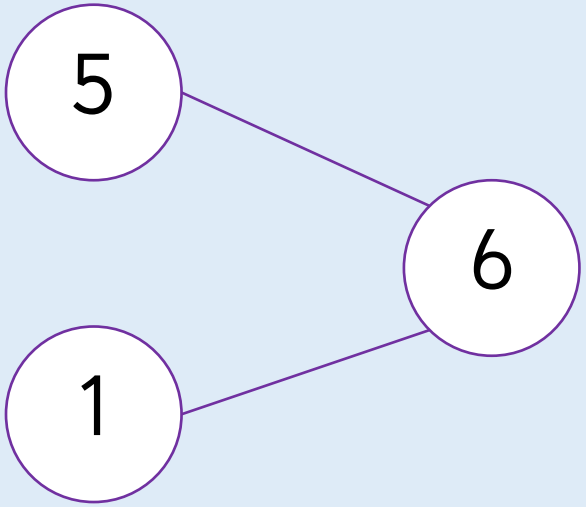
$\boxed{2} + 3 = 5$

$\boxed{5} = \boxed{2} + 3$

$5 = \boxed{3} + \boxed{2}$

Activity 1 Fact Families - Addition

Use the part-whole model to fill in the missing numbers.



1 + _____ = 6

_____ + 1 = 6

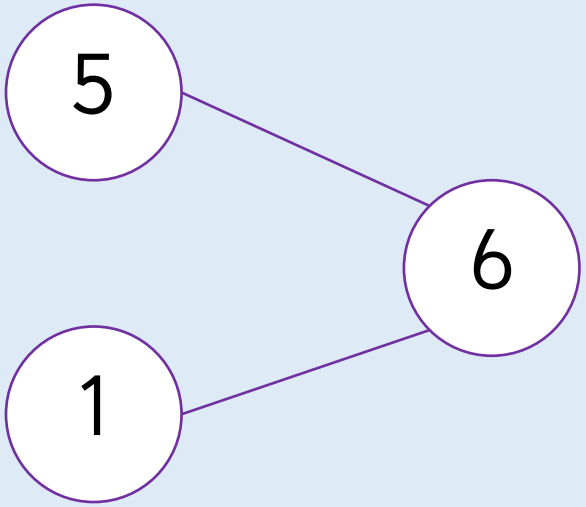
_____ = _____ + 1

6 = _____ + _____

Which number(s) represent a part?

Activity 1 Fact Families - Addition

Use the part-whole model to fill in the missing numbers.



1 + 5 = 6

5 + 1 = 6

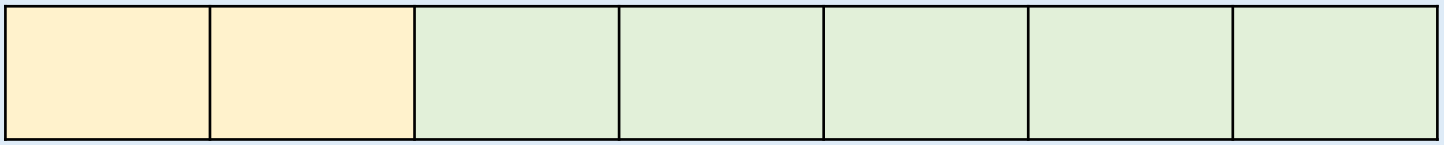
6 = 5 + 1

6 = 5 + 1

Which number(s) represent a part?

Activity 2 Fact Families - Addition

Complete the number sentences.



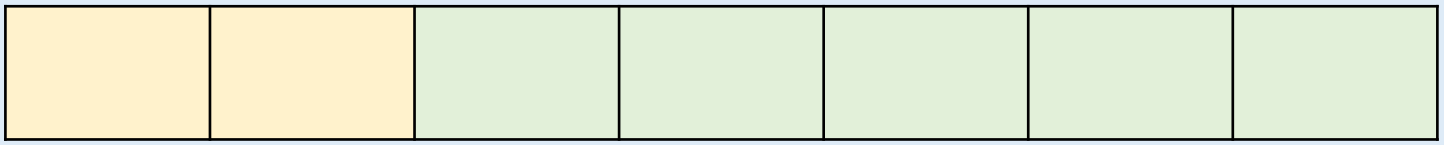
____ + ____ = 7 7 = _____ + _____

____ + ____ = 7 7 = _____ + _____

Is the equals sign always at the end of a number sentence?

Activity 2 Fact Families - Addition

Complete the number sentences.



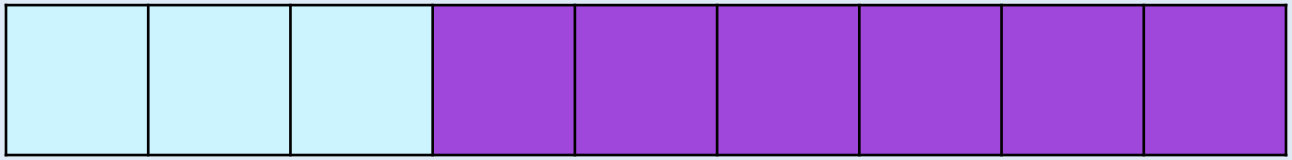
2 + 5 = 7 7 = 2 + 5

5 + 2 = 7 7 = 5 + 2

Activity 2

Fact Families - Addition

Complete the number sentences.



$\square + \square = 9$

$9 = \square + \square$

$\square + \square = 9$

$9 = \square + \square$

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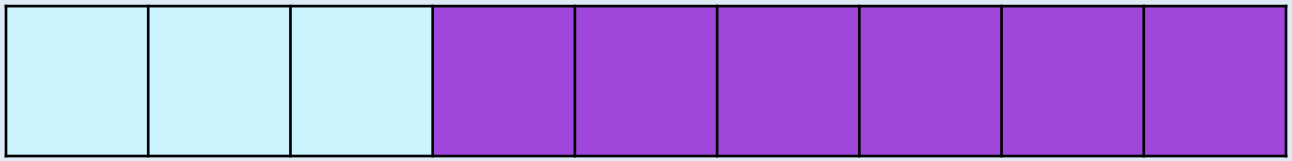
Activity 2

Fact Families - Addition

Complete the number sentences.



3 + 6 = 9

9 = 3 + 6

6 + 3 = 9

9 = 6 + 3

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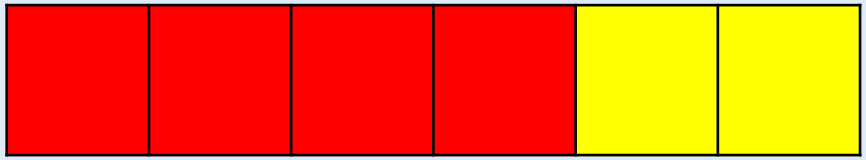
Activity 2

Fact Families - Addition

Complete the number sentences.



$\square + \square = 6$

$6 = \square + \square$

$\square + \square = 6$

$6 = \square + \square$

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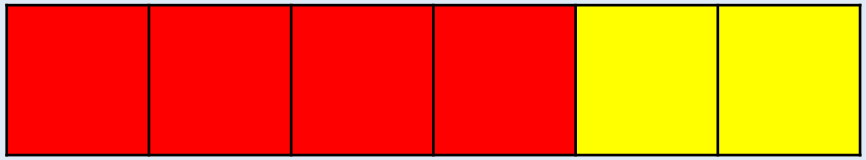
Activity 2 Fact Families - Addition

Complete the number sentences.



4 + 2 = 6

6 = 4 + 2

2 + 4 = 6

6 = 2 + 4

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Activity 3 Fact Families - Addition

Use the number cards to make 4 addition sentences.

4	7	3

What is the same/different about the four addition sentences?

Activity 3 Fact Families - Addition

Use the number cards to make 4 addition sentences.

4 7 3

$4 + 3 = 7$

$3 + 4 = 7$

$7 = 4 + 3$

$7 = 3 + 4$

Activity 3 Fact Families - Addition

Use the number cards to make 4 addition sentences.

6	8	2

Activity 3 Fact Families - Addition

Use the number cards to make 4 addition sentences.

6	8	2

$2 + 6 = 8$

$6 + 2 = 8$

$8 = 2 + 6$

$8 = 6 + 2$

Activity 3

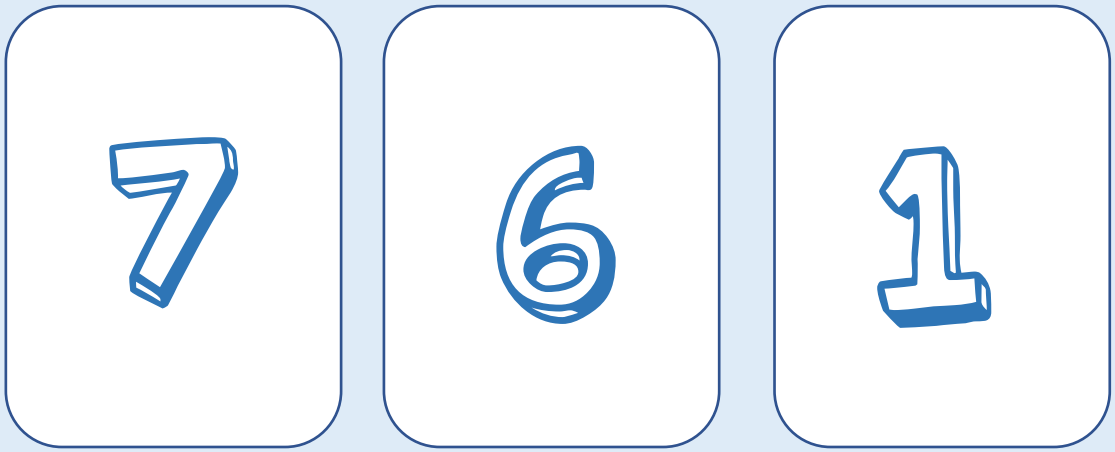
Fact Families - Addition

Use the number cards to make 4 addition sentences.

7	6	1

Activity 3 Fact Families - Addition

Use the number cards to make 4 addition sentences.



1 + 6 = 7

6 + 1 = 7

7 = 1 + 6

7 = 6 + 1

Reasoning - 1

Fact Families - Addition

Malachi has 3 number cards.

4	7	3

He has written two number sentences.

4 + 6 = 3 4 = 6 + 3

Explain what Malachi has done wrong.

Correct his number sentences and complete the fact families.

Reasoning - 1

Fact Families - Addition

Malachi has 3 number cards.

4	7	3

Malachi has placed the numbers in the order he was given them, rather than moving them to make the number sentence correct.

It should be:

4 + 3 = 7

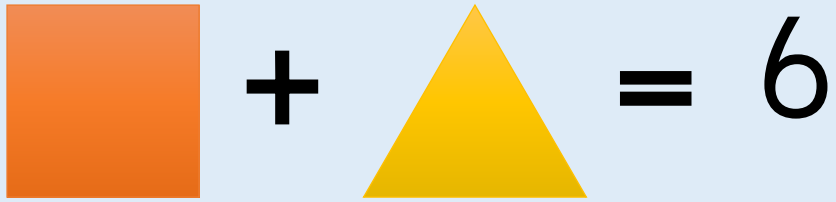
3 + 4 = 7

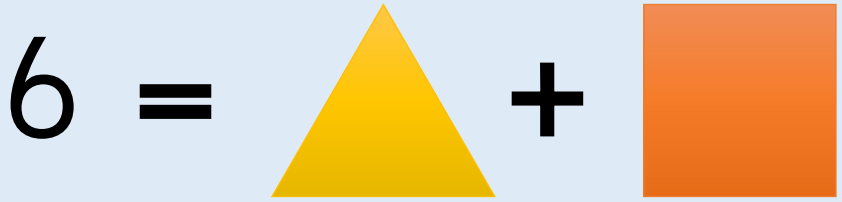
7 = 4 + 3

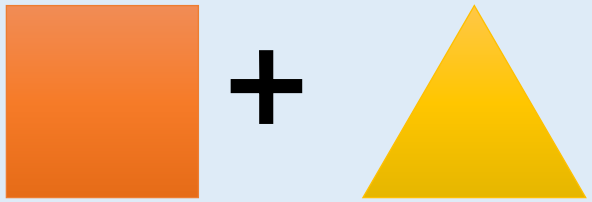
7 = 3 + 4

Reasoning - 2

Fact Families - Addition



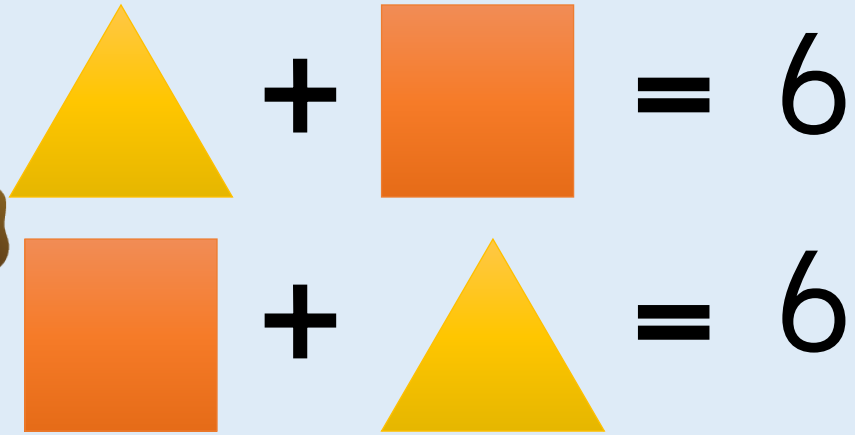


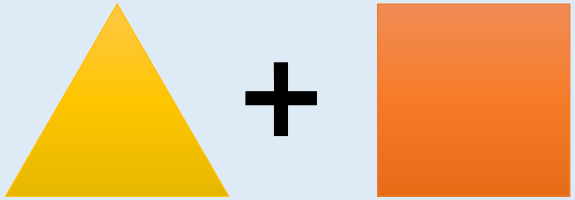


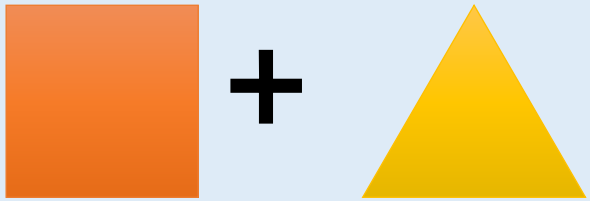
What could the triangle and the square be worth?

Reasoning - 2

Fact Families - Addition







Possible answer:

Triangle: 3
Square: 3

Triangle: 5
Square: 1

Triangle: 0
Square: 6

Triangle: 6
Square: 0

Discussion

Fact Families - Addition

Which number(s) represent a part?
Which number represents the whole?

Is the equals sign always at the end of a number sentence?
What is the same/different about the four addition sentences?

If two of the numbers in the part-whole model are the same, can we still write four addition sentences? Prove it.

Can we make another addition calculation using the same 3 numbers?

Can the parts change place? Can the whole change place? Why?

Number Bonds within 10

1

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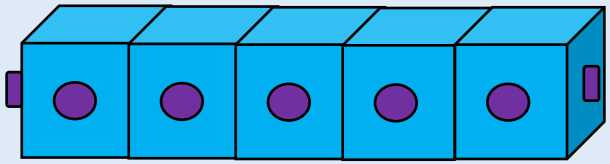
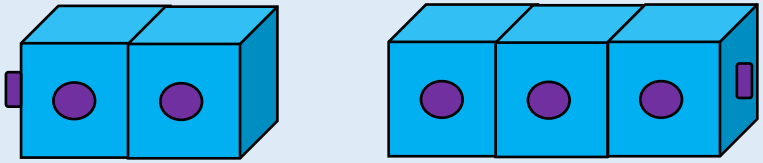
Activity 1 Number Bonds within 10

Here are 5 cubes.



Break them apart in different ways to find all the number bonds to 5. One has done for you.

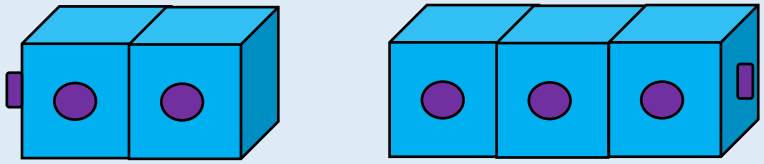


$5 = 3 + 2$

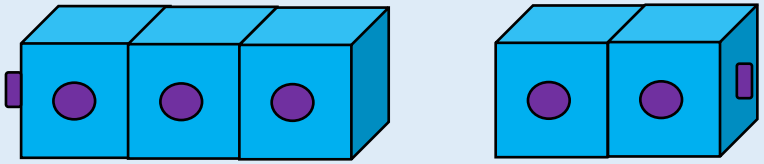
How else can we partition the whole?

Activity 1 Number Bonds within 10

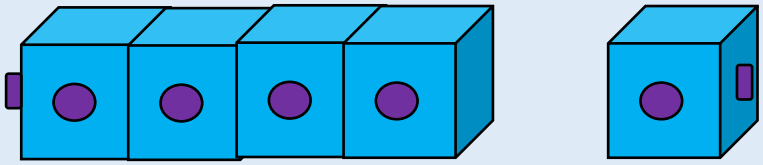
Number bonds to 5.



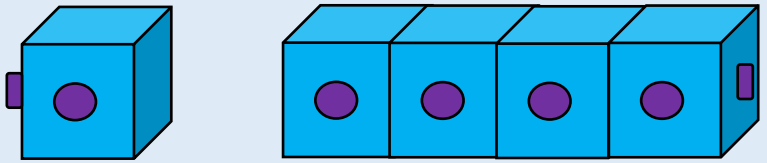
5 = 2 + 3



5 = 3 + 2



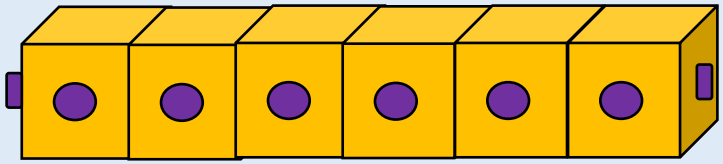
5 = 4 + 1



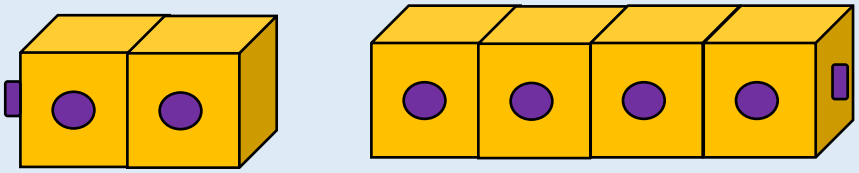
5 = 1 + 4

Activity 1 Number Bonds within 10

Here are 6 cubes.



Break them apart in different ways to find all the number bonds to 6.
One has done for you.

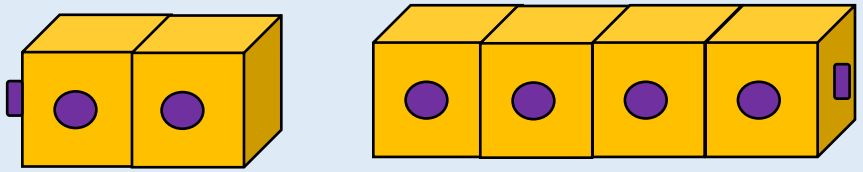


$6 = 2 + 4$

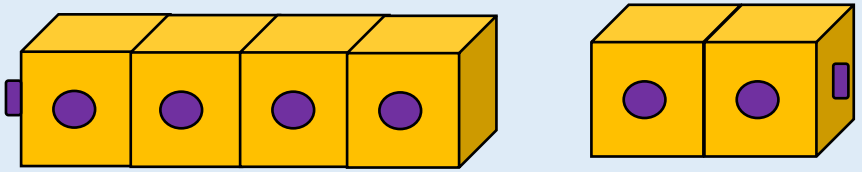
Activity 1

Number Bonds within 10

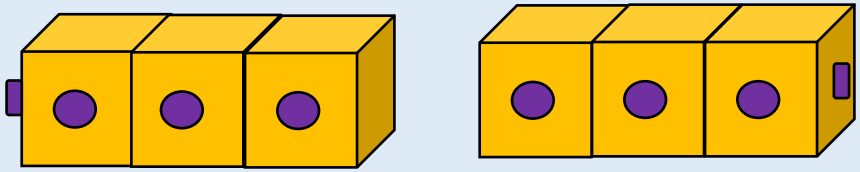
Number bonds to 6.



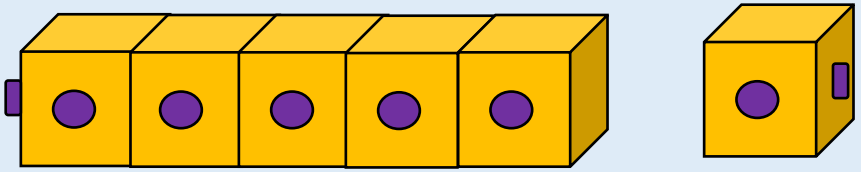
6 = 2 + 4



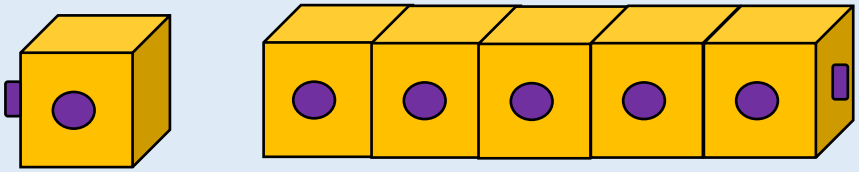
6 = 4 + 2



6 = 3 + 3



6 = 5 + 1



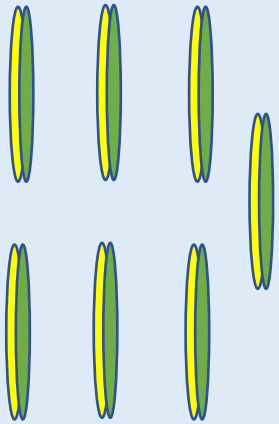
6 = 1 + 5

Activity 2 Number Bonds within 10

Use seven double sided counters.

How many different ways to make 7 can you find?

Record your findings in number sentences.

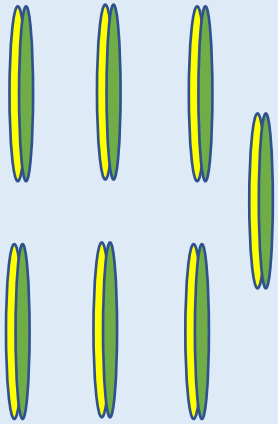


Do the parts stay the same or change?

Activity 2 Number Bonds within 10

Use seven double sided counters.

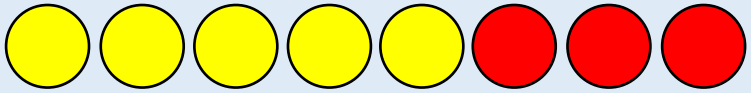
How many different ways to make 7 can you find?
Record your findings in number sentences.



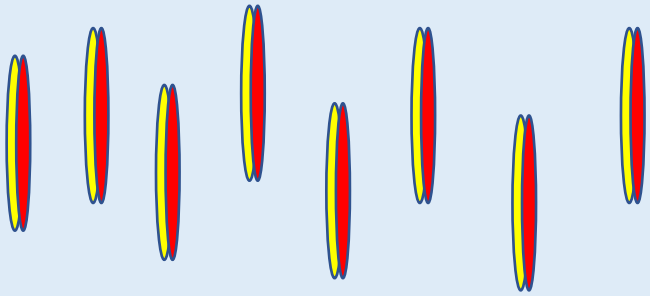
$0 + 7 = 7$
$1 + 6 = 7$
$2 + 5 = 7$
$3 + 4 = 7$
$4 + 3 = 7$
$5 + 2 = 7$
$6 + 1 = 7$

Activity 2 Number Bonds within 10

Use eight double sided counters.

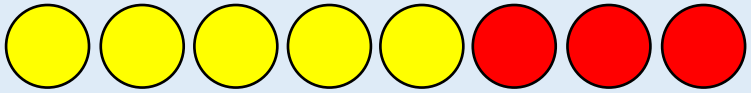


How many different ways to make 8 can you find?
Record your findings in number sentences.



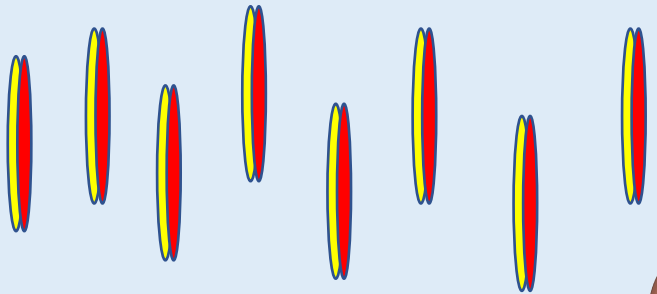
Activity 2 Number Bonds within 10

Use eight double sided counters.



How many different ways to make 8 can you find?
Record your findings in number sentences.

$0 + 8 = 8$
$1 + 7 = 8$
$2 + 6 = 8$
$3 + 5 = 8$
$4 + 4 = 8$
$5 + 3 = 8$
$6 + 2 = 8$
$7 + 1 = 8$



Activity 3 Number Bonds within 10

If 9 is the whole, what could the parts be?

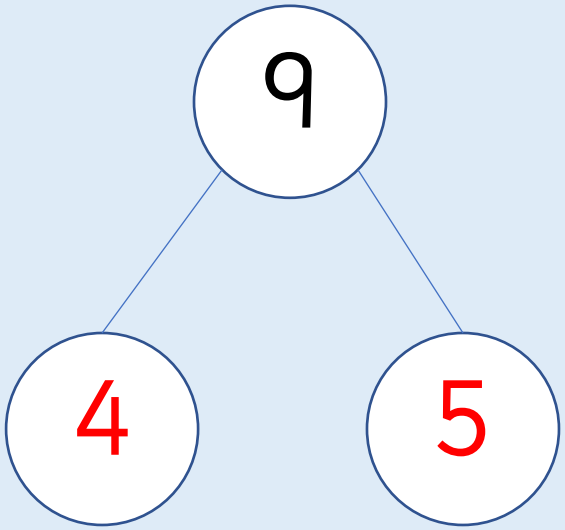
Show your findings in part-whole models.
Can you write an addition sentence for each part-whole model?

If 8 is the whole, what could the parts be?

Activity 3 Number Bonds within 10

If 9 is the whole, what could the parts be?

Show your findings in part-whole models.
Can you write an addition sentence for each part-whole model?



4 + 5 = 9
5 + 4 = 9

Activity 3 Number Bonds within 10

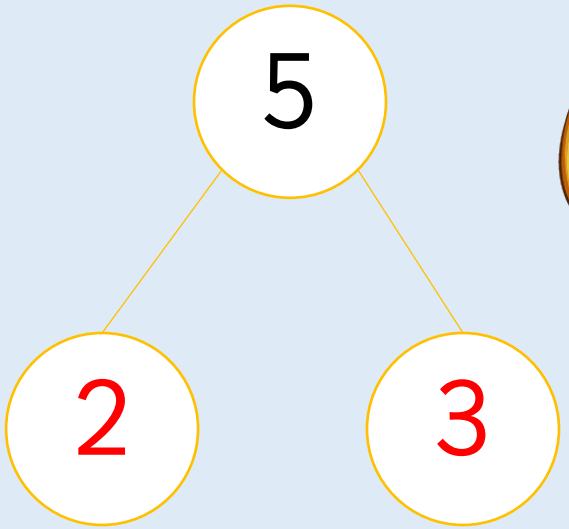
If 5 is the whole, what could the parts be?

Show your findings in part-whole models.
Can you write an addition sentence for each part-whole model?

Activity 3 Number Bonds within 10

If 5 is the whole, what could the parts be?

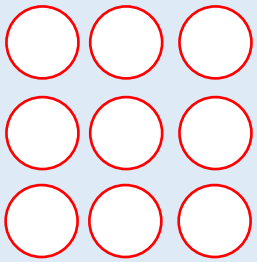
Show your findings in part-whole models.
Can you write an addition sentence for each part-whole model?



2 + 3 = 5
3 + 2 = 5

Reasoning - 1 Number Bonds within 10

All the dots have fallen off 2 toad stools.



How many different ways can you put them back on?

Number Bonds within 10

There are 10 different ways altogether.

9 and 0

0 and 9

8 and 1

1 and 8

7 and 2

2 and 7

6 and 3

3 and 6

5 and 4

4 and 5

Number Bonds within 10

Always, Sometimes, Never?

The greater the number, the more number bonds it has.

Number Bonds within 10

Always, Sometimes, Never?

The greater the number, the more number bonds it has.

Sometimes.

Children can prove this by comparing the number bonds for a few numbers. For example, 6 has more bonds than 5 but 7 has an equal number of bonds to 5.

Reasoning - 3 Number Bonds within 10

Which number bond is the odd one out?

4 + 5 6 + 3 7 + 2 4 + 6

Explain your answer.

Reasoning - 3 Number Bonds within 10

Which number bond is the odd one out?

4 + 5 6 + 3 7 + 2 4 + 6

4 + 6 is the odd one because this is a bond to 10 and the others are number bonds to 9.

Explain your answer.

Discussion

Number Bonds within 10

What is the whole?
What are the parts?

Does the whole always stay the same?
How can we partition the whole?

Do the parts stay the same or change?

If 8 is the whole, what could be parts be?

What number sentence would represent the parts we have partitioned the whole into?

Systematic Number Bonds

1

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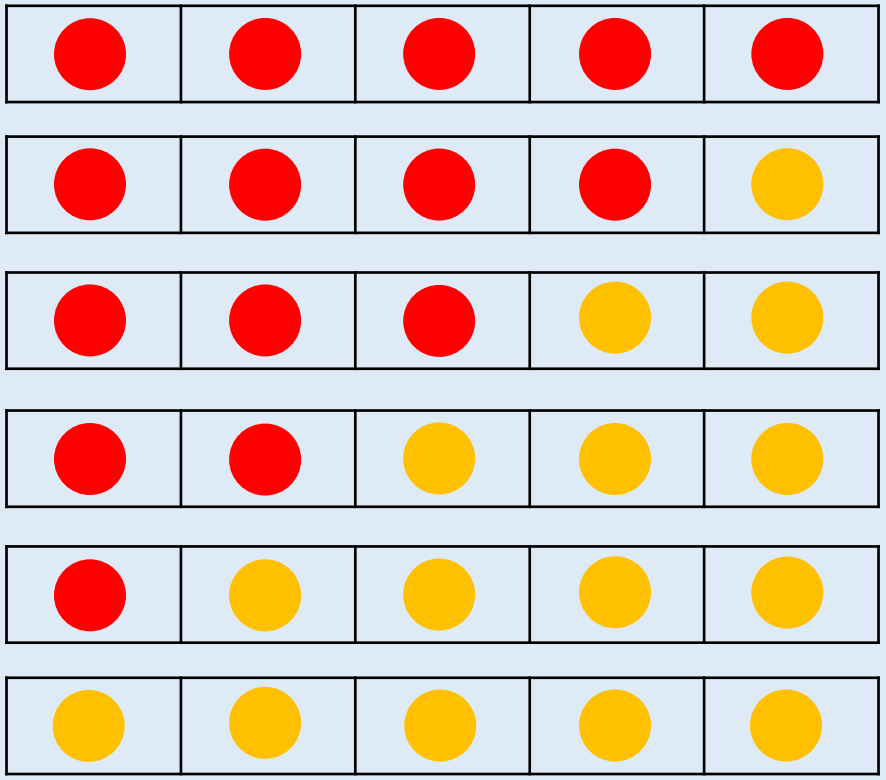
Activity 1 Systematic Number Bonds

Complete the number sentences.



5 = 5 + 0

5 = 4 + 1

___ = ___ + ___

___ = ___ + ___

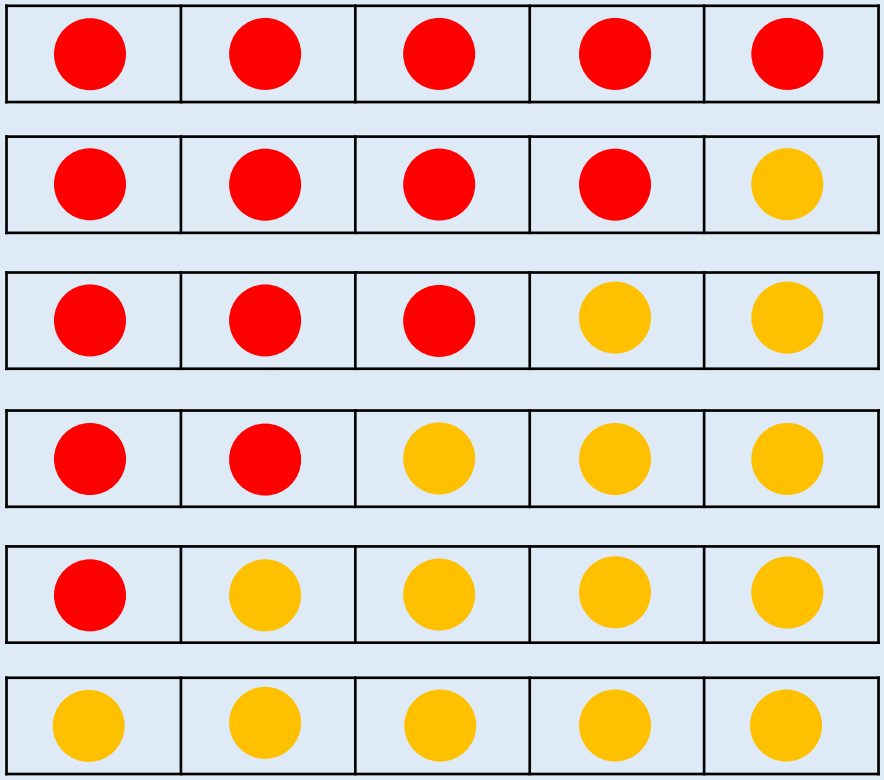
___ = ___ + ___

___ = ___ + ___

Write the number sentence to represent this number bond.

Activity 1 Systematic Number Bonds

Complete the number sentences.



5 = 5 + 0

5 = 4 + 1

5 = 3 + 2

5 = 2 + 3

5 = 1 + 4

5 = 0 + 5

Activity 1 Systematic Number Bonds

Complete the number sentences.

6 = 6 + 0

6 = 5 + 1

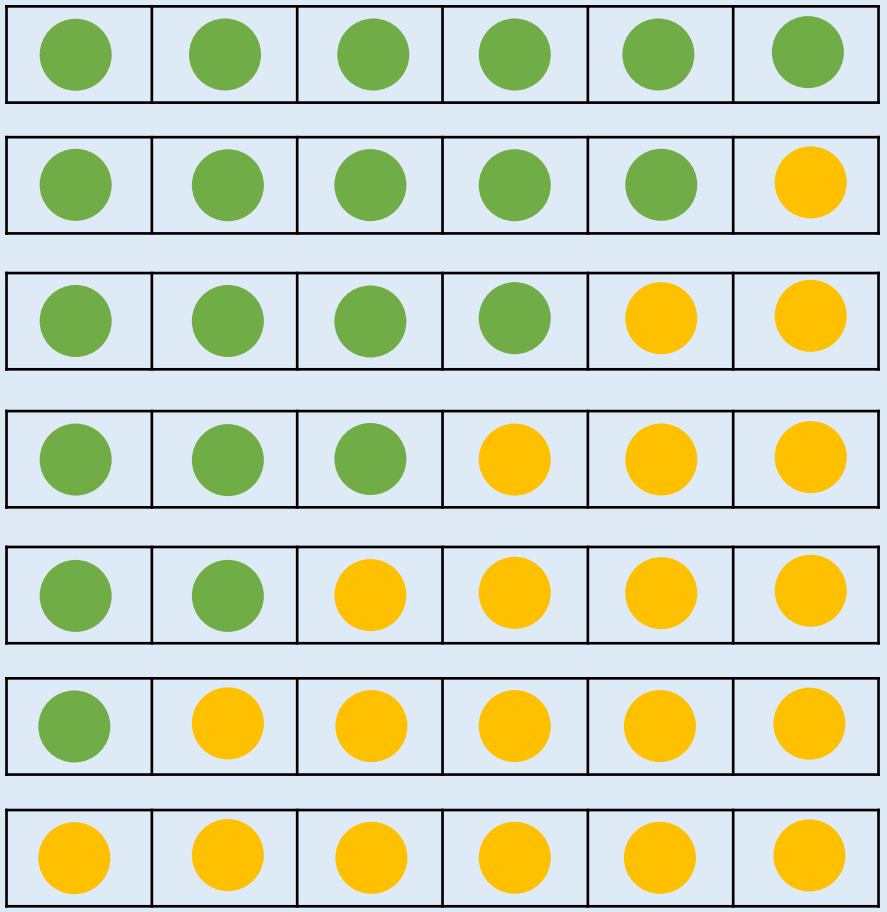
___ = ___ + ___

___ = ___ + ___

___ = ___ + ___

___ = ___ + ___

___ = ___ + ___



Activity 1 Systematic Number Bonds

Complete the number sentences.

$6 = 6 + 0$

$6 = 5 + 1$

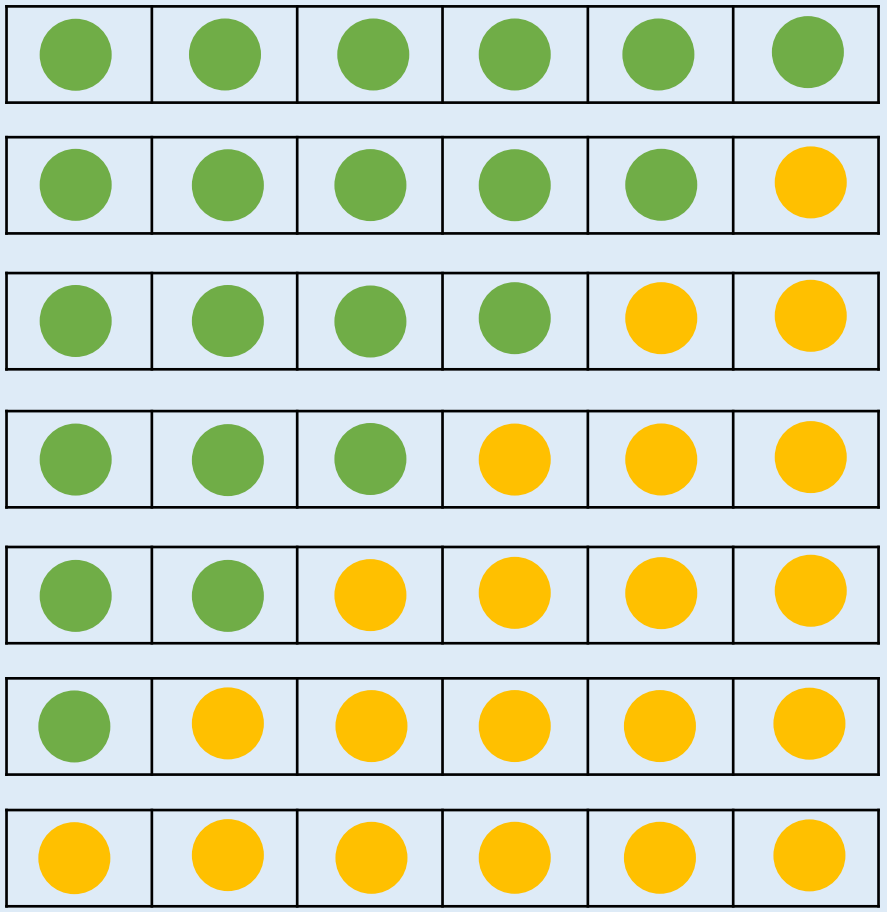
$6 = 4 + 2$

$6 = 3 + 3$

$6 = 2 + 4$

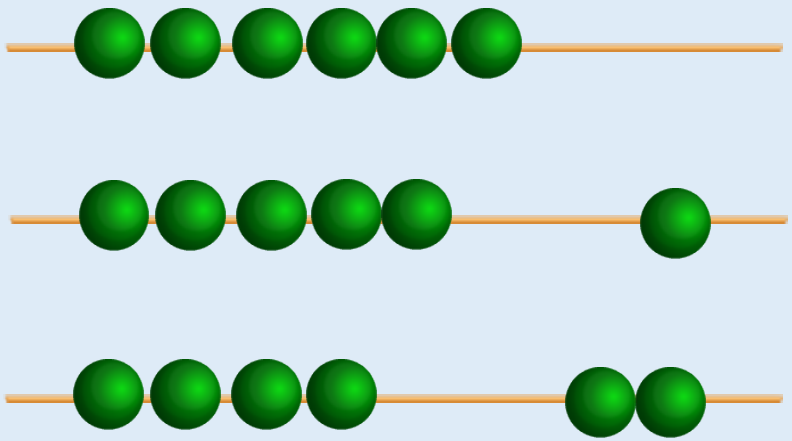
$6 = 1 + 5$

$6 = 0 + 6$



Activity 2 Systematic Number Bonds

Complete the next bead strings in the sequence.



$6 = 6 + 0$

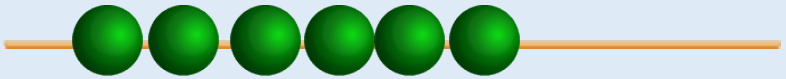
$6 = 5 + 1$

$6 = 4 + 2$

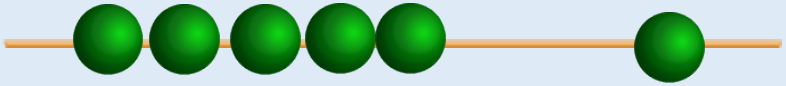
Can you see a pattern in the numbers?

Activity 2 Systematic Number Bonds

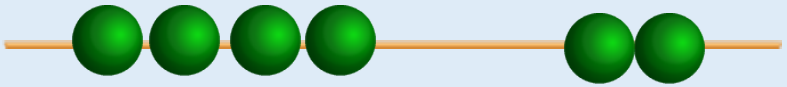
Complete the next bead strings in the sequence.



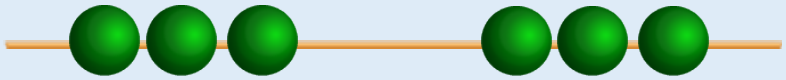
6 = 6 + 0



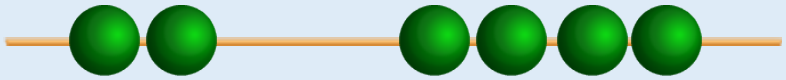
6 = 5 + 1



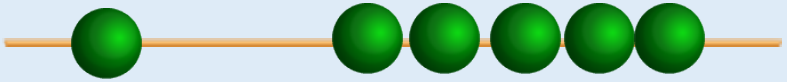
6 = 4 + 2



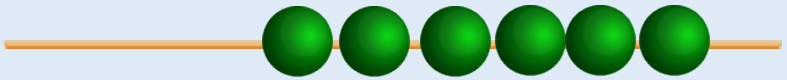
6 = 3 + 3



6 = 2 + 4



6 = 1 + 5



6 = 0 + 6

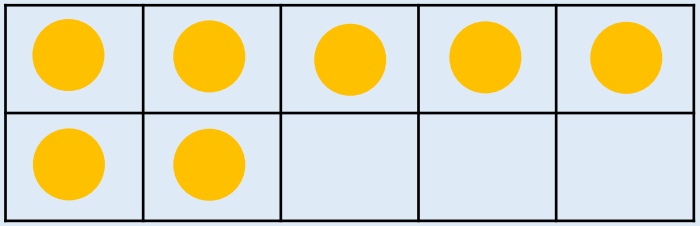
Activity 3 Systematic Number Bonds

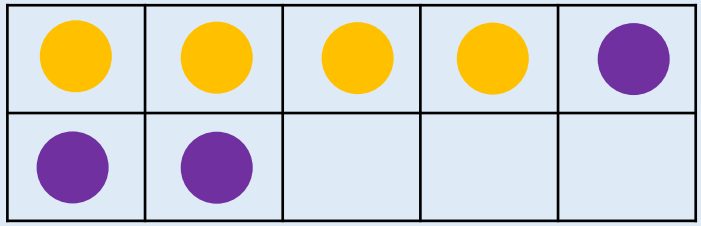
Can you use a ten frame to show all the number bonds to 7? Remember to be systematic.

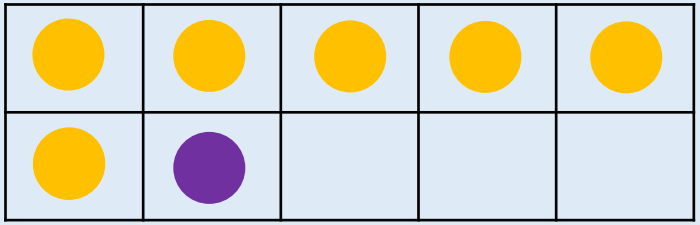
Does the amount of number bonds change as the number gets bigger or smaller?

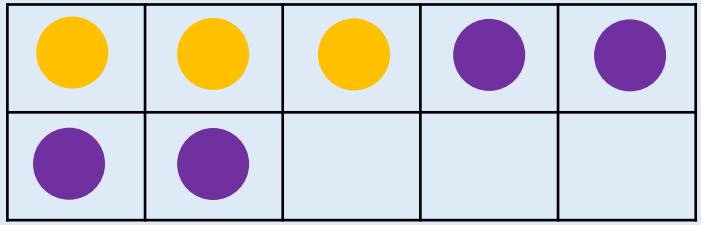
Activity 3 Systematic Number Bonds

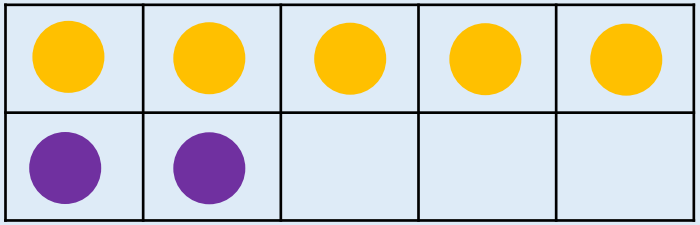
Can you use a ten frame to show all the number bonds to 7?
Remember to be systematic.

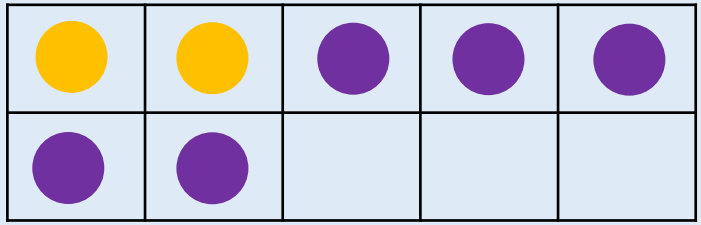


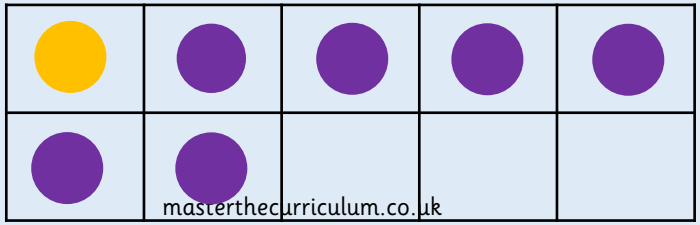












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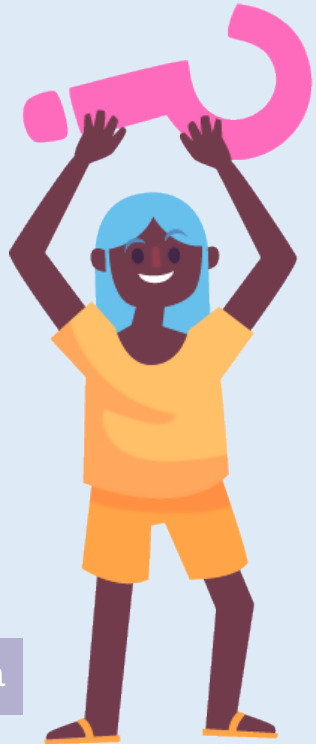
Reasoning - 1

Systematic Number Bonds

Rosie found the following number bonds to 6.

2 + 4 0 + 6 1 + 5 3 + 3

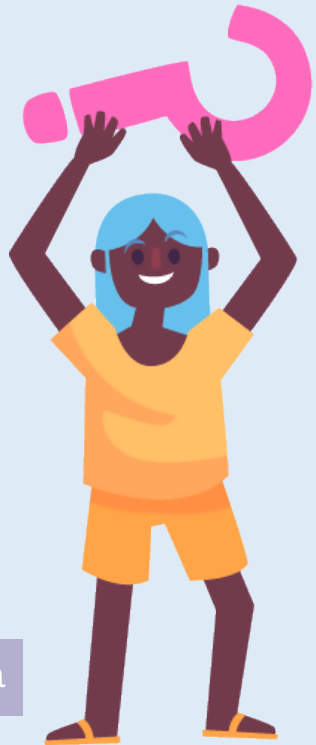


What order would Rosie have found them in if she'd have worked systematically?

Reasoning - 1

Systematic Number Bonds

Rosie found the following number bonds to 6.



6 and 0
5 and 1
4 and 2
3 and 3

0 and 6
1 and 5
2 and 4
3 and 3

Reasoning - 2 Systematic Number Bonds

A cheetah's spots have fallen off.
How many different way can you put the spots back on?

Reasoning - 2 Systematic Number Bonds

A cheetah's spots have fallen off.
How many different way can you put the spots back on?

Possible answers:

0 + 9

1 + 8

2 + 7

3 + 6

Children may use: 9 + 0, 8 + 1, 7 + 2, 6 + 3

Discussion

Systematic Number Bonds

What two numbers can be added to make _____?

Write the number sentence to represent this number bond.

Are there any more ways to make this number bond?

Can you see a pattern in the numbers?

What is happening to the parts each time?

Does the amount of number bonds change as the number gets bigger or smaller?

Number Bonds to 10

1

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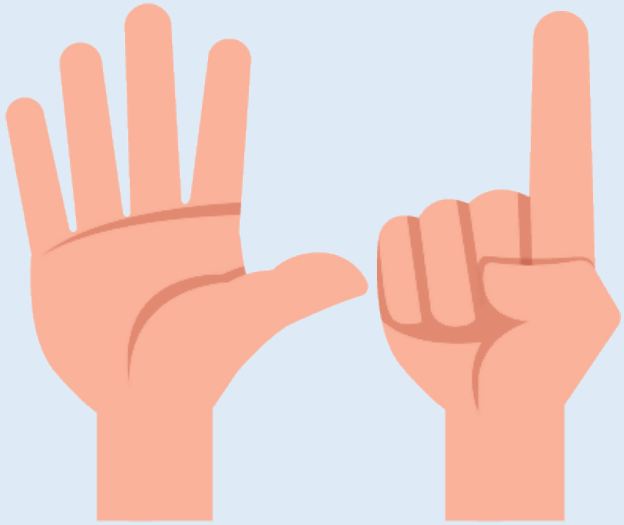
Activity 1 Number Bonds to 10

Zach shows a number on his fingers.

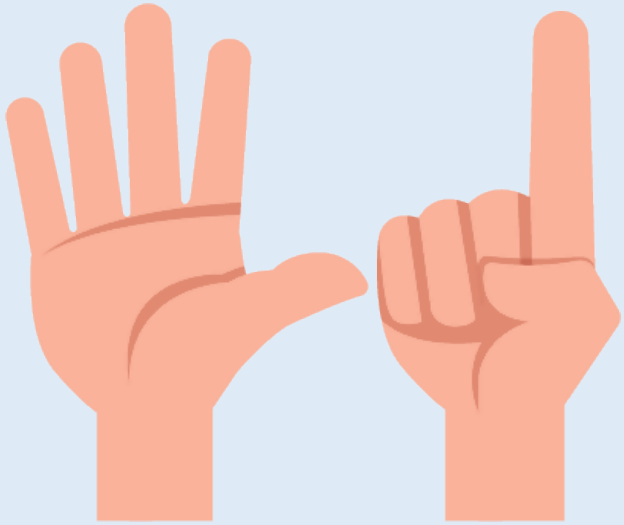


How many more fingers are needed to make 10?
What would this look as a number sentence?

How many more do I need to make 10?

Activity 1 Number Bonds to 10

Zach shows a number on his fingers.

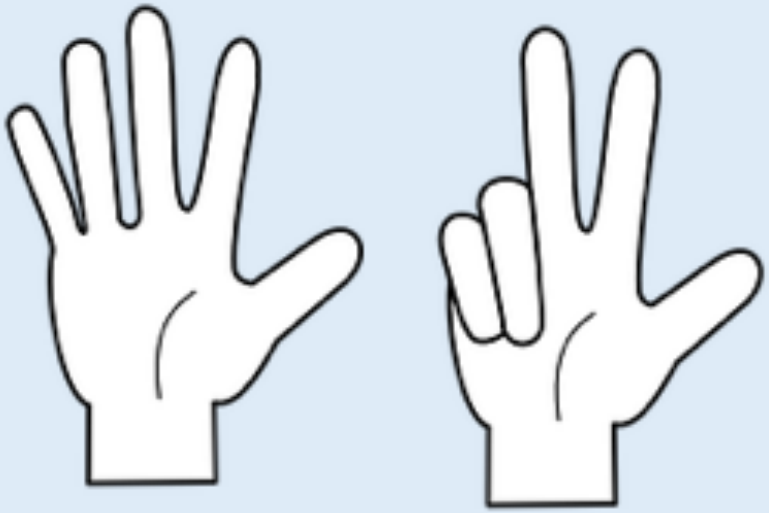


6 + 4 = 10

4 more fingers are needed to make 10.

Activity 1 Number Bonds to 10

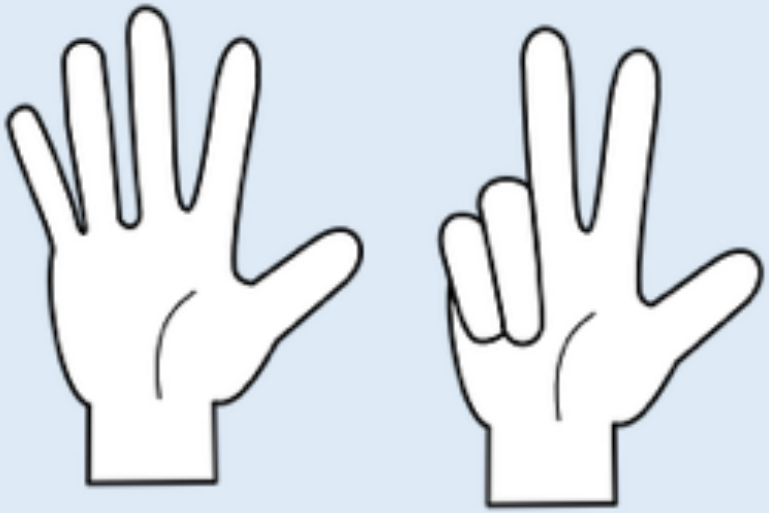
Esin shows a number on her fingers.



How many more fingers are needed to make 10?
What would this look as a number sentence?

Activity 1 Number Bonds to 10

Esin shows a number on her fingers.

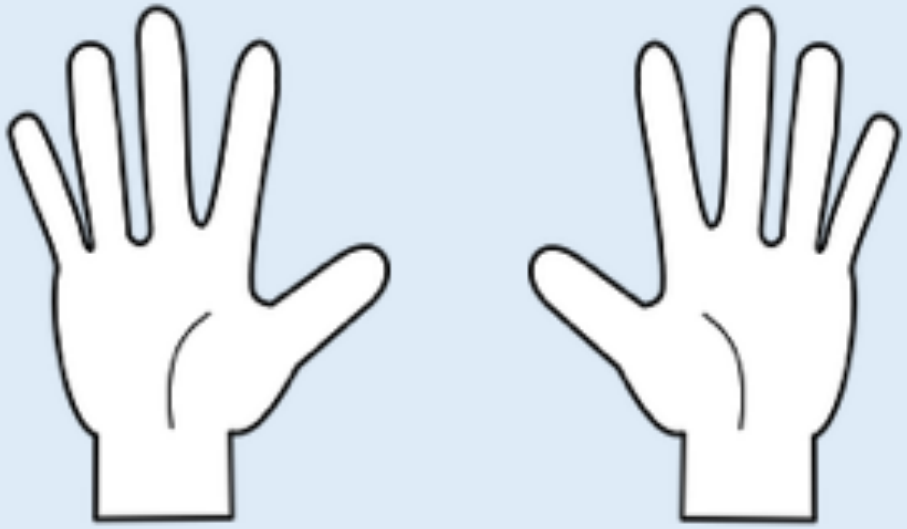


8 + **2** = 10

2 fingers more are needed to make 10.

Activity 1 Number Bonds to 10

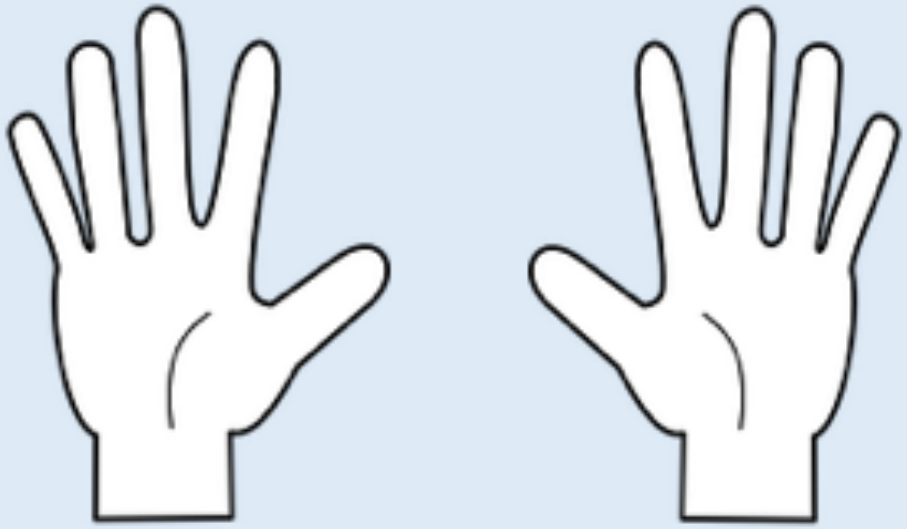
Malachi shows a number on his fingers.



How many more fingers are needed to make 10?
What would this look as a number sentence?

Activity 1 Number Bonds to 10

Malachi shows a number on his fingers.

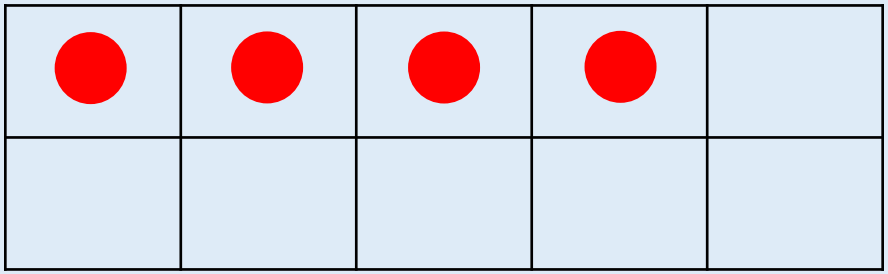


10 + **0** = 10

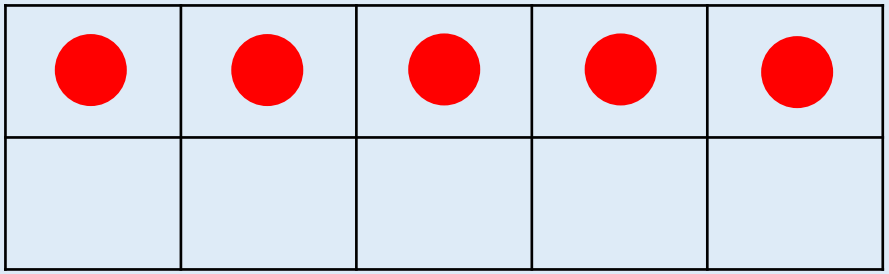
0 fingers are needed to make 10.

Activity 2 Number Bonds to 10

Use the ten frames to complete the number bonds to 10.



$4 + ____ = 10$



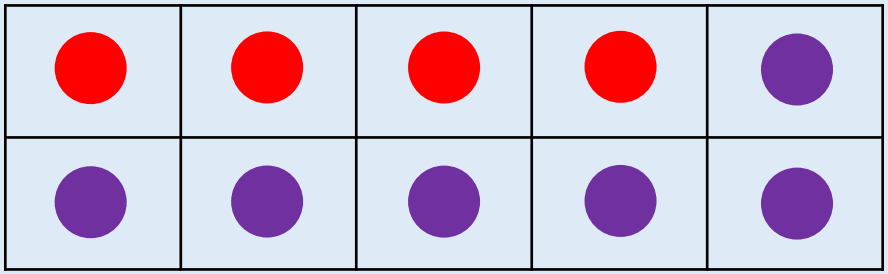
$5 + ____ = 10$

Can you make the ten frame that comes before in the sequence?
Can you make the ten frame comes next in the sequence?

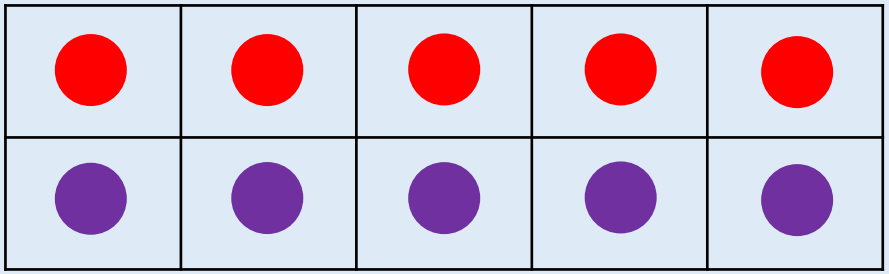
What would these bonds look like as a number sentence?

Activity 2 Number Bonds to 10

Use the ten frames to complete the number bonds to 10.



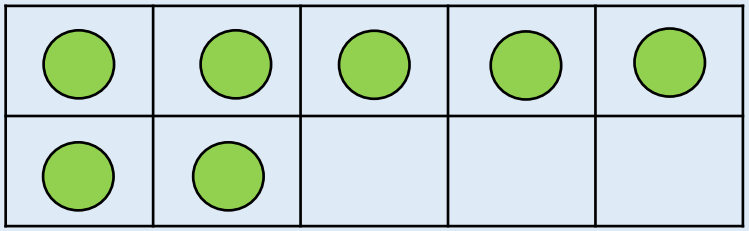
$4 + \underline{6} = 10$



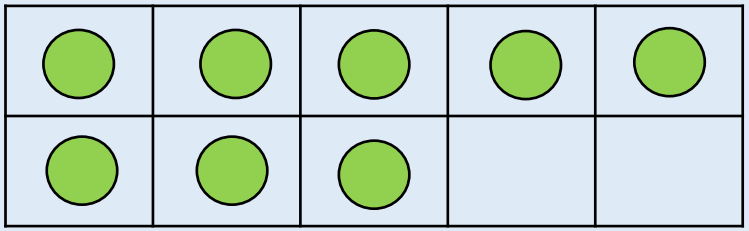
$5 + \underline{5} = 10$

Activity 2 Number Bonds to 10

Use the ten frames to complete the number bonds to 10.



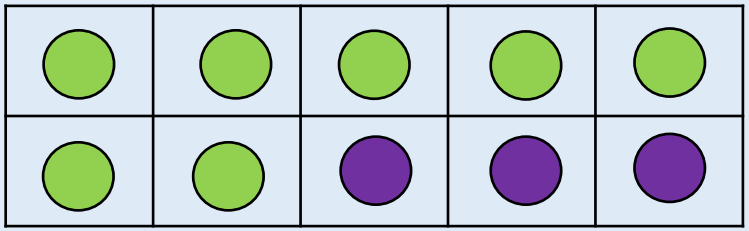
7 + _____ = 10



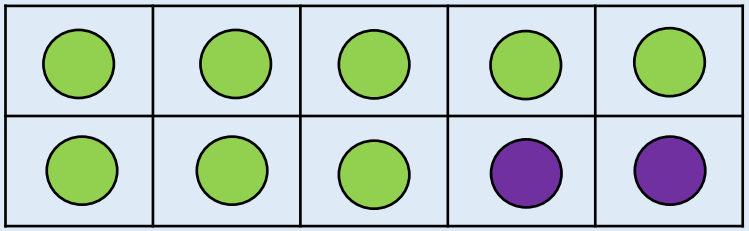
8 + _____ = 10

Activity 2 Number Bonds to 10

Use the ten frames to complete the number bonds to 10.



7 + 3 = 10

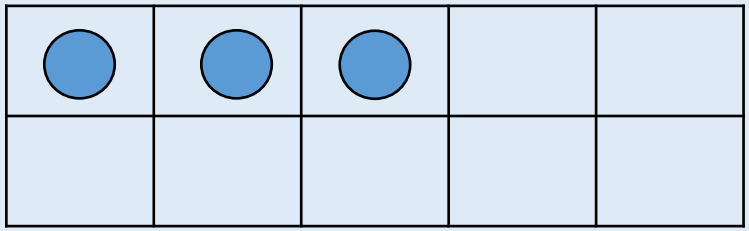


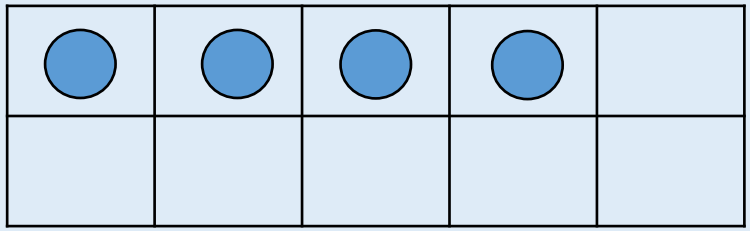
8 + 2 = 10

Activity 2

Number Bonds to 10

Use the ten frames to complete the number bonds to 10.



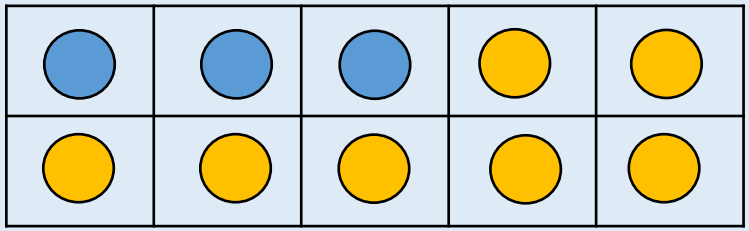


3 + _____ = 10

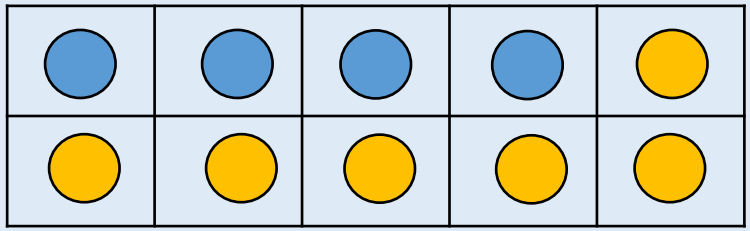
4 + _____ = 10

Activity 2 Number Bonds to 10

Use the ten frames to complete the number bonds to 10.



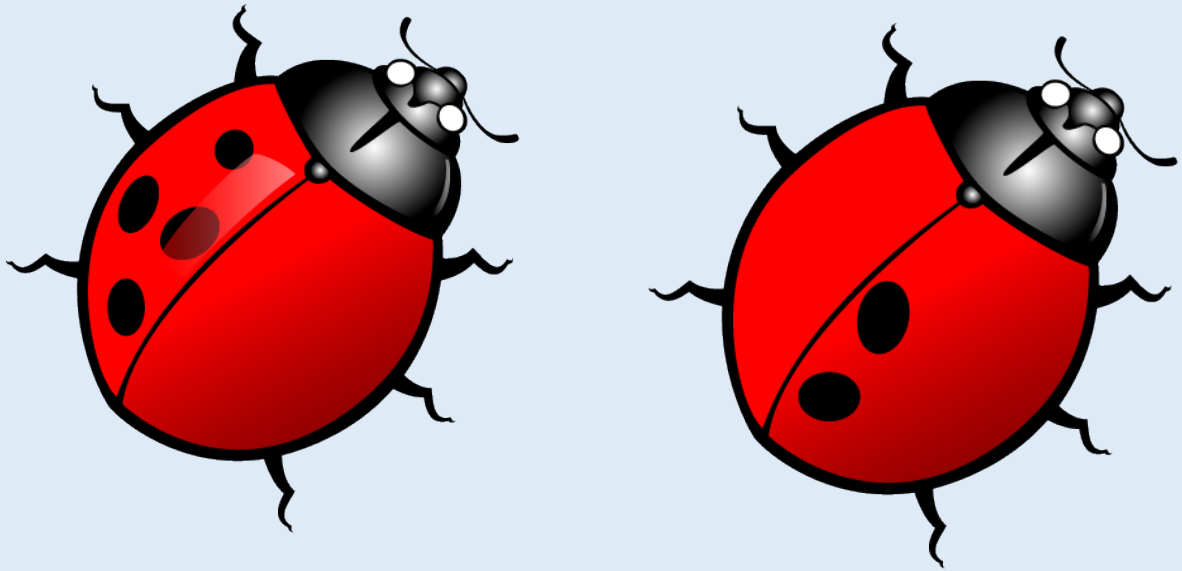
3 + 7 = 10



4 + 6 = 10

Activity 3 Number Bonds to 10

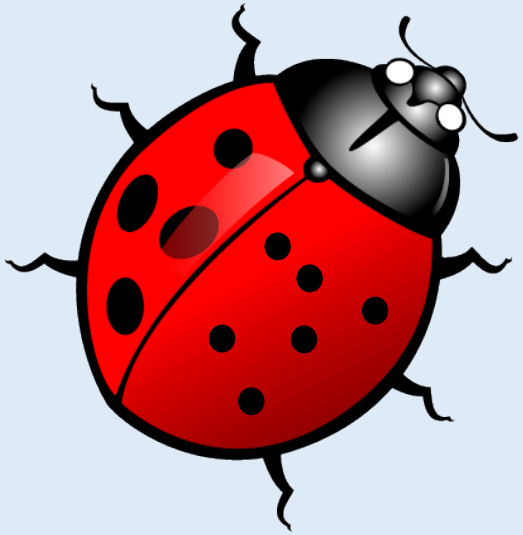
All the lady birds should have ten spots.
Some of the lady birds have lost their spots.
Complete the spots and write the number sentences.



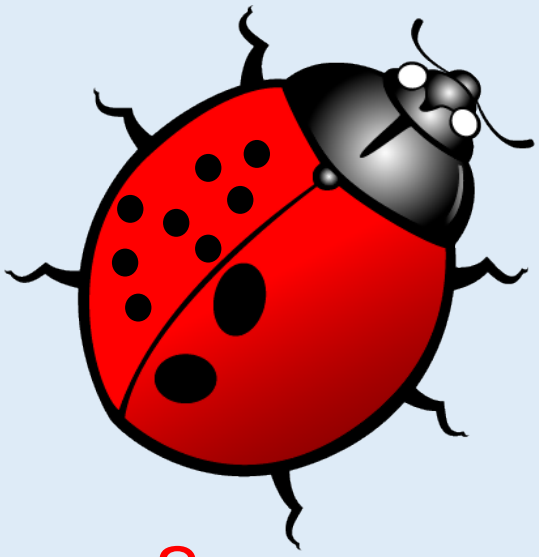
Can I order the number bonds systematically?

Activity 3 Number Bonds to 10

All the lady birds should have ten spots.
Some of the lady birds have lost their spots.
Complete the spots and write the number sentences.



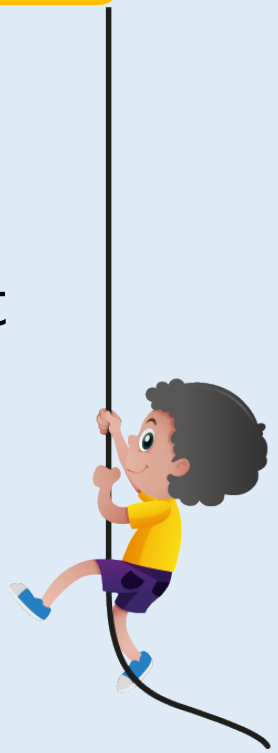
4 + 6 = 10



8 + 2 = 10

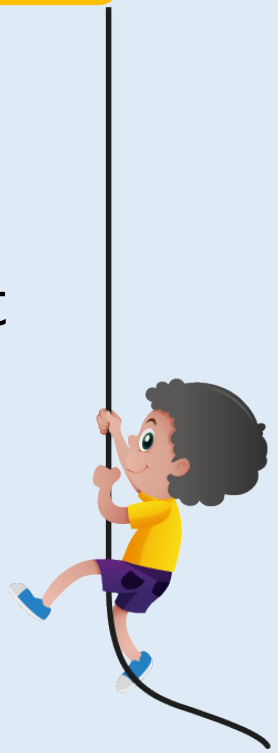
Always, Sometimes, Never?

Number bonds to 10 have two different numbers added together.



Always, Sometimes, Never?

Number bonds to 10 have two different numbers added together.



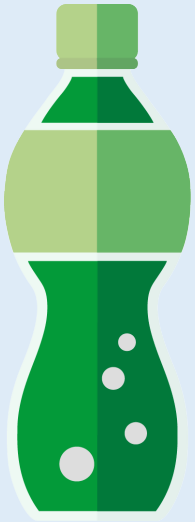
Sometimes, there is one case where it is two of the same number.

5 + 5 = 10

Reasoning - 2

Number Bonds to 10

Tia has 10p to spend.



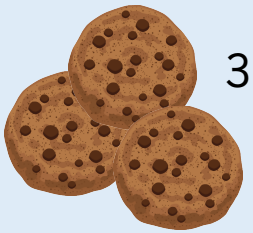
8p

2p

7p

10p

5p



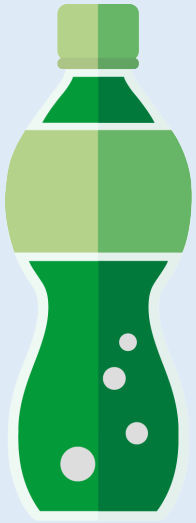
3p

Which two items could she buy?

How many different ways can she do it?

Number Bonds to 10

Tia has 10p to spend.



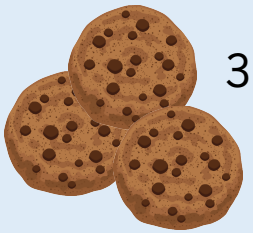
8p

2p

7p

10p

5p



3p

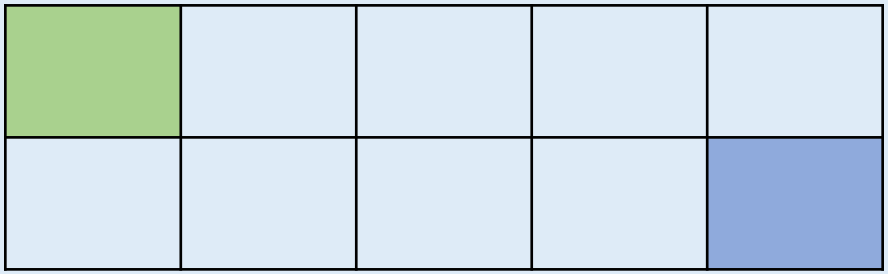
A drink and a cupcake.
Lollipop and cookies.

Reasoning - 3

Number Bonds to 10

Leanna needs to colour in all of the boxes using two different colours.

One box of each colour has been done for her.

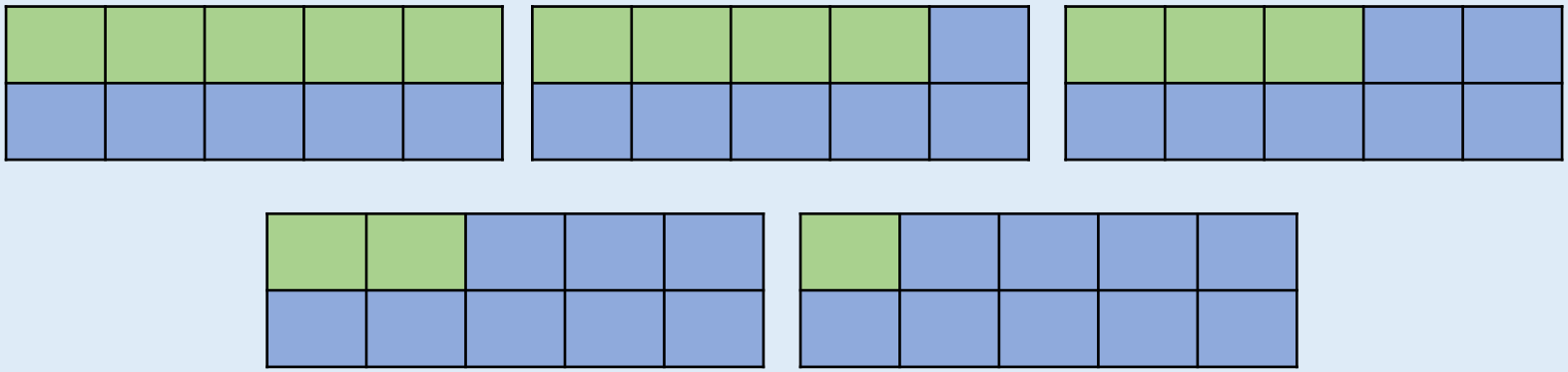


How many different ways can she colour the boxes?

Reasoning - 3 Number Bonds to 10

Leanna needs to colour in all of the boxes using two different colours.

One box of each colour has been done for her.



This can also be the other way where there are 9 greens and 1 blue, 8 greens and 2 blues, 7 greens and 3 blues, 6 greens and 4 blues.

Discussion

Number Bonds to 10

What number have you started with?

How many more do I need to make a 10?

How many number bonds can I make if 10 is the whole?

What would these bonds look like as a number sentence?

Can I order the number bonds systematically?

Do number bonds to 10 only contain one digit numbers?

Compare Number Bonds

1

Fluency Teaching Slides

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Activity 1 Compare Number Bonds

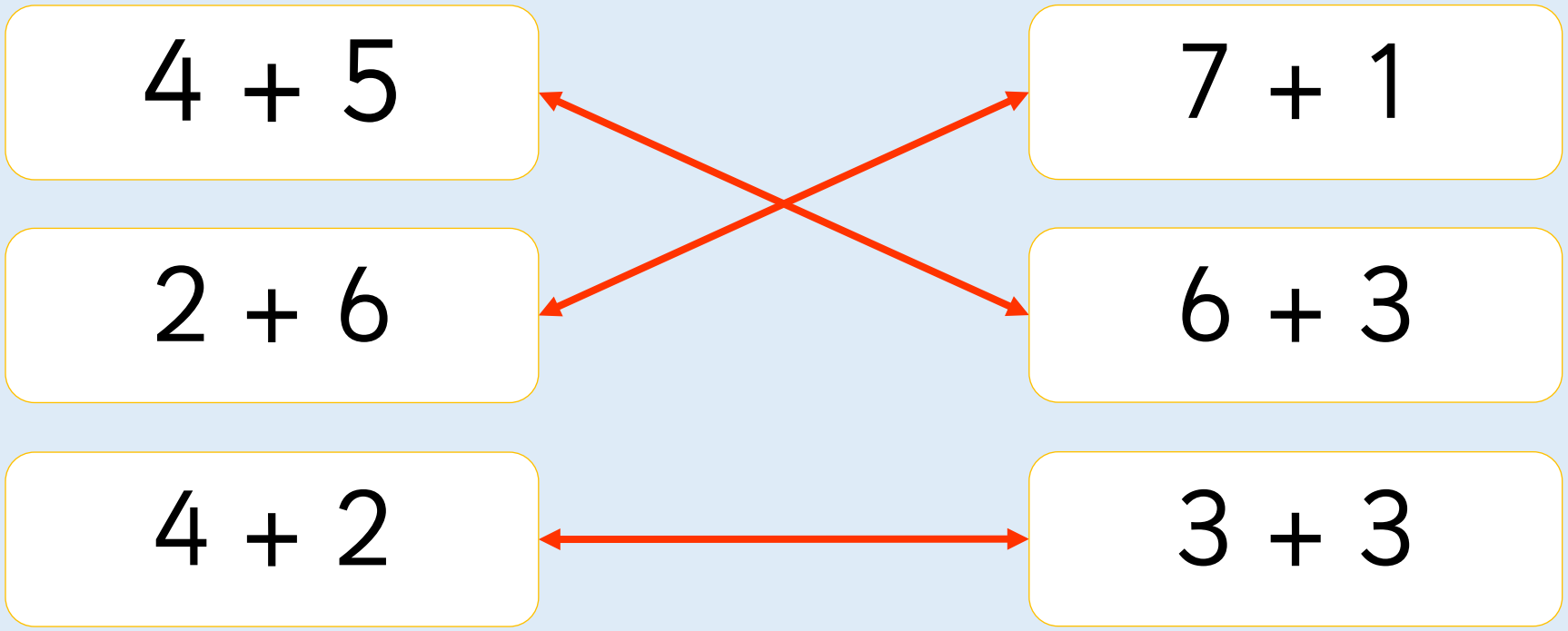
Match the number bonds that are equal.

4 + 5	7 + 1
2 + 6	6 + 3
4 + 2	3 + 3

Do we know what each side is worth?

Activity 1 Compare Number Bonds

Match the number bonds that are equal.



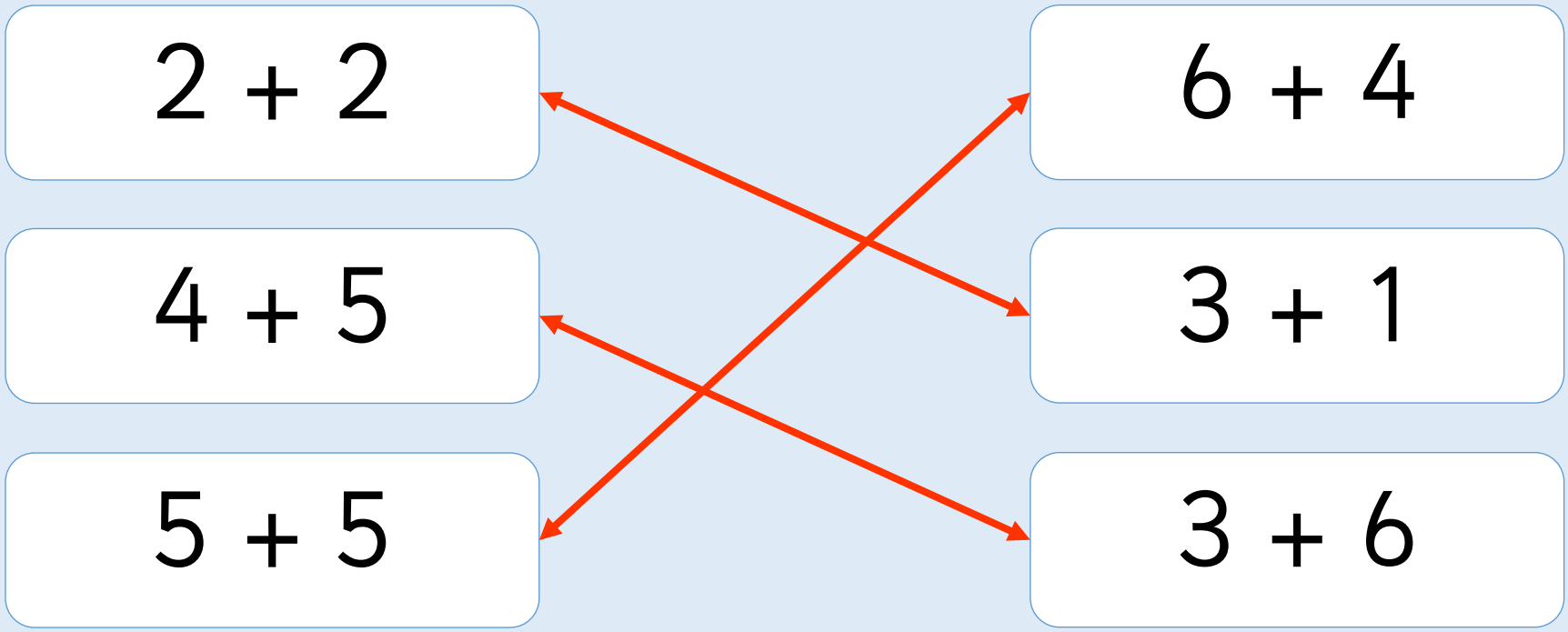
Activity 1 Compare Number Bonds

Match the number bonds that are equal.

2 + 2	6 + 4
4 + 5	3 + 1
5 + 5	3 + 6

Activity 1 Compare Number Bonds

Match the number bonds that are equal.



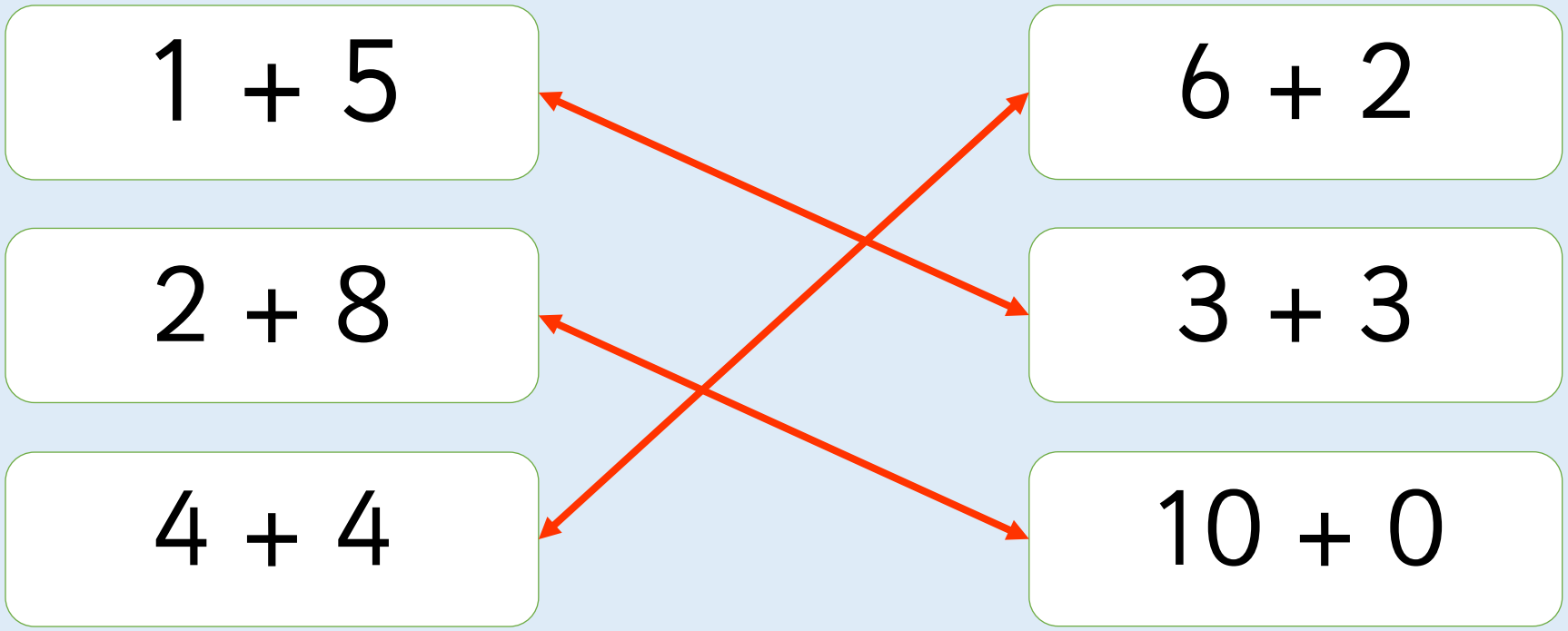
Activity 1 Compare Number Bonds

Match the number bonds that are equal.

1 + 5	6 + 2
2 + 8	3 + 3
4 + 4	10 + 0

Activity 1 Compare Number Bonds

Match the number bonds that are equal.



Activity 2

Compare Number Bonds

Use <, > or = to make the statements correct.

5 + 5	○	10
5 + 5	○	8
2 + 5	○	5 + 3

What symbol can you use to show this?

Activity 2 Compare Number Bonds

Use <, > or = to make the statements correct.

5 + 5 10	=	10
5 + 5 10	>	8
2 + 5 7	<	5 + 3 8

Activity 2 Compare Number Bonds

Use <, > or = to make the statements correct.

4 + 4 ◯ 3 + 7

2 + 7 ◯ 2 + 1

8 + 0 ◯ 4 + 1

Activity 2 Compare Number Bonds

Use <, > or = to make the statements correct.

$4 + 4$ (8) **<** $3 + 7$ (10)

$2 + 7$ (9) **>** $2 + 1$ (3)

$8 + 0$ (8) **>** $4 + 1$ (5)

Activity 2 Compare Number Bonds

Use <, > or = to make the statements correct.

2 + 3 ◯ 1 + 4

4 + 4 ◯ 6 + 2

9 + 0 ◯ 7 + 2

Activity 2 Compare Number Bonds

Use <, > or = to make the statements correct.

$2 + 3$ (5) $=$ $1 + 4$ (5)

$4 + 4$ (8) $=$ $6 + 2$ (8)

$9 + 0$ (9) $=$ $7 + 2$ (9)

Activity 3 Compare Number Bonds

Complete the number sentences.

$5 + 3 = 4 + _____$

$7 + 3 > _____ + 2$

How can we work out the total of each side?

Activity 3 Compare Number Bonds

Complete the number sentences.

$5 + 3 = 4 + \underline{\quad 4 \quad}$

$7 + 3 > \underline{\quad 7 \quad} + 2$

Example

Activity 3 Compare Number Bonds

Complete the number sentences.

$3 + 3 \quad = \quad 5 + ____$

$2 + 6 \quad > \quad ____ + 4$

$4 + 1 \quad < \quad 3 + ____$

Activity 3 Compare Number Bonds

Complete the number sentences.

$3 + 3 = 5 + __3__$

$2 + 6 > __2__ + 4$

Examples

$4 + 1 < 3 + __1__$

Reasoning - 1 Compare Number Bonds

How many ways can you complete the number sentence?

$$4 + ____ < 4 + ____$$

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Reasoning - 1 Compare Number Bonds

How many ways can you complete the number sentence?

$$4 + ____ < 4 + ____$$

Any number combination where the number on the right is larger than the one on the left.

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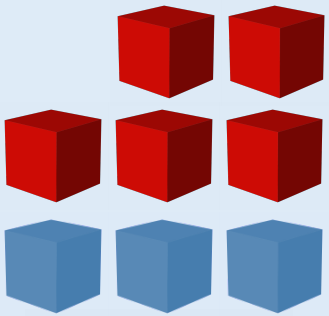
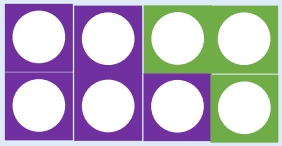
Reasoning - 2 Compare Number Bonds

Zach and Esin have both created their own number bonds.

Zach

My total is larger because I have a 5 and a 3.





My total is greater because I have 8 altogether.

Esin

Who do you agree with? Explain your answer.

Reasoning - 2

Compare Number Bonds

Zach and Esin have both created their own number bonds.

They both have the same number - 8.

Reasoning - 3 Compare Number Bonds

Tia has 6 counters in her hand and some in a cup.

Malachi has 4 counters in his hand and some in a cup.

They each have the same number of counters in total.
They each have less than 10 counters.

How many counters could be in Tia's cup?
How many counters could be in Malachi's cup?

Reasoning - 3 Compare Number Bonds

Tia has 6 counters in her hand and some in a cup.

Malachi has 4 counters in his hand and some in a cup.

They each have the same number of counters in total.
They each have less than 10 counters.

Tia could have 3 and Malachi could have 5.
Tia could have 2 and Malachi could have 4.
Tia could have 1 and Malachi could have 3.

Discussion

Compare Number Bonds

What does compare mean?

Do we know what each side is worth?
How can we work out the total of each side?

Can you use equipment to prove that the number bonds are equal/unequal?
Do I have to solve both sides to see if the number bonds are equal?

Which calculation gives the largest answer? Which calculation gives the smallest answer?

Which symbol can you use to show this?

Add Together

1

Fluency Teaching Slides

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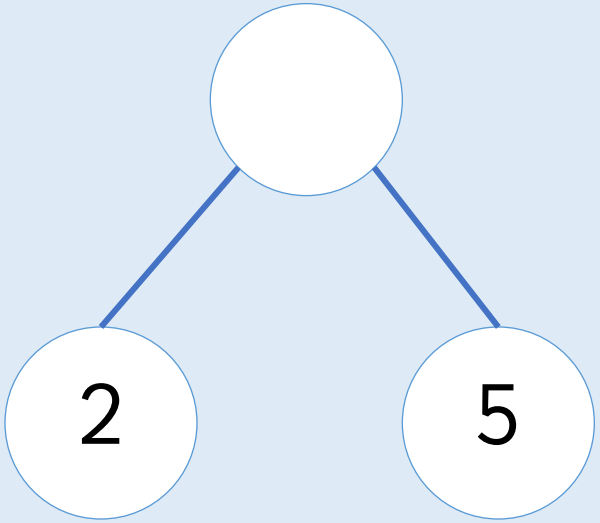
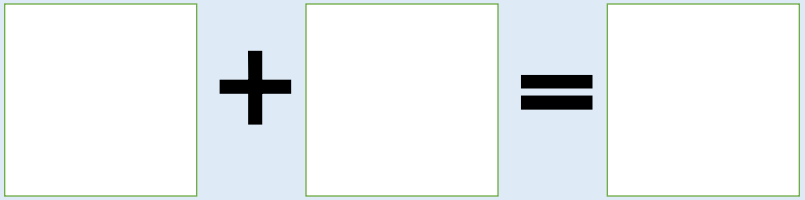
Activity 1 Add Together

If 2 is a part and 5 is a part, what is the whole?

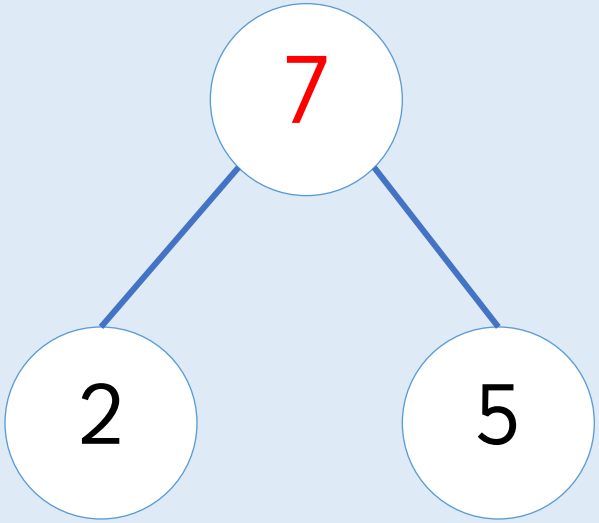




What does each circle represent on a part-whole model?

Activity 1 Add Together

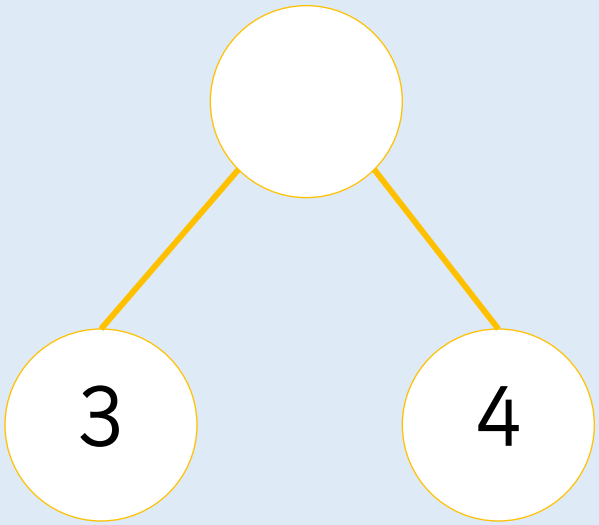
If 2 is a part and 5 is a part, what is the whole?

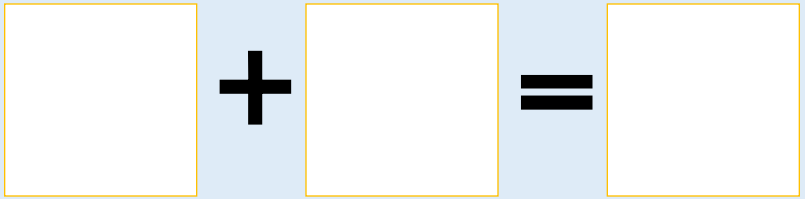


$$2 + 5 = 7$$

Activity 1 Add Together

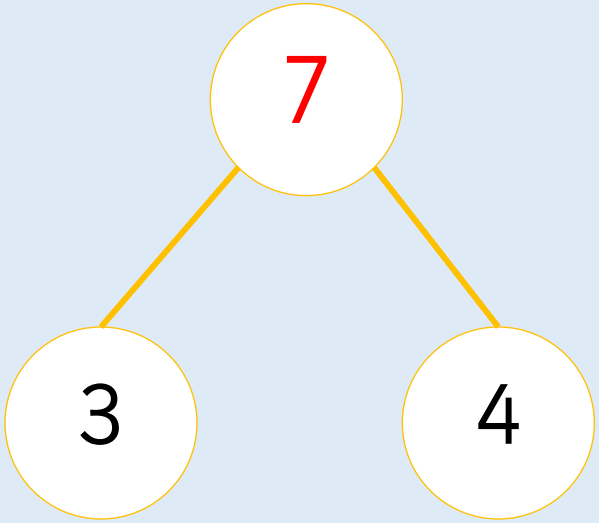
If 3 is a part and 4 is a part, what is the whole?





Activity 1 Add Together

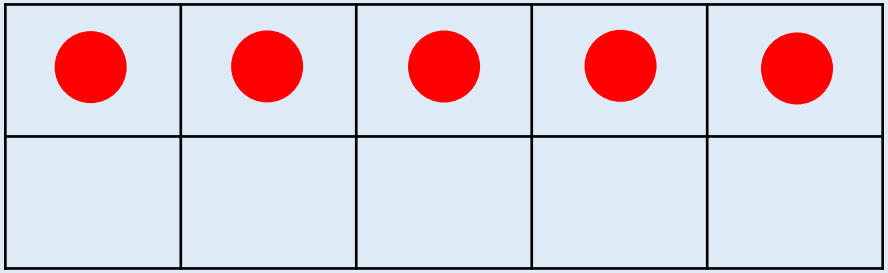
If 3 is a part and 4 is a part, what is the whole?

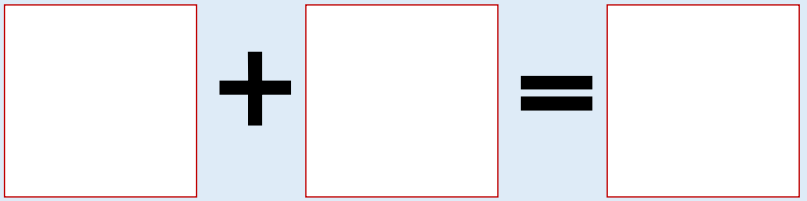


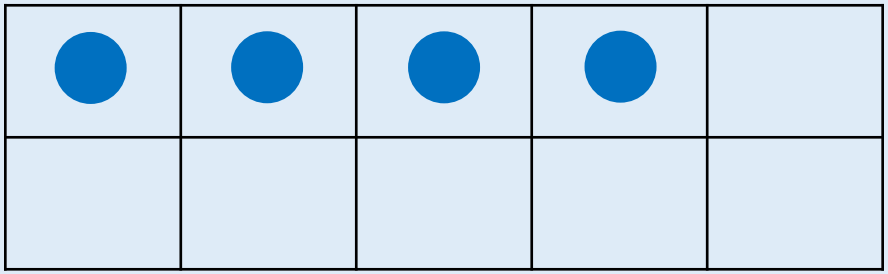
$$3 + 4 = 7$$

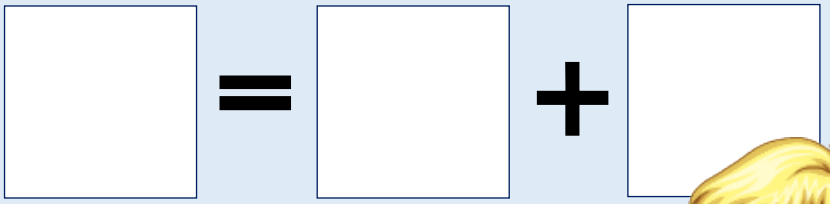
Activity 2 Add Together

There are 5 red cars and 4 blue cars.
How many cars are there altogether?





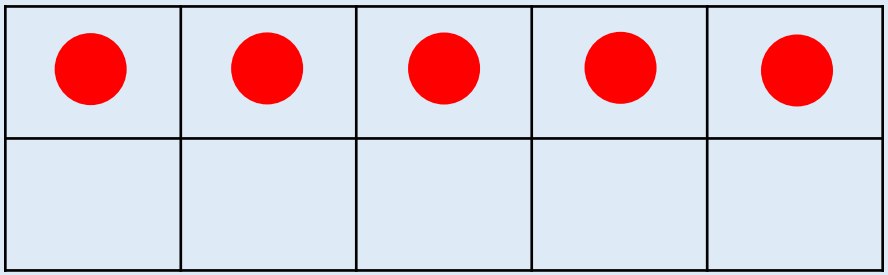




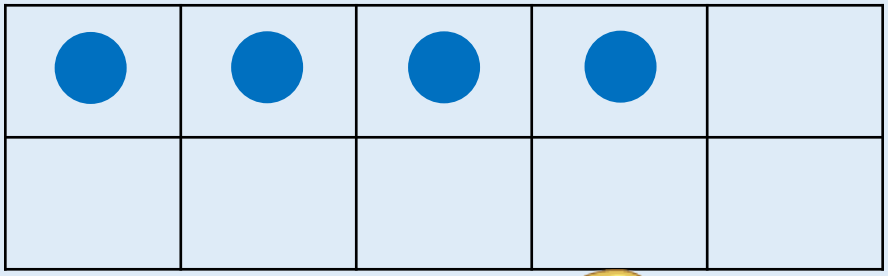
What else can we use to represent the cars?

Activity 2 Add Together

There are 5 red cars and 4 blue cars.
How many cars are there altogether?



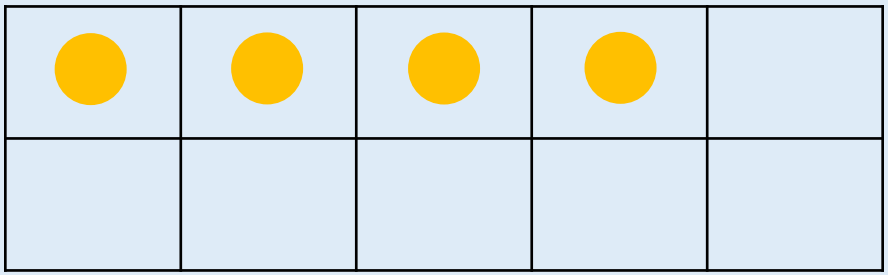
$5 + 4 = 9$

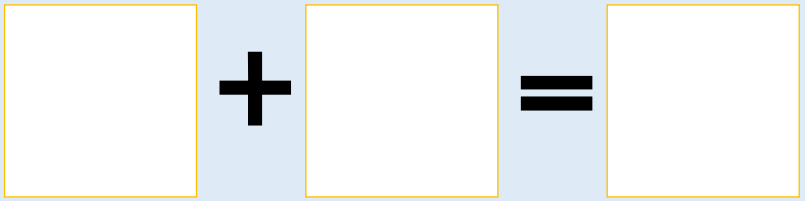


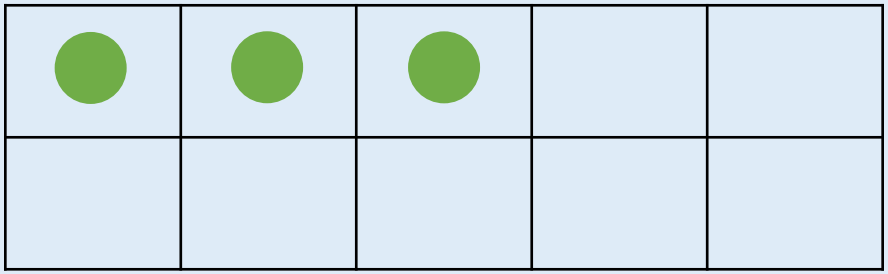
$9 = 5 + 4$

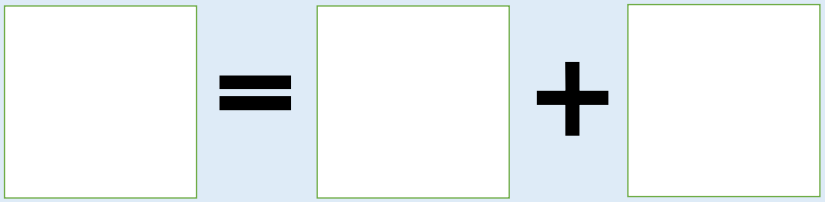
Activity 2 Add Together

There are 4 yellow cars and 3 green cars.
How many cars are there altogether?



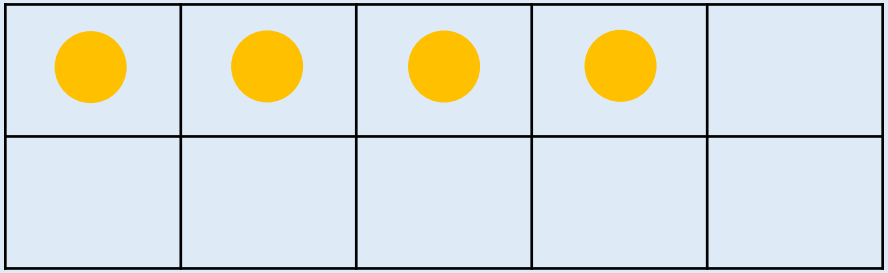




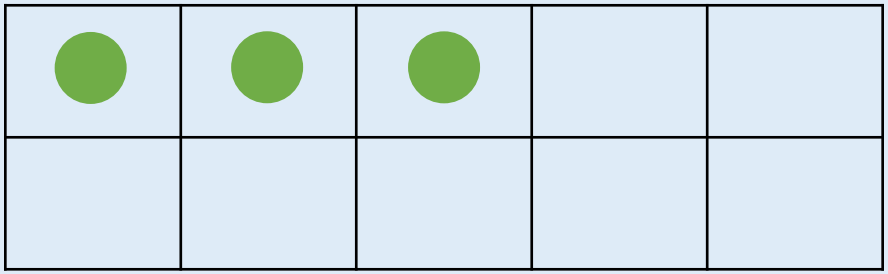


Activity 2 Add Together

There are 4 yellow cars and 3 green cars.
How many cars are there altogether?



$4 + 3 = 7$



$7 = 3 + 4$

Activity 3 Add Together

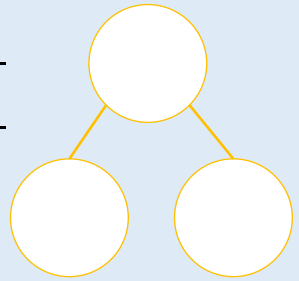
Complete the table to represent the toads.

Ten Frame

Part-Whole Model

_____ + _____ = _____

_____ = _____ + _____



Sentences

_____ is a part.

_____ is a part.

The whole is _____.

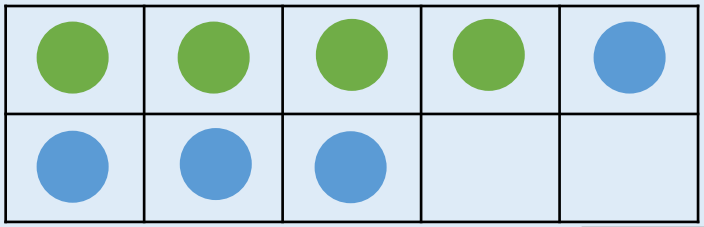
Make your own story

What number sentence would represent this?

Activity 3 Add Together

Complete the table to represent the toads.

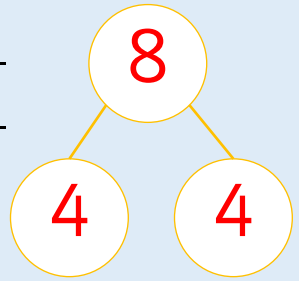
Ten Frame



Part-Whole Model

4 + 4 = 8

8 = 4 + 4



Sentences

4 is a part.

4 is a part.

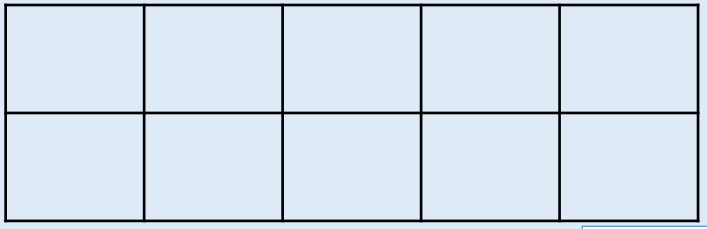
The whole is 8.

Make your own story

Activity 3 Add Together

Complete the table to represent the stars.

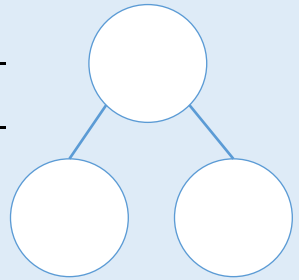
Ten Frame



Part-Whole Model

_____ + _____ = _____

_____ = _____ + _____



Sentences

_____ is a part.

_____ is a part.

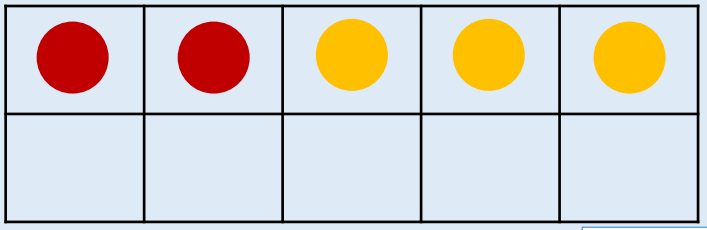
The whole is _____.

Make your own story

Activity 3 Add Together

Complete the table to represent the stars.

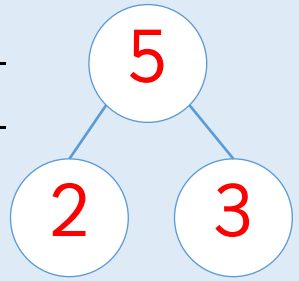
Ten Frame



Part-Whole Model

$\underline{2} + \underline{3} = \underline{5}$

$\underline{5} = \underline{2} + \underline{3}$



Sentences

2 is a part.

3 is a part.

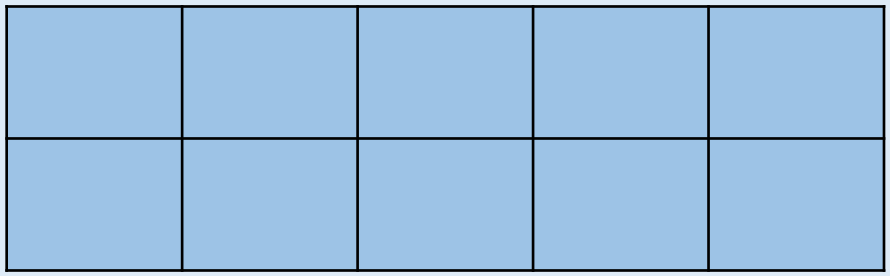
The whole is 5.

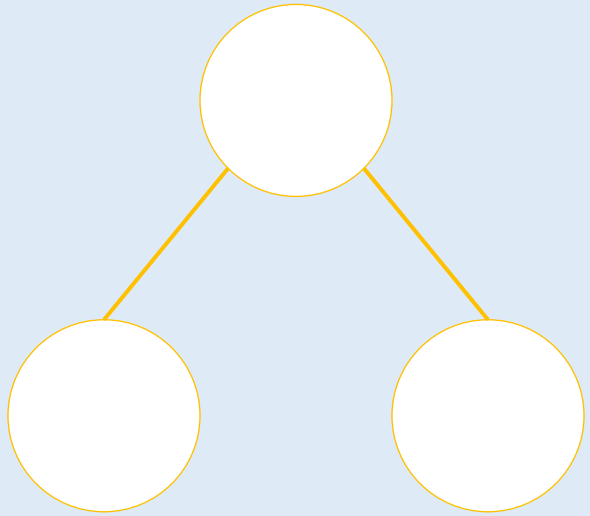
Make your own story

Reasoning - 1 Add Together

There are 9 cubes.
Some are yellow and some are blue.

How many different ways can you make a total of 9?





You should show your working out on a ten frame and a part-whole model.

Reasoning - 1 Add Together

There are 9 cubes.
Some are yellow and some are blue.

There could be:
8 yellow and 1 blue, 7 yellow and 2 blue, 6 yellow and 3 blue, 5 yellow and 4 blue, 4 yellow and 5 blue, 3 yellow and 6 blue, 2 yellow and 7 blue or 1 yellow and 7 blue.

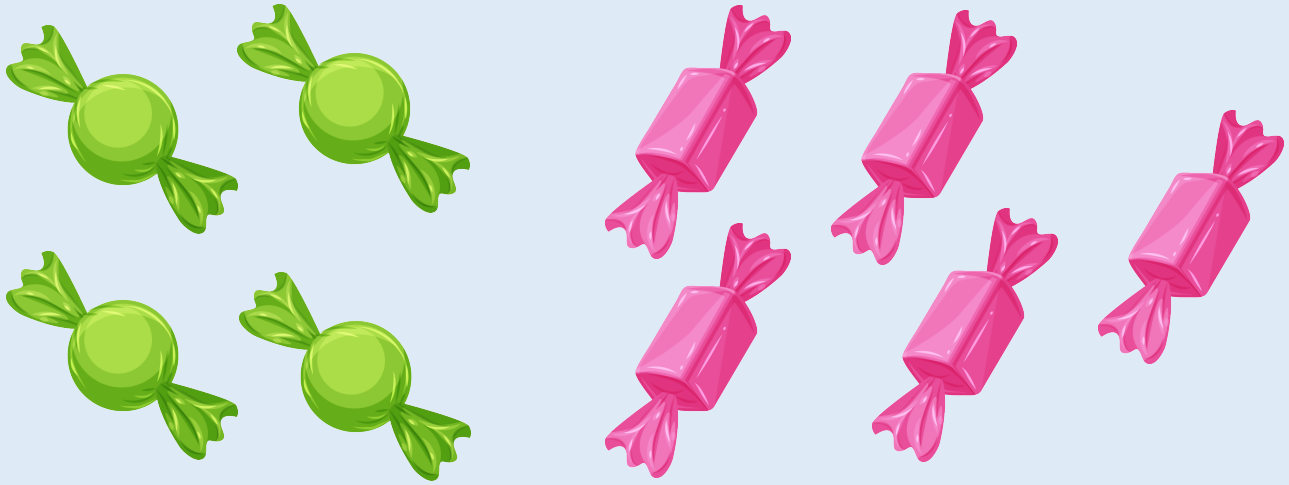
Reasoning - 2 Add Together

There are 10 sweets altogether.
4 have a green wrapper and 5 have a pink wrapper.

Is this correct? Explain how you know.

Reasoning - 2 Add Together

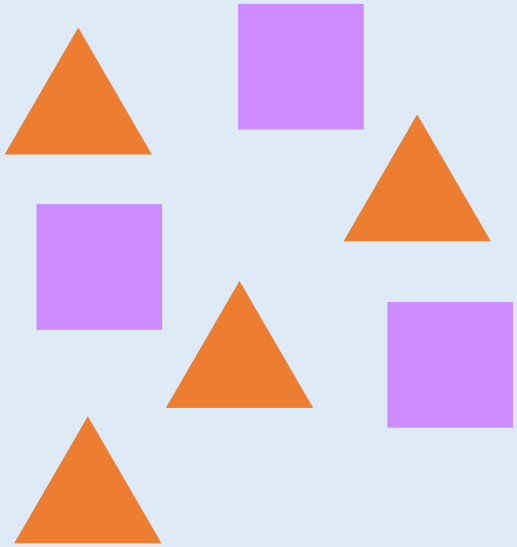
There are 10 sweets altogether.
4 have a green wrapper and 5 have a pink wrapper.



Children could use cubes/ten frame to show that this is incorrect as 4 and 5 would make 9, not 10.

Reasoning - 3 Add Together

Which sentence is correct?



A 6 is a part, 3 is a part and 9 is the whole.

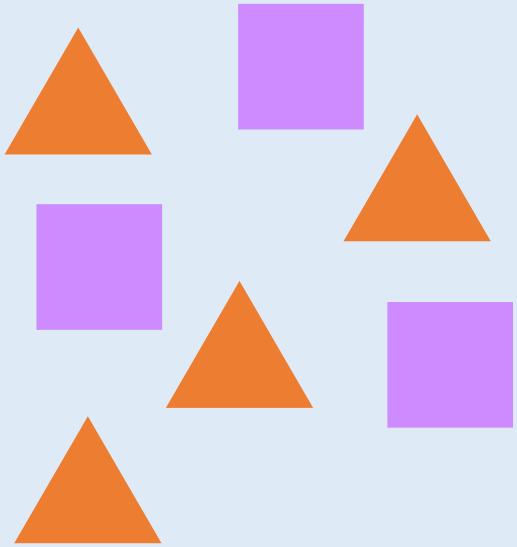
B 5 is a part, 4 is a part and whole is 9.

C 4 is a part, 3 is a part and 7 is the whole.

What mistake has been made in the incorrect sentences?

Reasoning - 3 Add Together

Which sentence is correct?



A 6 is a part, 3 is a part and 9 is the whole.

B 5 is a part, 4 is a part and whole is 9.

C 4 is a part, 3 is a part and 7 is the whole.

A is wrong because the parts are not right.

B is wrong because the whole is not 9.

C is correct.

Discussion

Add Together

What does each circle represent on a part-whole model?

Which of the numbers are parts?
Which of the numbers is the whole?

What else can we use to represent the cars? Can we only use counters and ten frames?

How many did you have to start? Then what happened? How many do you have now?

How does the ten frame help us when finding the total?
Did we need two ten frames for 5 and 4? Why?

What number sentence would represent it?

Add More

1

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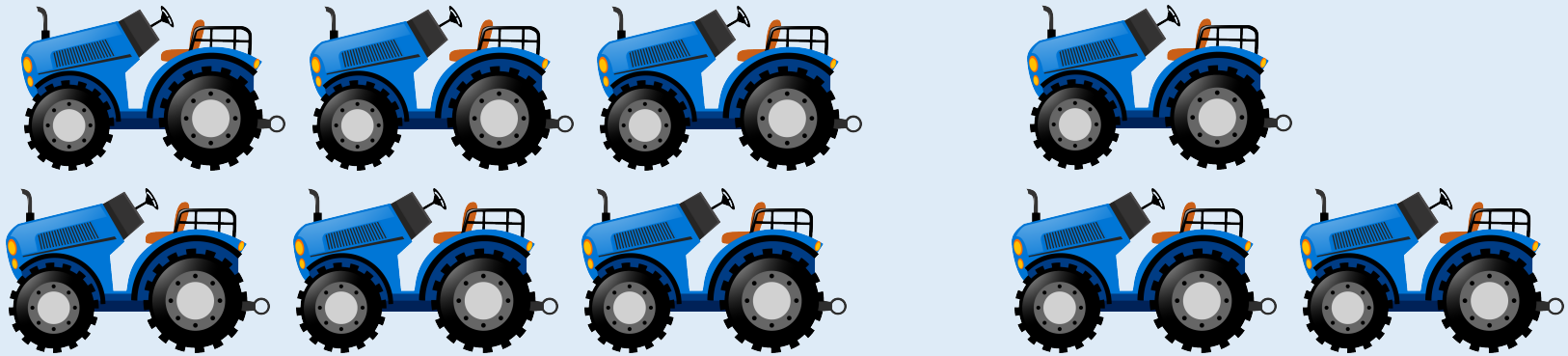
Activity 1 Add More

How many tractors are there in total?



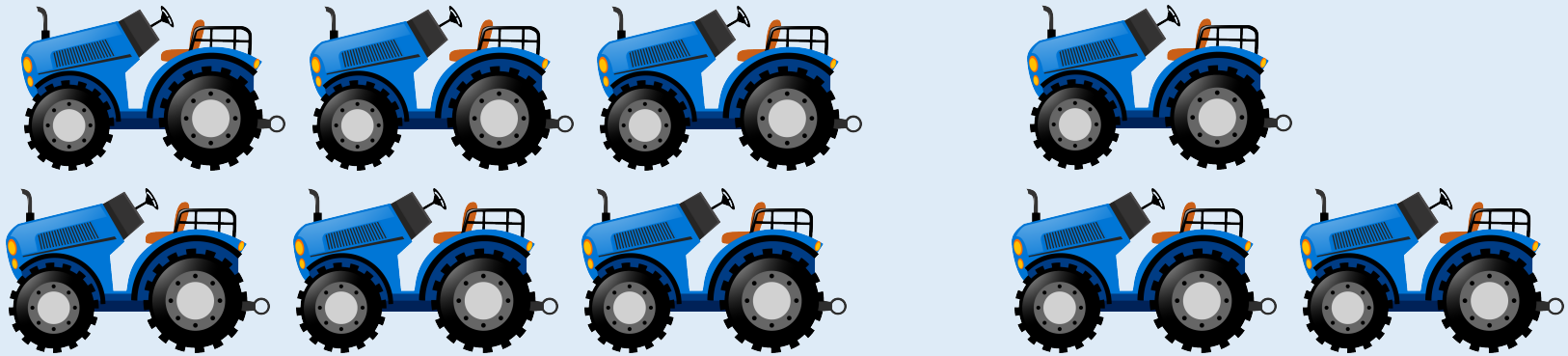
6 + _____ = _____

There are _____ tractors.

Do I have to start with the largest number?

Activity 1 Add More

How many tractors are there in total?

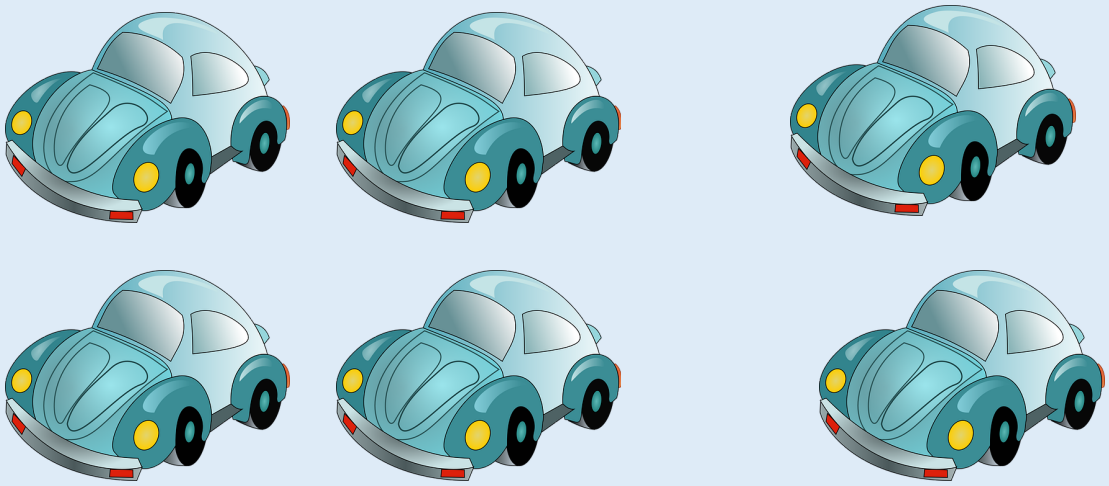


6 + 3 = 9

There are 9 tractors.

Activity 1 Add More

How many cars are there in total?

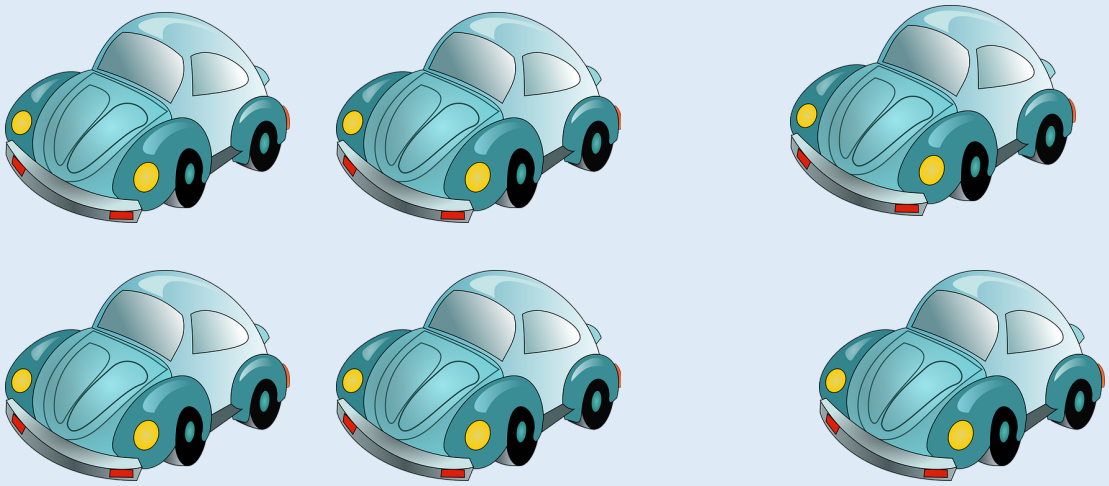


4 + _____ = _____

There are _____ cars.

Activity 1 Add More

How many cars are there in total?

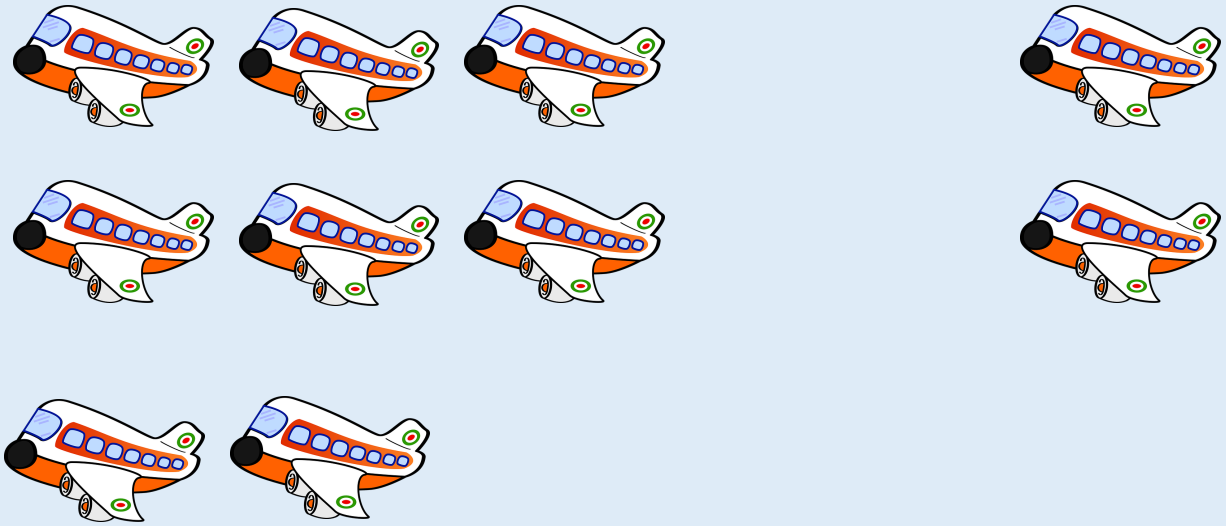


$4 + \underline{2} = \underline{6}$

There are $\underline{6}$ cars.

Activity 1 Add More

How many aeroplanes are there in total?

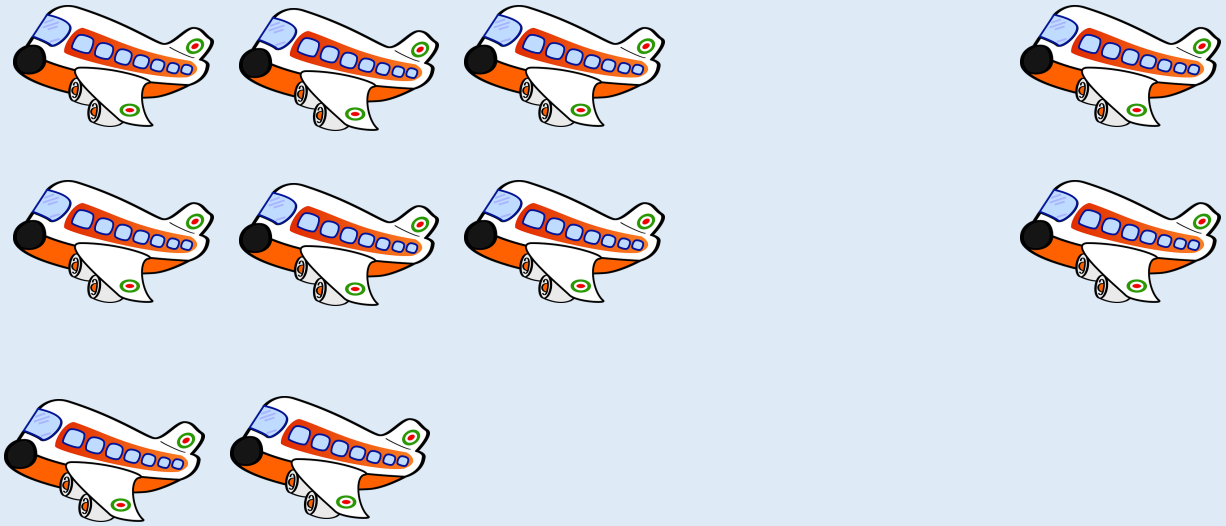


8 + _____ = _____

There are _____ aeroplanes.

Activity 1 Add More

How many aeroplanes are there in total?



$8 + \underline{2} = \underline{10}$

There are 10 aeroplanes.

Activity 2 Add More

There are 3 aeroplanes at the airport. 5 more aeroplanes land. How many aeroplanes are there now?

Now there are ____ aeroplanes.

How could we represent this as a number sentence?

What number sentence will represent this?

Activity 2 Add More

There are 3 aeroplanes at the airport. 5 more aeroplanes land. How many aeroplanes are there now?

3 + 5 = 8

Now there are 8 aeroplanes.

Activity 3 Add More

There are four pennies in a bag and I add two more.
How many pennies do I have now?

There are _____ pennies.

?

How many do you have now?

Activity 3 Add More

There are four pennies in a bag and I add two more.
How many pennies do I have now?

There are 6 pennies.

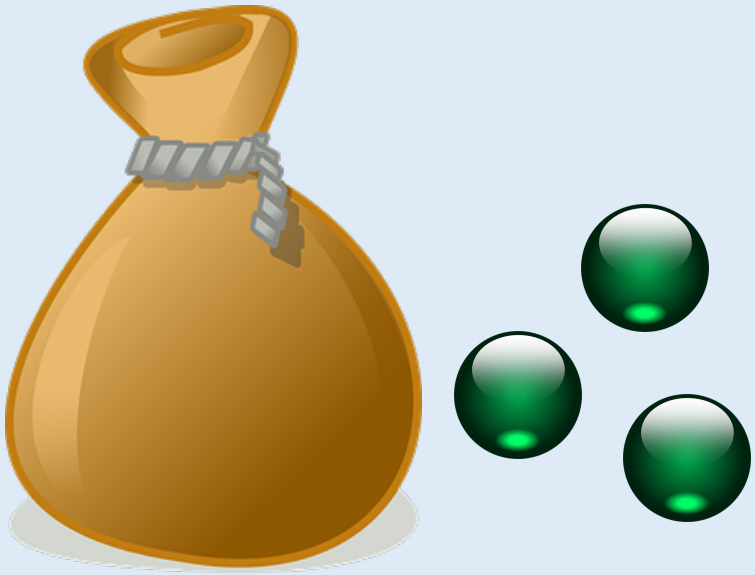
$6 = 4 + 2$

Activity 3 Add More

There are two marbles in a bag and I add three more.
How many marbles do I have now?

There are _____ marbles.

$$\square = \square + \square$$

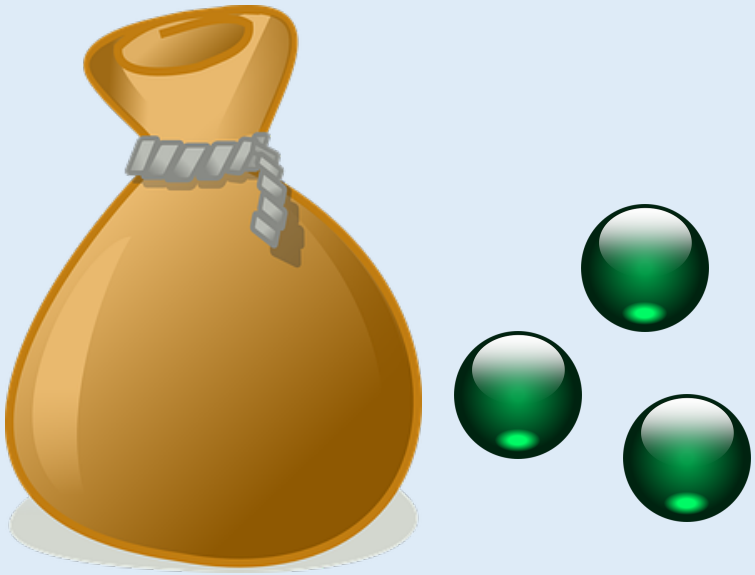


Activity 3 Add More

There are two marbles in a bag and I add three more.
How many marbles do I have now?

There are 5 marbles.

5	=	2	+	3



True or False?

If I add 1 to a number, the number stays the same.

Can you use a number line or counters to help you explain your answer?

True or False?

False. Because when you add 1 to a number the number increases by one every time.

Reasoning - 2 Add More

Rosie has used the number track to complete 4 + 3. She thinks the total is 6.

1	2	3	4	5	6	7	8

What mistakes has she made? How could Rosie use the number track to find the answer?

Reasoning - 2 Add More

Rosie has used the number track to complete 4 + 3. She thinks the total is 6.

1	2	3	4	5	6	7	8

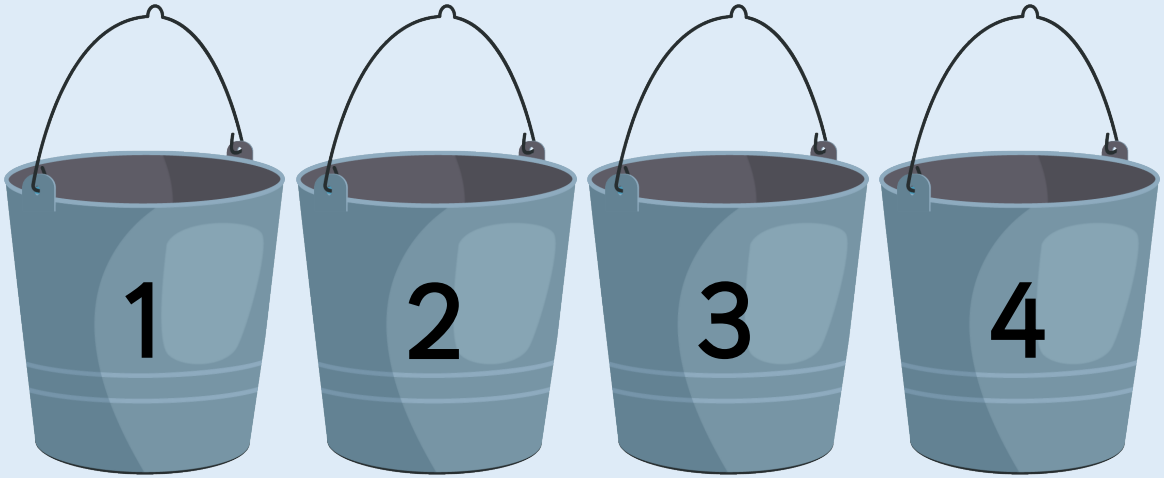
She has included the starting number. To find the correct answer Rosie could start counting from 5, or she could put the 4 on and then the 3 to show that the answer is 7.

Reasoning - 3

Add More

Leanna has two marbles.

She throws them into buckets.
The number on the bucket shows how many points she gets for a marble landing in that bucket.
One of her marbles lands in bucket 2.



Reasoning - 3

Add More

Leanna has two marbles.

What is the highest score she can get by throwing the second marble bag and adding the scores?

What is the lowest score she can get by throwing the second marble bag and adding the scores?

Explain why she can't get a total of 9.

Reasoning - 3 Add More

Leanna has two marbles.

What is the highest score she can get by throwing the second marble bag and adding the scores?

What is the lowest score she can get by throwing the second marble bag and adding the scores?

Explain why she can't get a total of 9.

The highest score she can get is a 6.
The lowest score she can get is a 2 if she misses the buckets with her second marble bags.

She can get 9 because she got 2 with her first marble bag, so she would need 7 and there isn't a bucket with 7 on.

Discussion

Add More

How many did you have to begin with?
How many more have been added?
How many do you have now?

What number sentence will represent this?

When using resources/images to find the answer, do I need to make/draw both numbers?

Do I have to start with the largest number?
Why is it more efficient to start with the larger number?

Find a Part

1

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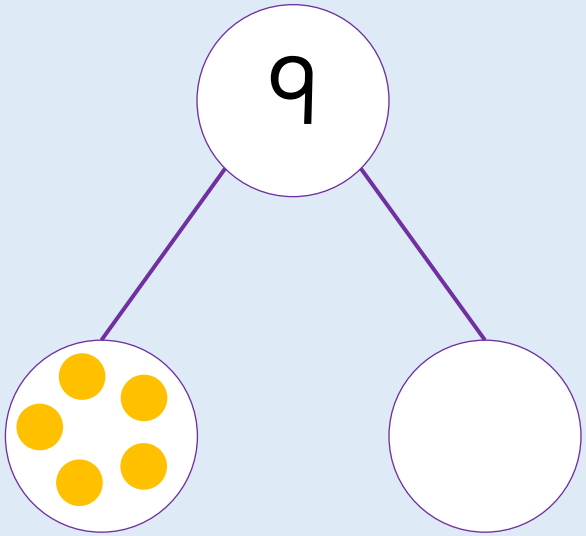
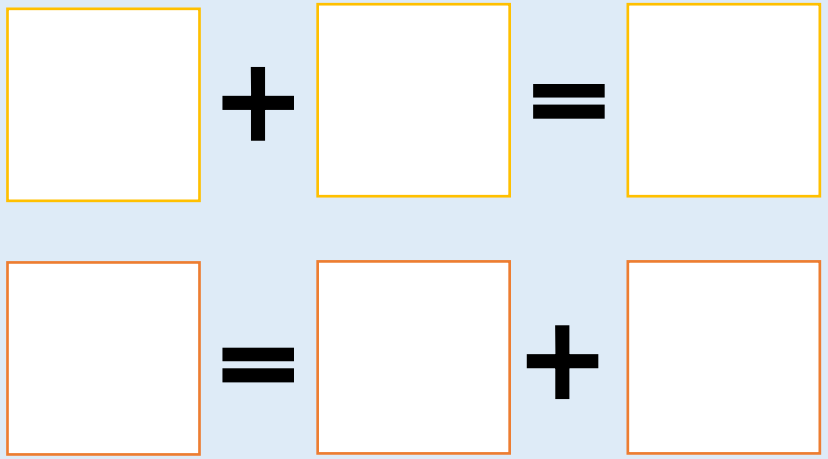
Activity 1 Find a Part

Complete the part-whole model and use it to fill in the number sentences.



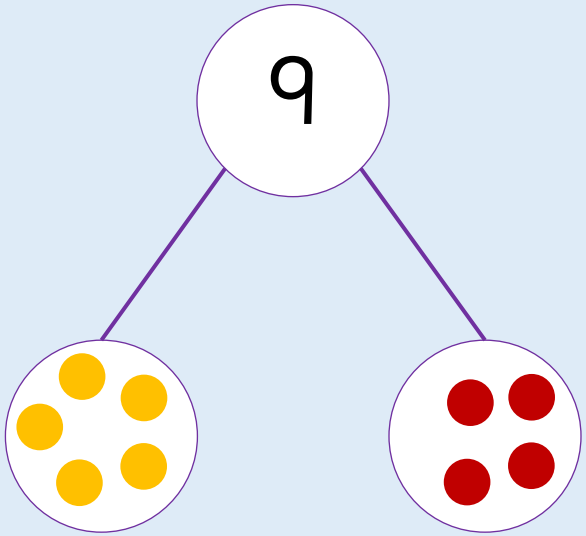


5 is a part, _____ is a part, 9 is the whole.

How can we count on to find the missing part?

Activity 1 Find a Part

Complete the part-whole model and use it to fill in the number sentences.



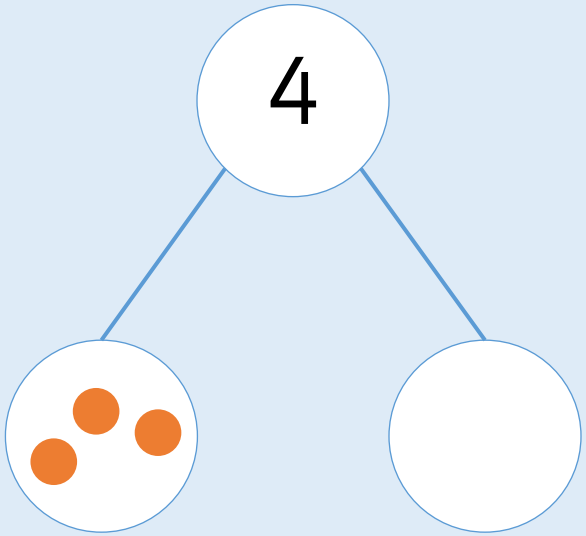
$5 + 4 = 9$

$9 = 5 + 4$

5 is a part, 4 is a part, 9 is the whole.

Activity 1 Find a Part

Complete the part-whole model and use it to fill in the number sentences.



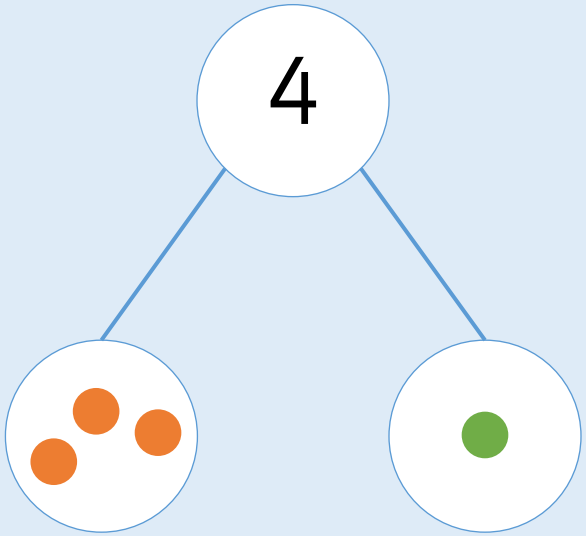
$\square + \square = \square$

$\square = \square + \square$

3 is a part, _____ is a part, 4 is the whole.

Activity 1 Find a Part

Complete the part-whole model and use it to fill in the number sentences.



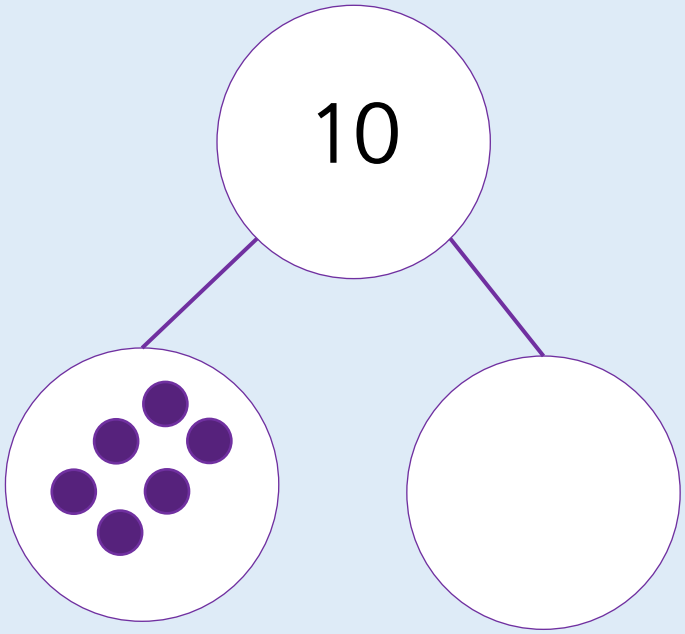
$3 + 1 = 4$

$4 = 3 + 1$

3 is a part, 1 is a part, 4 is the whole.

Activity 1 Find a Part

Complete the part-whole model and use it to fill in the number sentences.



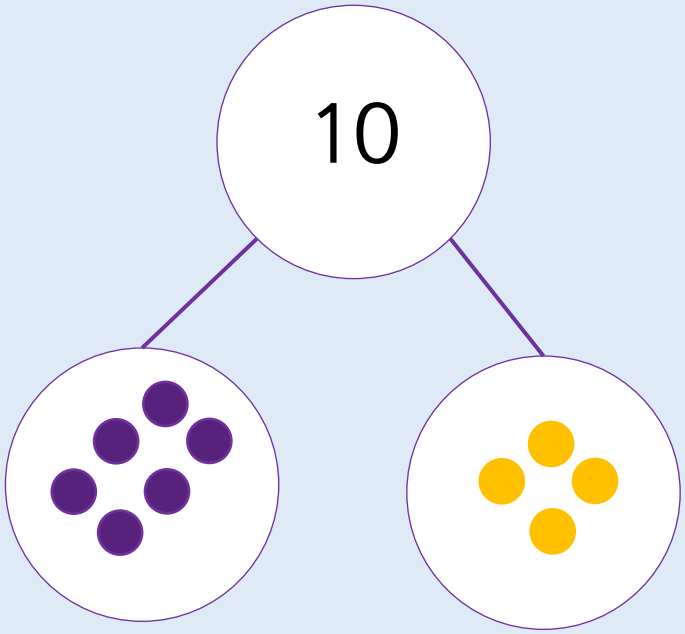
$\square + \square = \square$

$\square = \square + \square$

6 is a part, _____ is a part, 10 is the whole.

Activity 1 Find a Part

Complete the part-whole model and use it to fill in the number sentences.



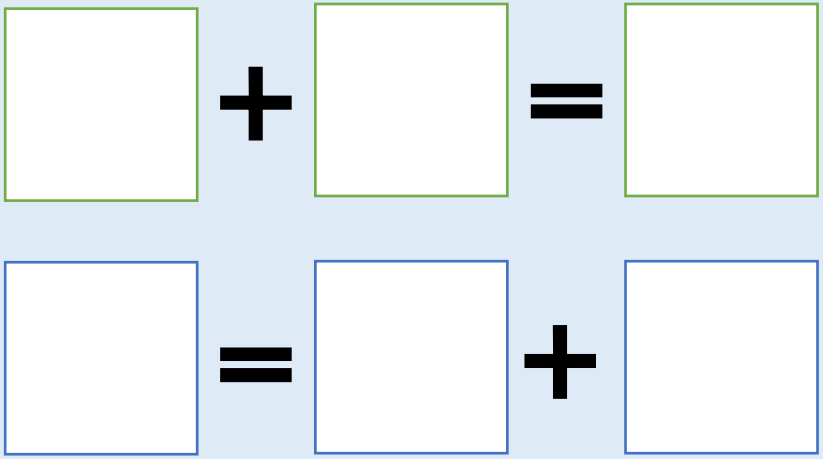
$6 + 4 = 10$

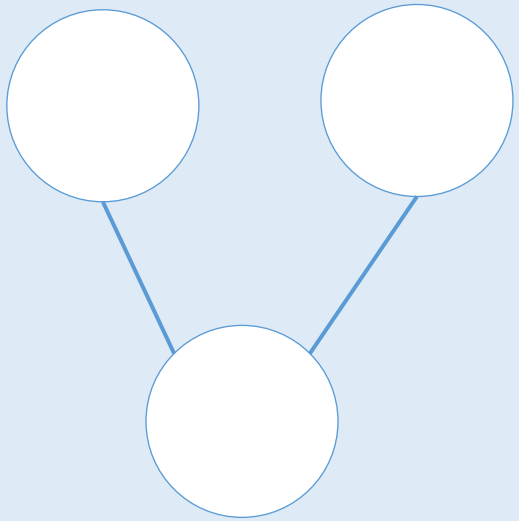
$10 = 6 + 4$

6 is a part, 4 is a part, 10 is the whole.

Activity 2 Find a Part

There are seven cars in total. Seven of them are green.
How many of them are yellow?





7 is a part, _____ is a part, 7 is the whole.

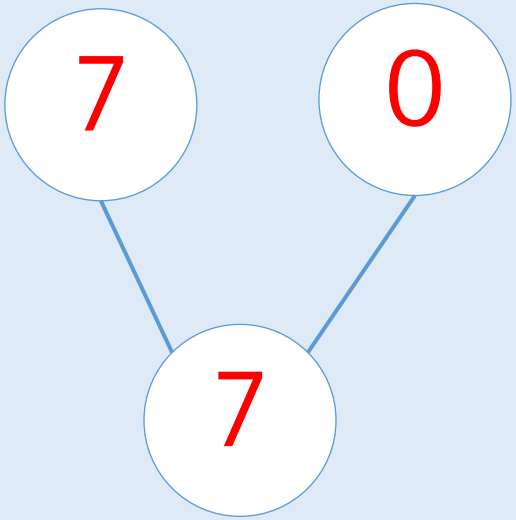
What number sentence would represent what we currently have/know?

Activity 2 Find a Part

There are seven cars in total. Seven of them are green.
How many of them are yellow?

$7 + 0 = 7$

$7 = 7 + 0$

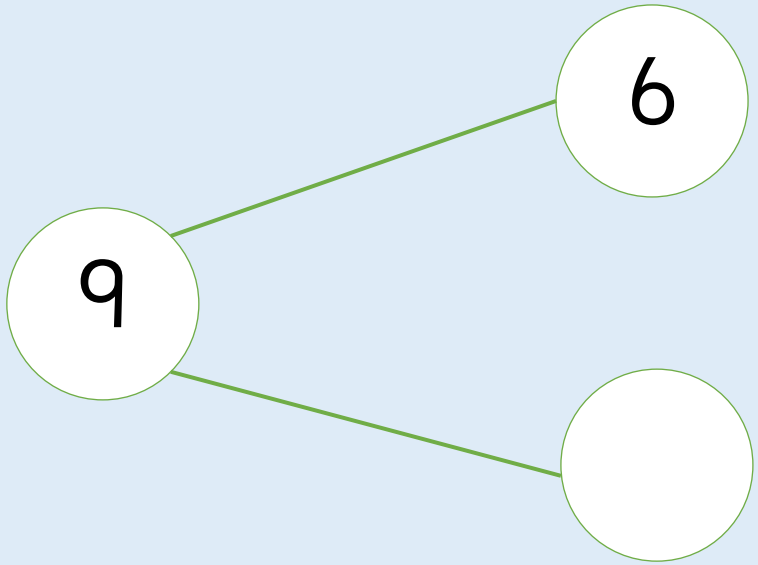


7 is a part, 0 is a part, 7 is the whole.

0 are yellow.

Activity 3 Find a Part

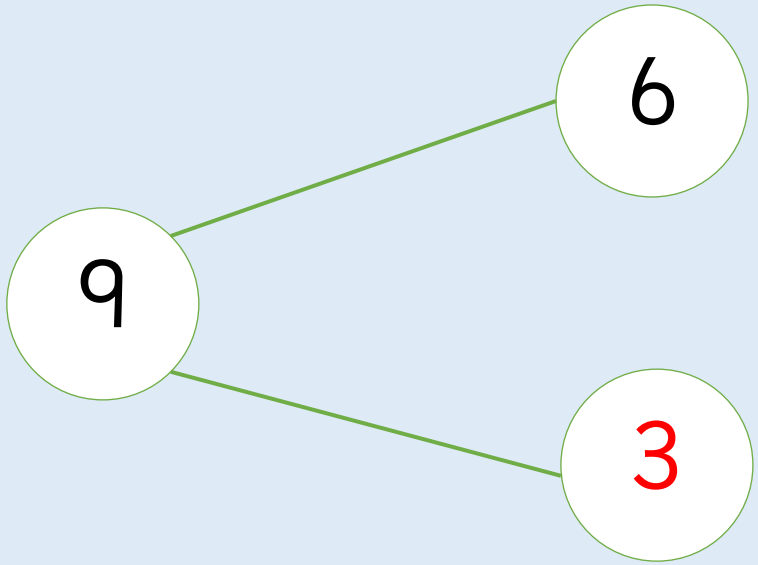
Write your own story to complete the part-whole model.



Do you know the value of the whole?

Activity 3 Find a Part

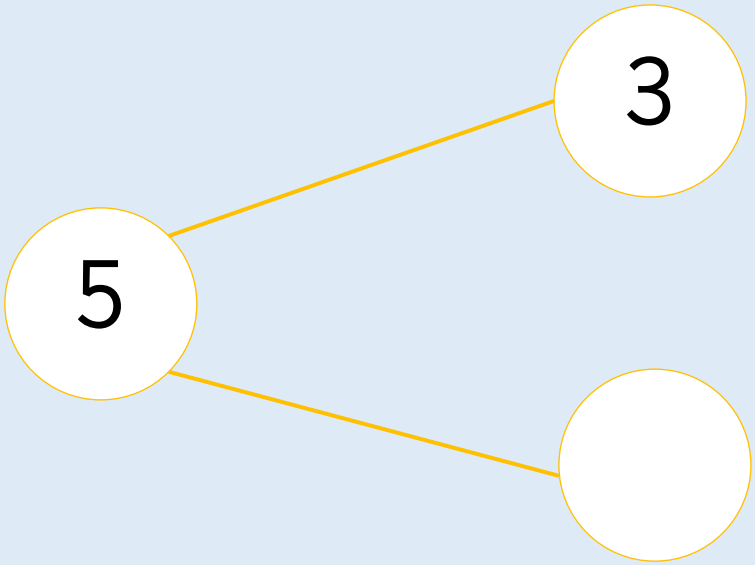
Write your own story to complete the part-whole model.



My story:
There are 9 doughnuts.
6 of them have pink icing and 3 of them have blue icing.

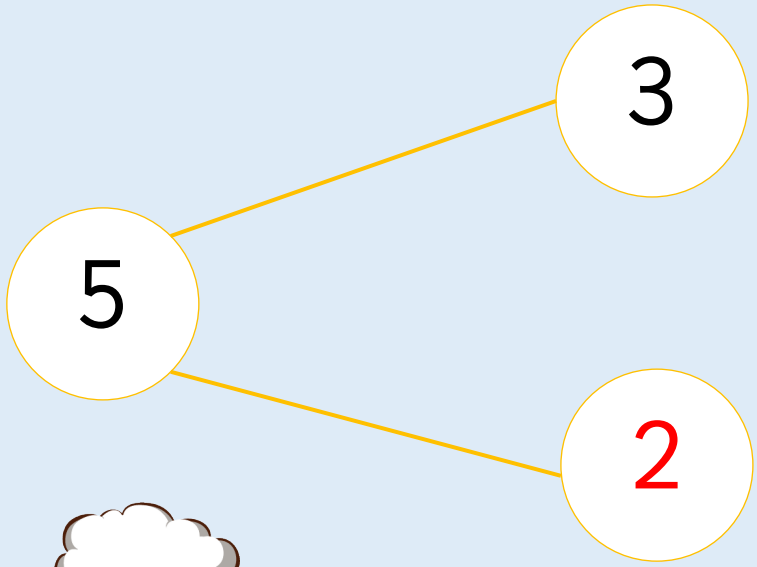
Activity 3 Find a Part

Write your own story to complete the part-whole model.



Activity 3 Find a Part

Write your own story to complete the part-whole model.



My story:
There are 5 sweets. 3 of them are strawberry flavour and 2 of them are blueberry flavour.

Reasoning - 1

Find a Part

10p

8p

5p

10p

7p

5p

Tia

Tia spends 15p on a chocolate bar and something else. What else could she have bought? Explain how you know.

Zach

Zach spent 10p on a lollipop and an ice cream. How much is the ice cream? Explain how you know.

Malachi

Malachi spent 18p on a chocolate bar and something for his brother. What did he buy for his brother? Explain how you know.

Reasoning - 1 Find a Part

10p

8p

5p

10p

7p

5p

Tia

Tia could buy a lollipop or an ice cream as they are both 5p and 10p + 5p = 15p

Zach

An ice cream costs 5p because 5p + 5p = 10p

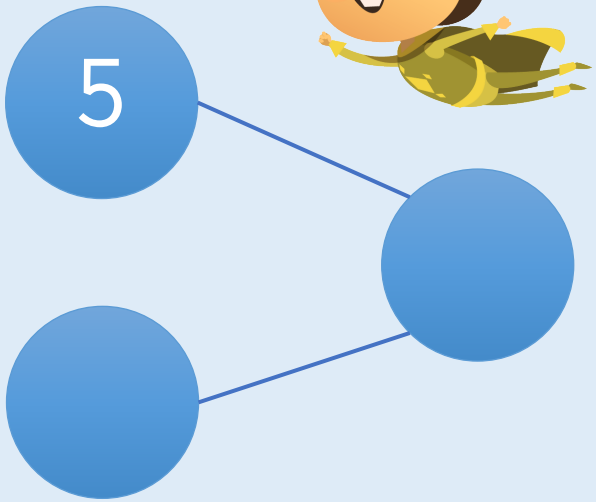
Malachi

Malachi bought his brother a cupcake because 10p + 8p = 18p

Reasoning - 2 Find a Part

Using the digits 0 - 9, how many ways can you complete the part-whole model? One of the parts has to be 5.

You can only use each digit once.



Explain why you can't use 0.

What other digits can't you use and why?

Reasoning - 2 Find a Part

Using the digits 0 - 9, how many ways can you complete the part-whole model? One of the parts has to be 5.

It could be:

- 5, 1 and 6
- 5, 2 and 7
- 5, 3 and 8
- 5, 4 and 9

You can't use zero because the whole would have to be 5 and then it would be repeated.

Discussion

Find a Part

Do you know the value of both parts?
Do you know the value of the whole?

How can we count on to find the missing part?

What number sentence would represent what we currently have/know?

Where will the numbers from the word problem go in the part-whole model?

Where are we counting on from? How do you know?
Where are we counting to? How do you know?

How Many Left? (1)

1

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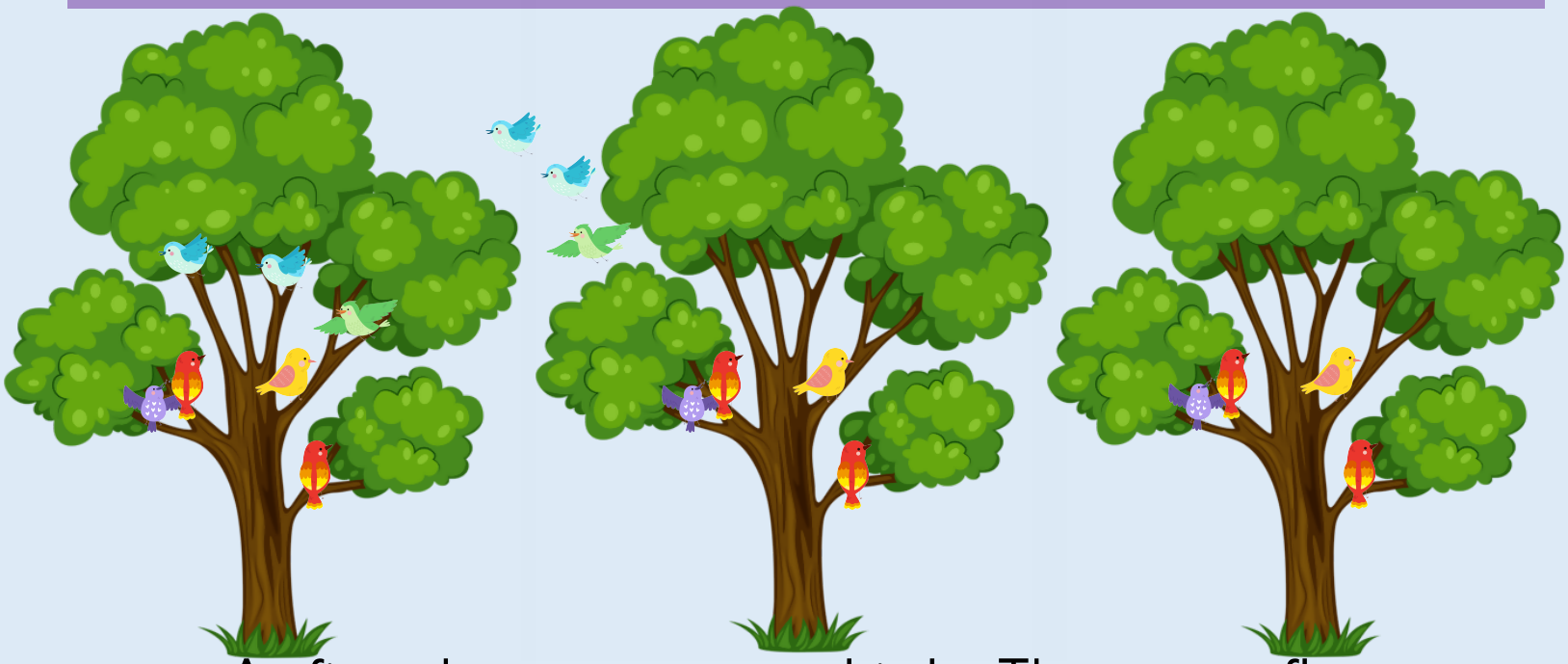
Activity 1 — How Many Left? (1)

There were 7 birds in a tree and 3 flew away.
Complete the sentences.



At first there were ____ birds. Then ____ flew away. Now there are ____ birds in the tree.

How many objects were there to start with?

Activity 1 How Many Left? (1)

There were 7 birds in a tree and 3 flew away.
Complete the sentences.

At first there were 7 birds. Then 3 flew away. Now there are 4 birds in the tree.

Activity 1 How Many Left? (1)

There were 5 birds in a tree and 3 flew away.
Complete the sentences.

At first there were ____ birds. Then ____ flew away. Now there are ____ birds in the tree.

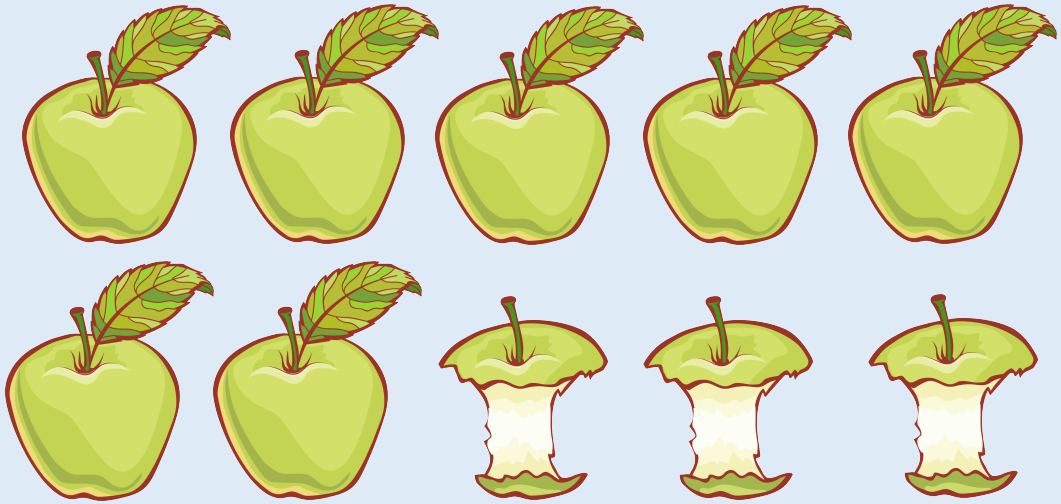
Activity 1 How Many Left? (1)

There were 5 birds in a tree and 3 flew away.
Complete the sentences.

At first there were 5 birds. Then 3 flew away. Now there are 2 birds in the tree.

Activity 2 How Many Left? (1)

Complete the sentences to create a story and draw a part-whole model.

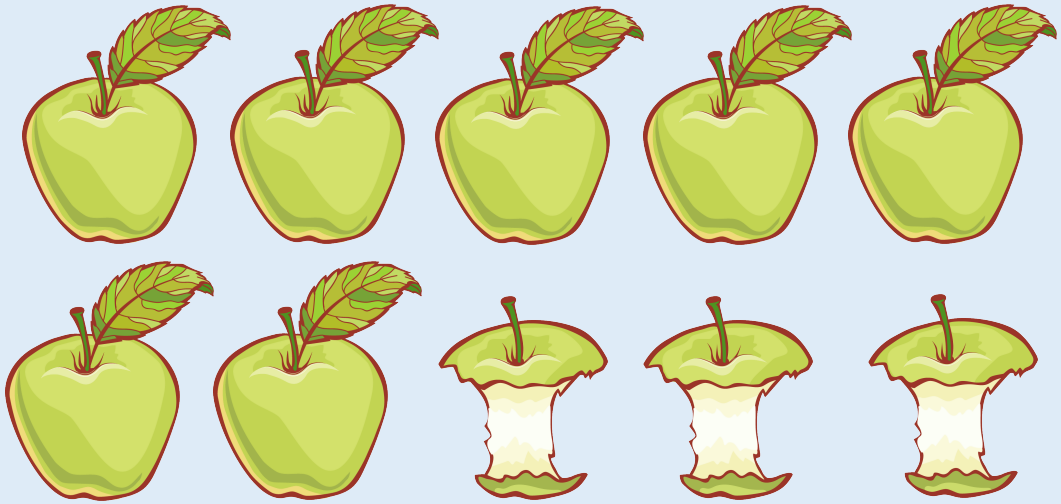


At first there were ____ apples. Then ____ were eaten. Now there are ____ apples.

Do we need to count all or can we count on?

Activity 2 How Many Left? (1)

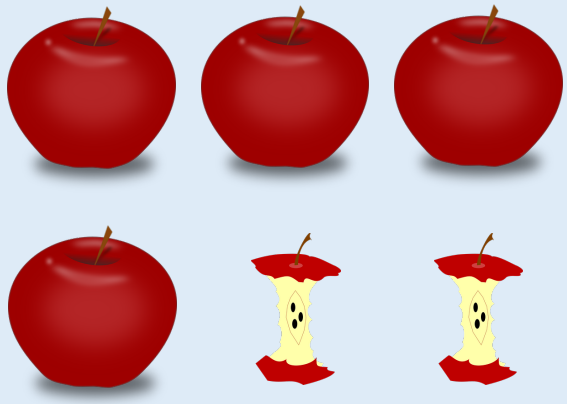
Complete the sentences to create a story and draw a part-whole model.



At first there were 10 apples. Then 3 were eaten. Now there are 7 apples.

Activity 2 How Many Left? (1)

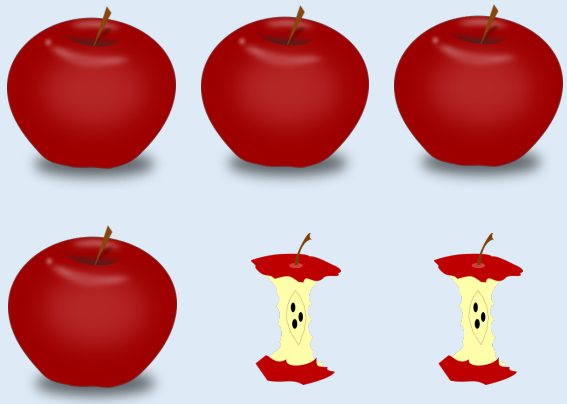
Complete the sentences to create a story and draw a part-whole model.



At first there were ____ apples. Then ____ were eaten. Now there are ____ apples.

Activity 2 How Many Left? (1)

Complete the sentences to create a story and draw a part-whole model.



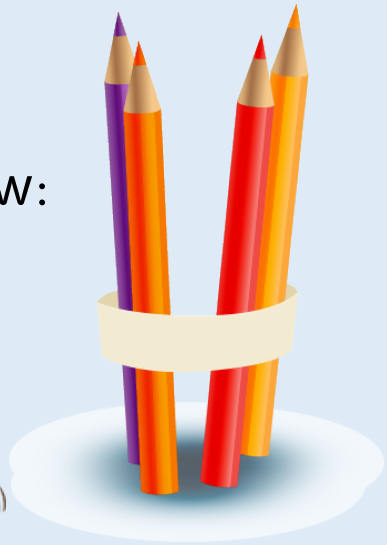
At first there were 6 apples. Then 2 were eaten. Now there are 4 apples.

Activity 3 How Many Left? (1)

Write a story to go with the pictures and draw a part-whole model.

First:

Now:



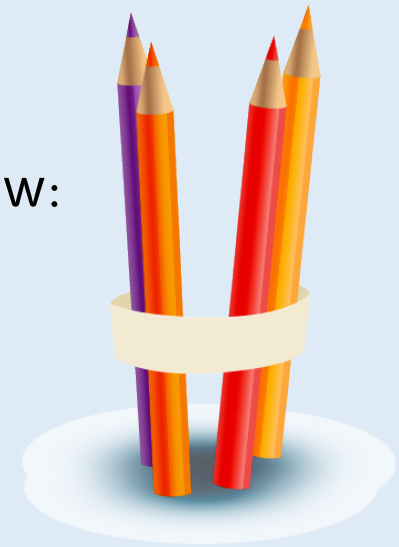
What could the story be? How many did we start with?

Activity 3 How Many Left? (1)

Write a story to go with the pictures and draw a part-whole model.

First:

Now:



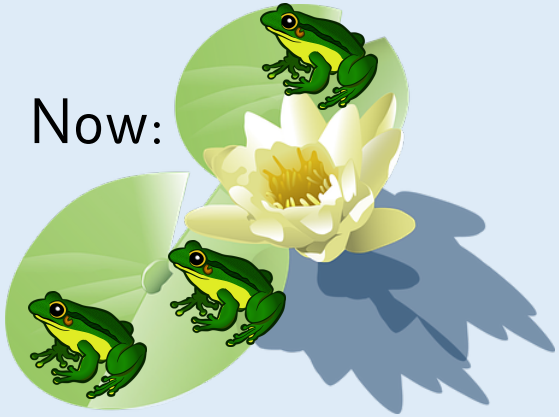
At first there were 9 pencils.
Then 5 were borrowed.
Now there are 4 pencils.

Activity 3 How Many Left? (1)

Write a story to go with the pictures and draw a part-whole model.

First:

Now:

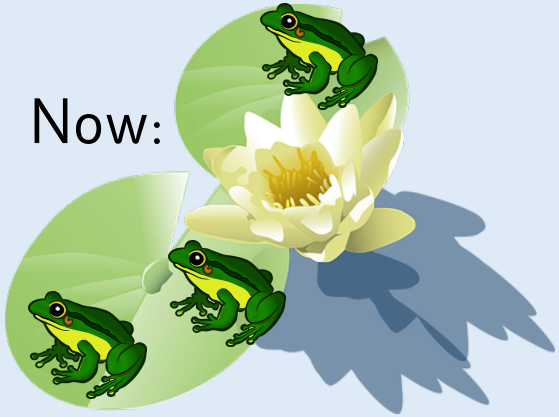


Activity 3 How Many Left? (1)

Write a story to go with the pictures and draw a part-whole model.

First:

Now:



At first there were 4 frogs.
Then 1 jumped off. Now there are 3 frogs.

Reasoning - 1 How Many Left? (1)

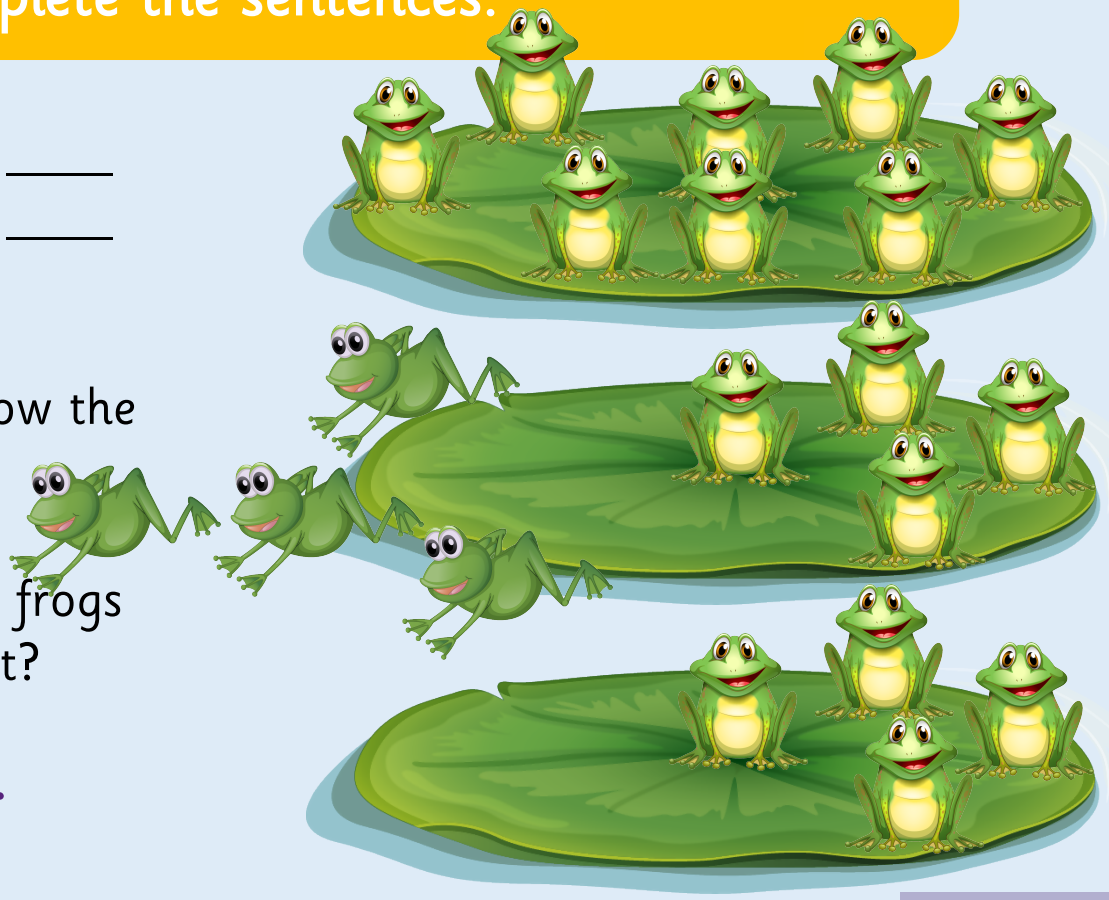
Some frogs are on a lily pad. These frogs jumped off and there are four frogs remaining. Complete the sentences.

First there were ____ frogs. The ____ frogs jumped off. Now there are ____ frogs on the lily pad.

In the 'then' picture, do the 4s show the same thing? Why not?

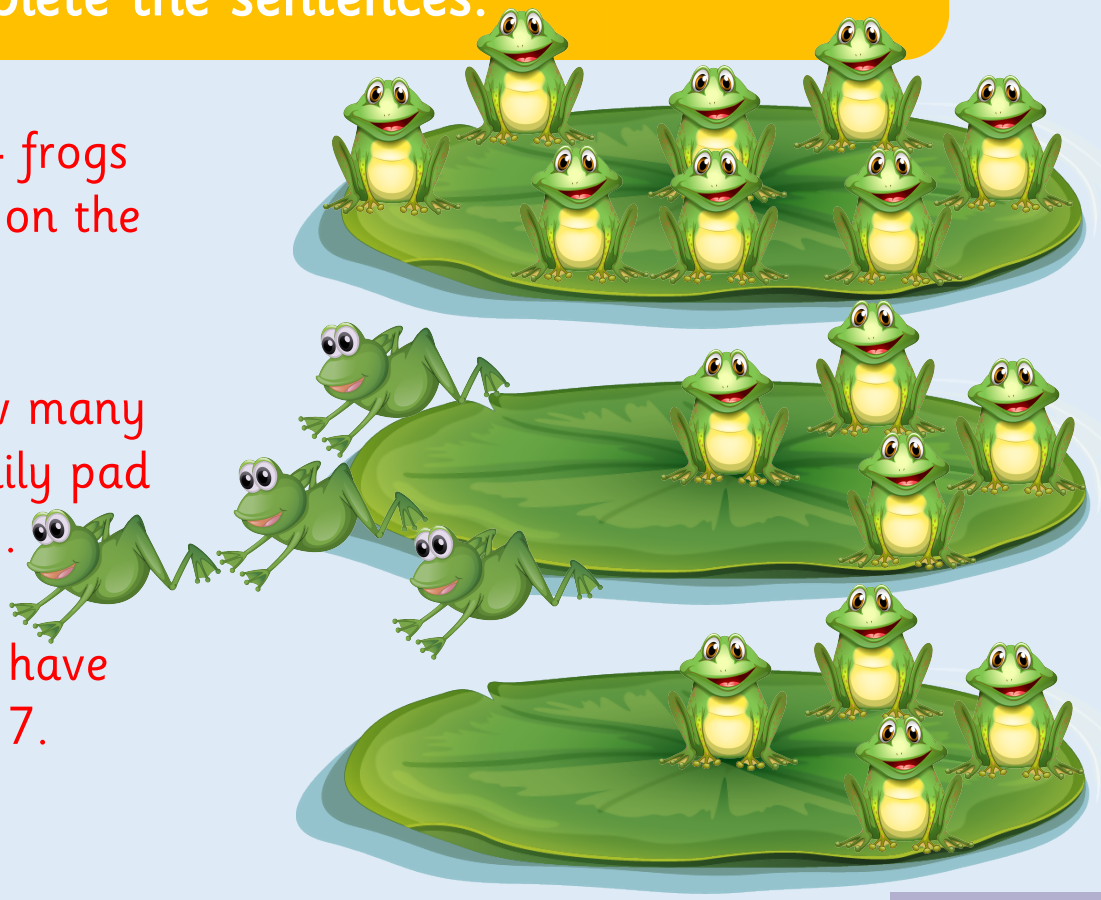
What if 5 jumped off, how many frogs would there have been at first?

Explain how you know.



Reasoning - 1 How Many Left? (1)

Some frogs are on a lily pad. These frogs jumped off and there are four frogs remaining.
Complete the sentences.



At first there were 8 frogs. Then 4 frogs jumped off. Now there are 4 frogs on the lily pad.

No, the 4 on the lily pad show how many are left. The 4 that are not on the lily pad show many were taken away.

If 5 jumped off, the whole would have been 9 because 4 and 5 make 7.

Reasoning - 2 How Many Left? (1)

Some cakes have been eaten. There are 3 cakes left. How many cakes could have been, and how many could have been eaten to be left with 3?

Explain your reasons.

Reasoning - 2 How Many Left? (1)

Some cakes have been eaten. There are 3 cakes left. How many cakes could have been, and how many could have been eaten to be left with 3?

There could have been 10 and 7 were eaten, 9 and 6 were eaten, 8 and 5 were eaten etc.

Children might use cubes/ten frames etc. to help them take away and finish with 2.

Discussion

How Many Left? (1)

How many objects were there to start with?

Do we need to count all or can we count on?

What could the story be? How many did we start with?

What number can we use to show that nothing has gone away/been taken away?

How Many Left? (2)

1

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Activity 1 — How Many Left? (2)

Complete the number sentence.

$7 - 2 = _____$

How many counters were there at first?

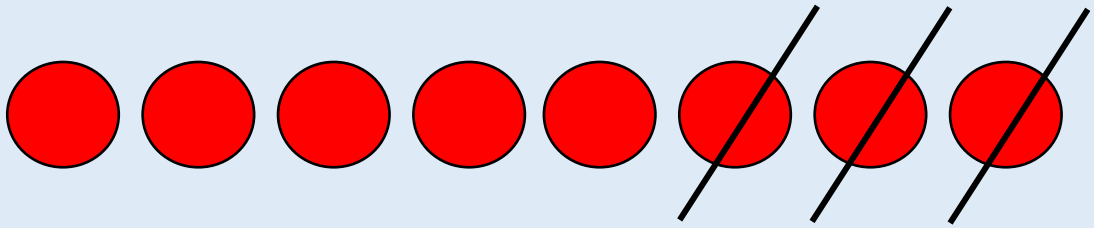
Activity 1 How Many Left? (2)

Complete the number sentence.

$7 - 2 = \underline{\quad 5 \quad}$

Activity 1 — How Many Left? (2)

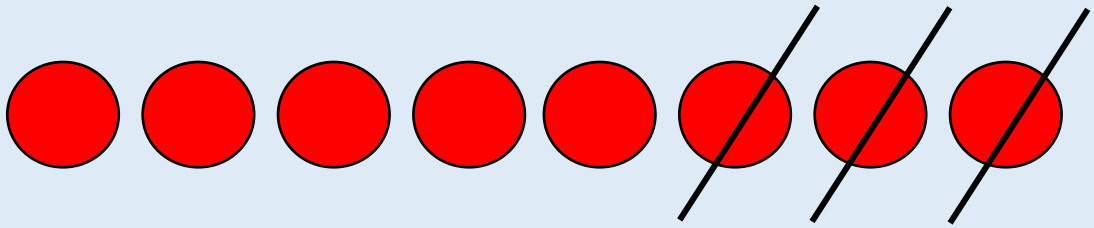
Complete the number sentence.



$$8 - 3 = \square$$

Activity 1 How Many Left? (2)

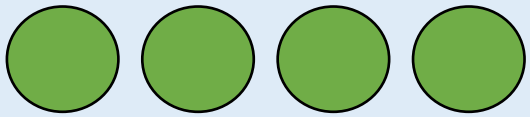
Complete the number sentence.



$$\boxed{8} - \boxed{3} = \boxed{5}$$

Activity 1 — How Many Left? (2)

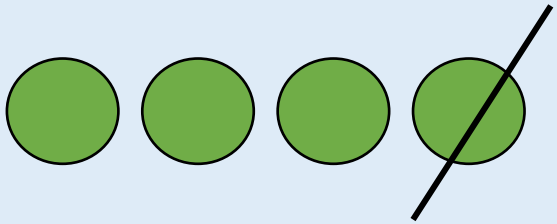
Complete the number sentence.



4	–	1	=	

Activity 1 — How Many Left? (2)

Complete the number sentence.



4	–	1	=	3

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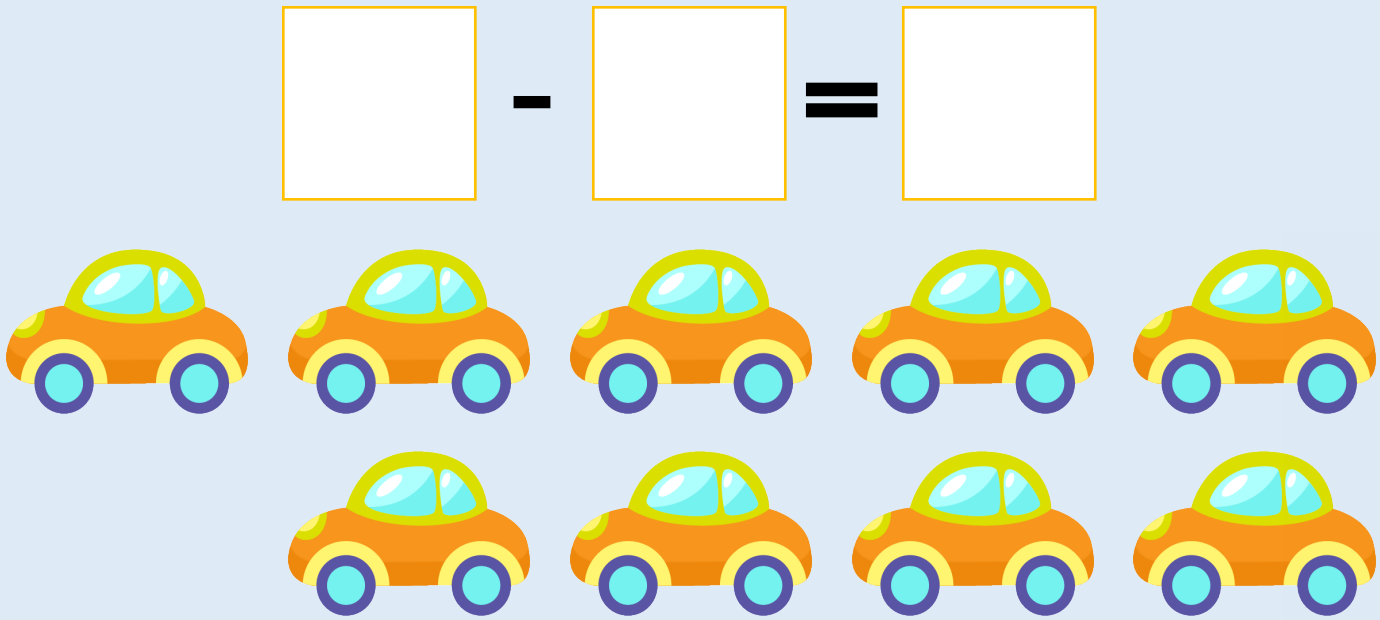
Activity 2 How Many Left? (2)

Zach has 9 toy cars. He gives 5 of them away.
How many does he have left?



How many are there now?

Activity 2 How Many Left? (2)

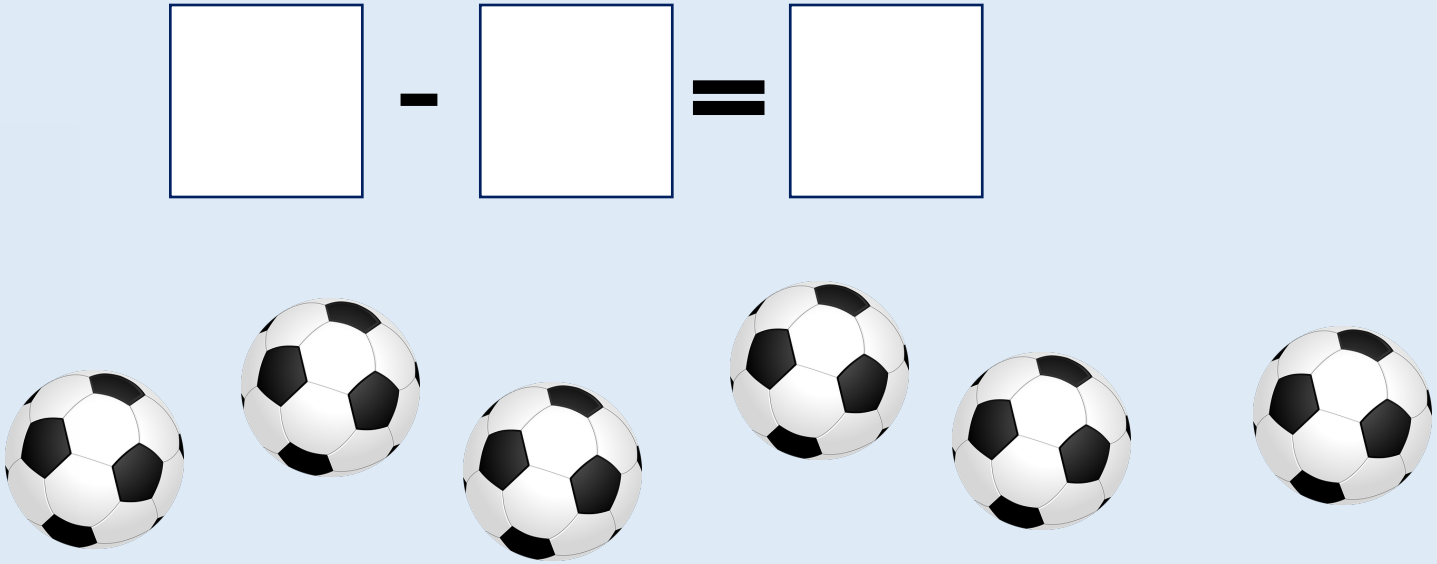
Zach has 9 toy cars. He gives 5 of them away.
How many does he have left?

9	-	5	=	4

Activity 2

How Many Left? (2)

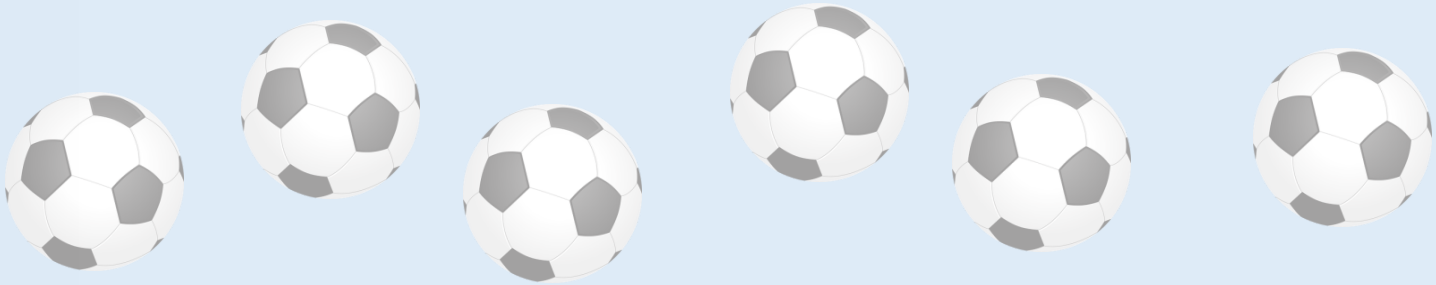
Malachi has 6 footballs. He gives 6 away.
How many does he have left?



Activity 2 How Many Left? (2)

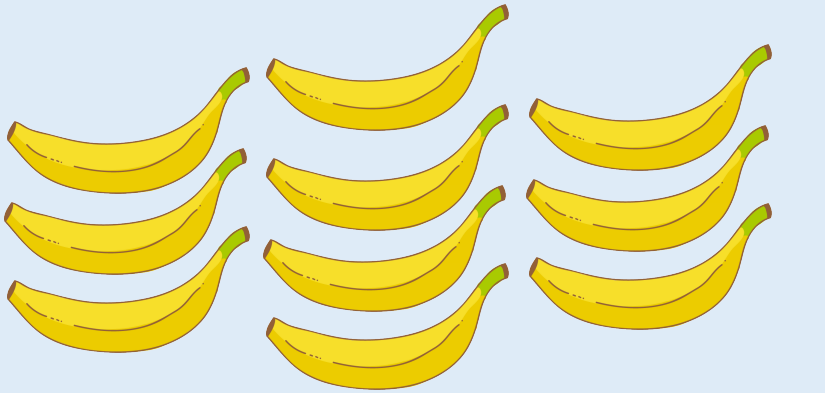
Malachi has 6 footballs. He gives 6 away.
How many does he have left?

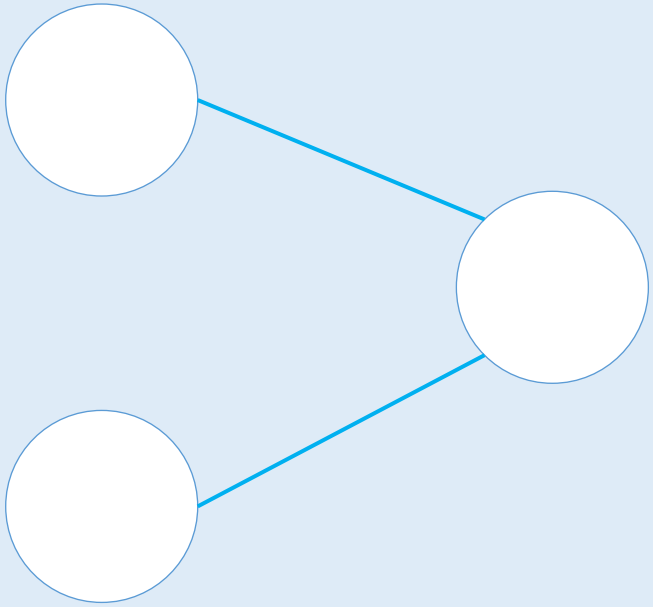
$$6 - 6 = 0$$



Activity 3 How Many Left? (2)

At first there were 10 bananas. 7 of them were eaten.
How many bananas are left?
Use counters/cube to help you solve and complete:



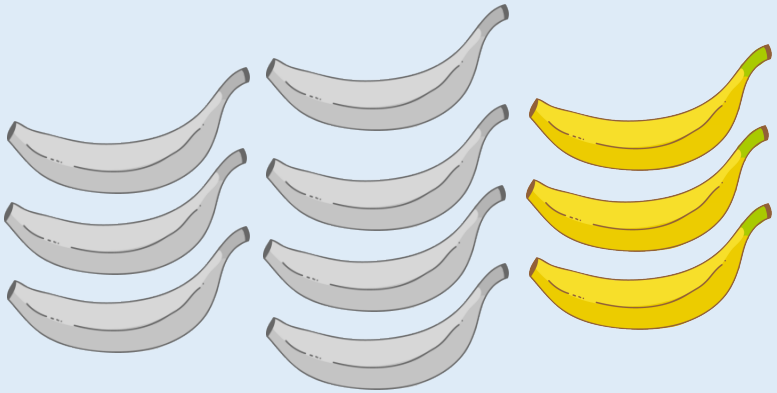


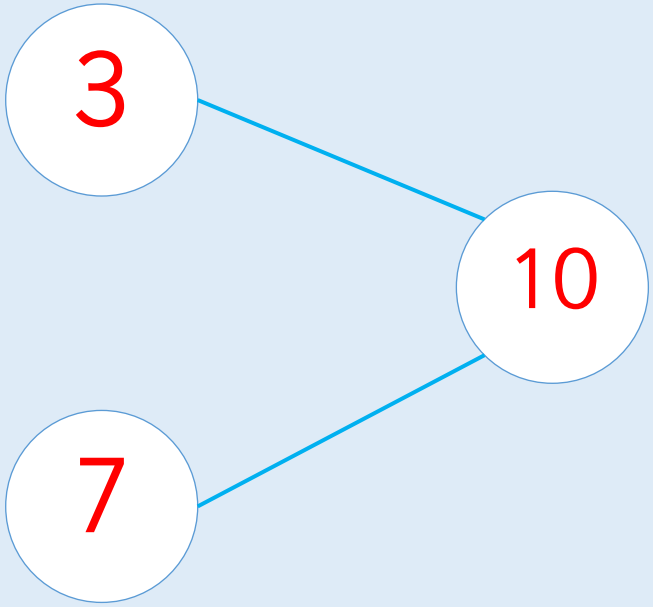
Can you draw an image to show this?

Activity 3 How Many Left? (2)

At first there were 10 bananas. 7 of them were eaten.
How many bananas are left?
Use counters/cube to help you solve and complete:

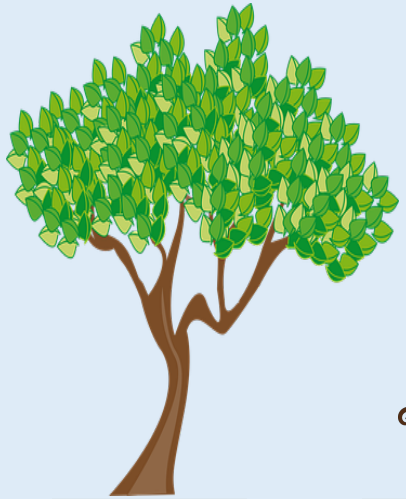
10 - 7 = 3

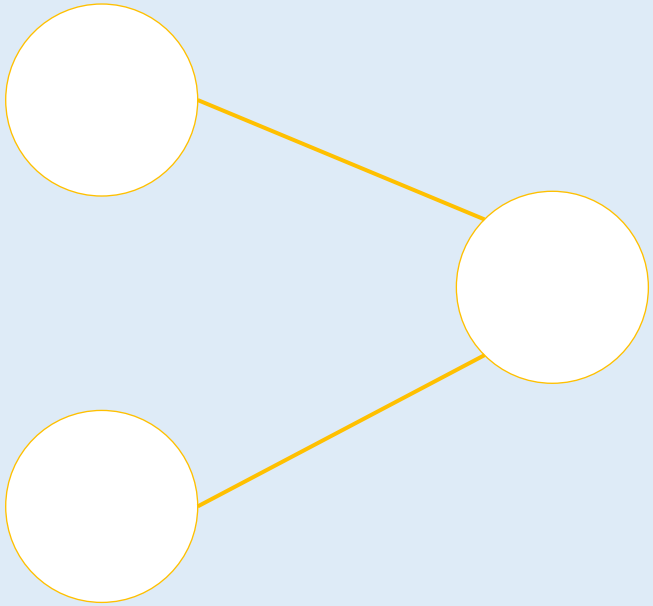




Activity 3 How Many Left? (2)

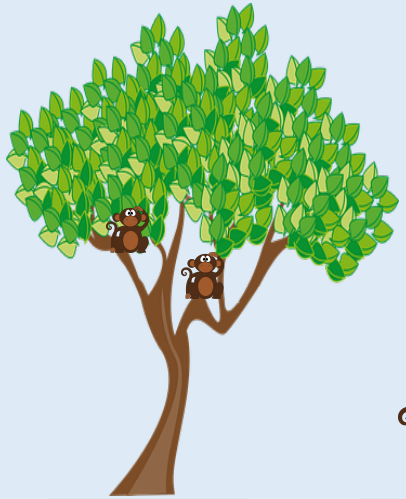
At first there were 5 monkeys. 2 ran up a tree.
How many monkeys are left?
Use counters/cube to help you solve and complete:

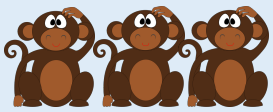




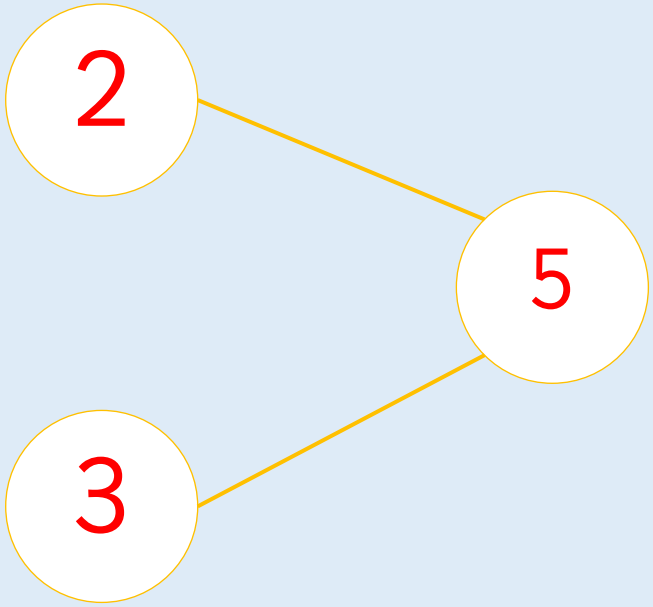
Activity 3 How Many Left? (2)

At first there were 5 monkeys. 2 ran up a tree. How many monkeys are left?
Use counters/cube to help you solve and complete:





5	-	2	=	3



Reasoning - 1 How Many Left? (2)

How many ways can you get an answer of 1?

$\square - \square = 1$

What is the rule?

Reasoning - 1 How Many Left? (2)

How many ways can you get an answer of 1?

10 – 9, 9 – 8, 8 – 7 etc.

The rule is that to get one, you have to take away the number that is one lesser with the number you started.

Reasoning - 2 How Many Left? (2)

How many calculations can you complete?

$\square = 7 - \square$

Why can't the digits 9 or 10 be used?

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Reasoning - 2 How Many Left? (2)

How many calculations can you complete?

Children could write:

6 = 7 – 1

5 = 7 – 2 etc.

You can't use 8 or 9 because there are only 7 bees to begin with.

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Discussion

How Many Left? (2)

How many counters were there at first? How many were taken away? How many are there now? Can you draw an image to show this?

What can we use to represent the cars? How many will you start with? Why? How many will you take away? Why?

What is the same and what is different about the calculations?

Subtraction – Break Apart

1

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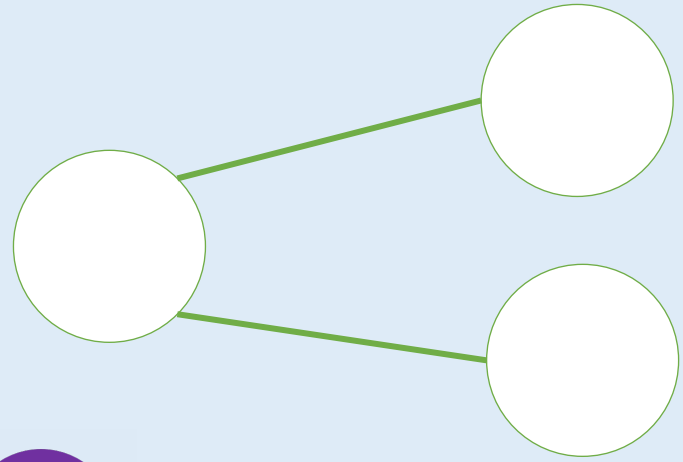
Activity 1 Subtraction – Break Apart

How many ice creams do not have chocolate?

There are ____ ice creams that do not have chocolate.



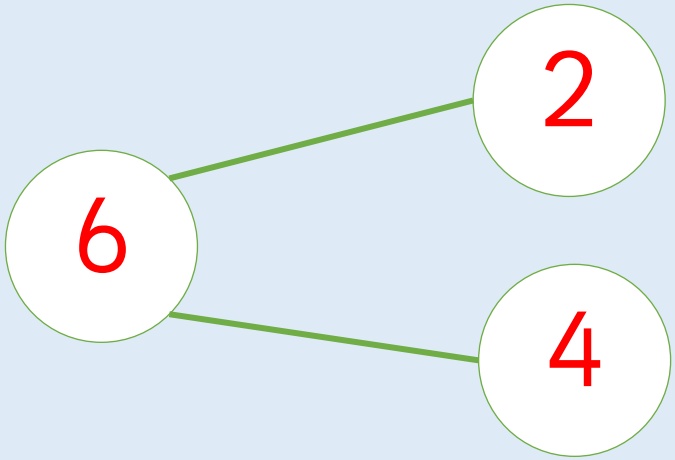
6 – 2 = ____

What is the whole? What are the parts?

Activity 1 Subtraction – Break Apart

How many ice creams do not have chocolate?

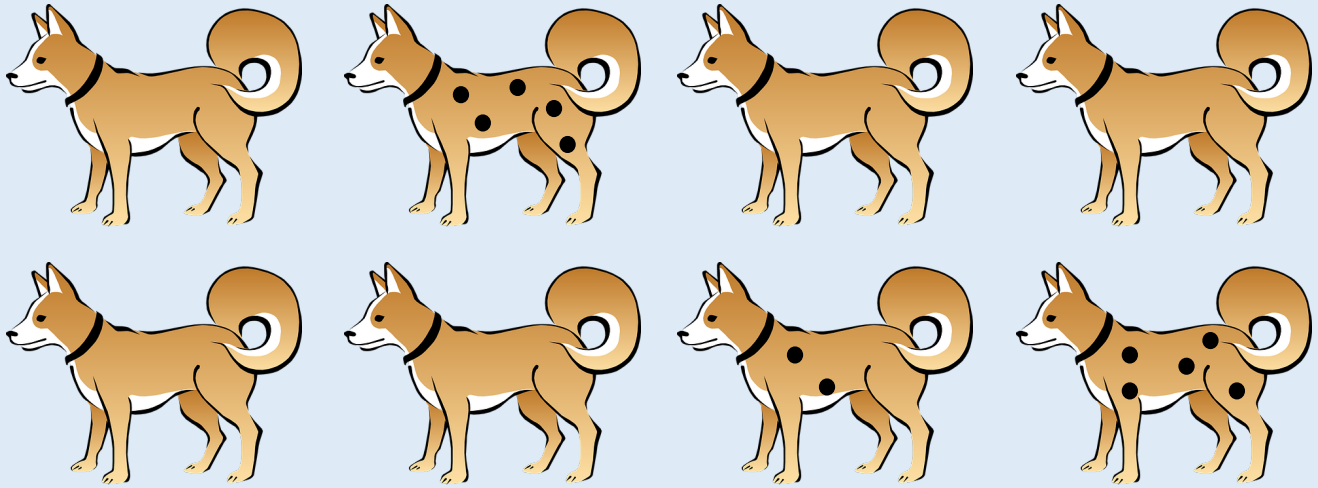
There are 4 ice creams that do not have chocolate.

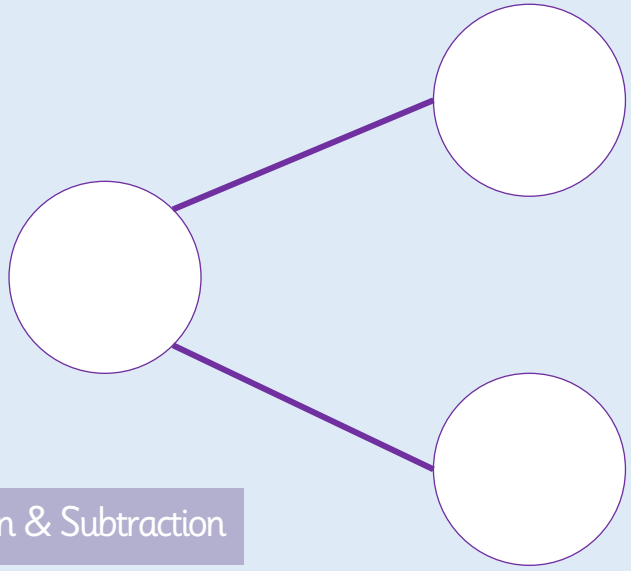


$6 - 2 = 4$

Activity 1 Subtraction – Break Apart

How many dogs do not have spots?





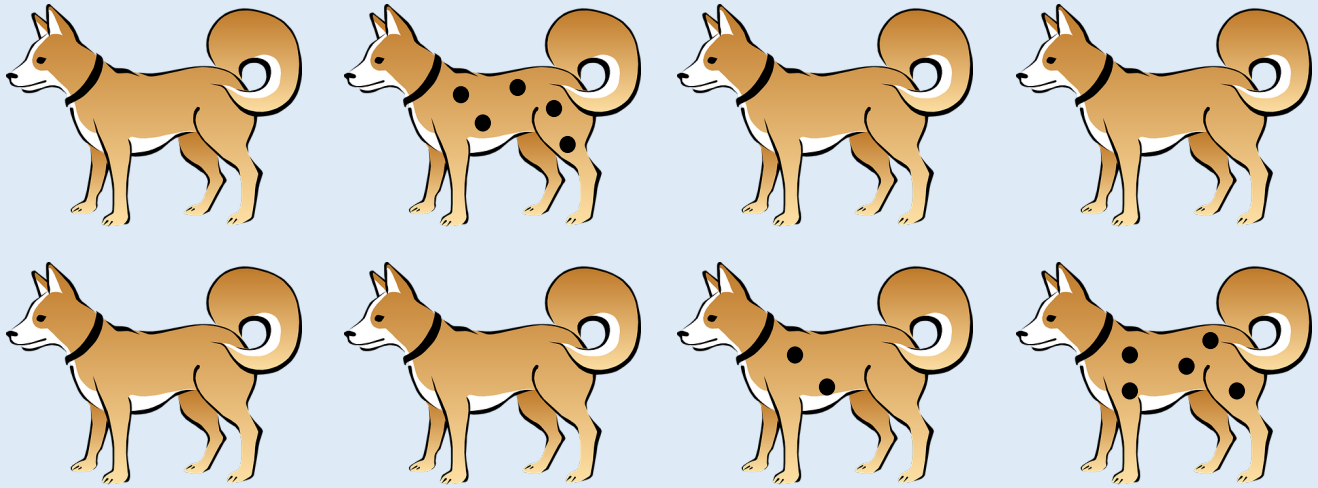
There are ____ dogs that do not have spots.

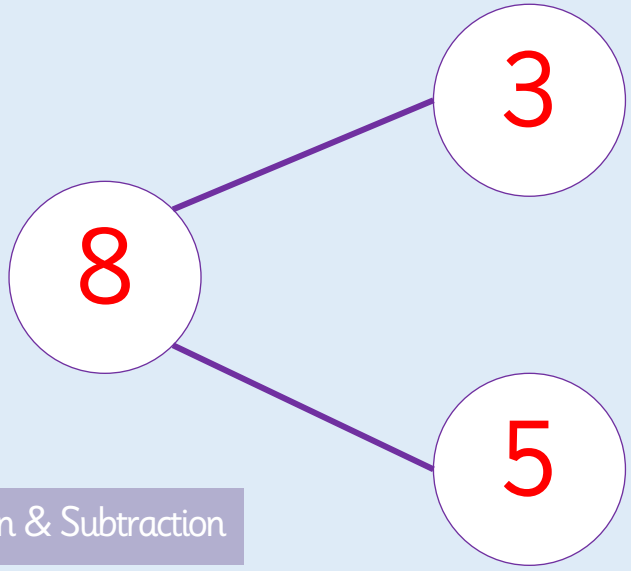
8 – 3 = _____

Activity 1

Subtraction – Break Apart

How many dogs do not have spots?



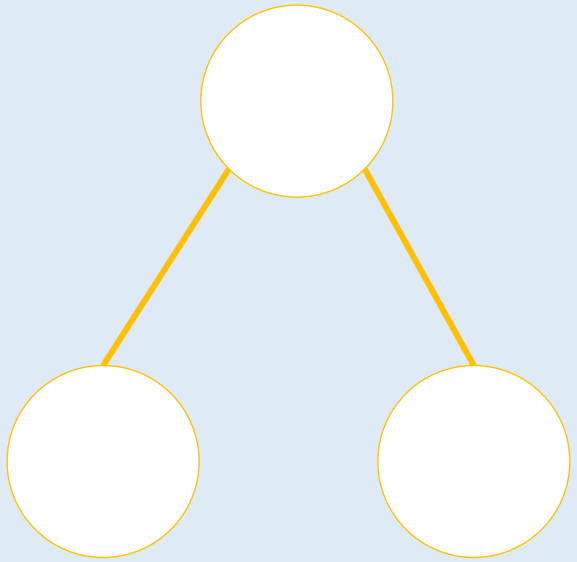


There are 5 dogs that do not have spots.

$8 - 3 = 5$

Activity 2 Subtraction – Break Apart

There are 9 party hats altogether. 4 of them are red. The rest are blue. How many are blue?

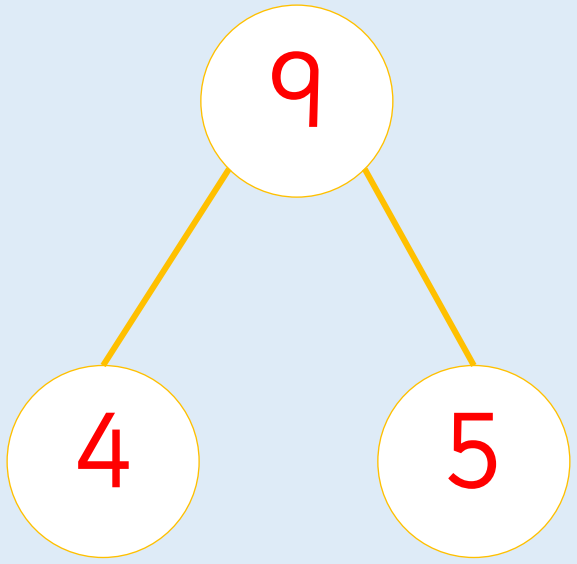


____ = 9 – 4

If __ is the whole, and __ is the part, what is the other part?

Activity 2 Subtraction – Break Apart

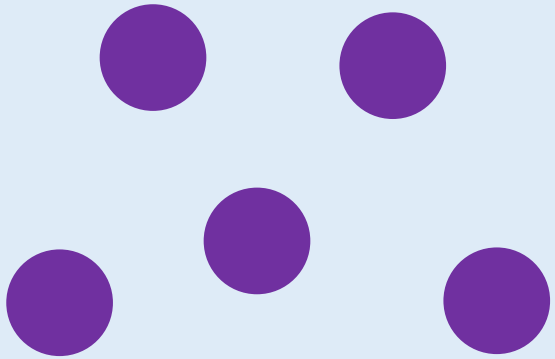
There are 9 party hats altogether. 4 of them are red. The rest are blue. How many are blue?



$\underline{5} = 9 - 4$

Activity 3 Subtraction – Break Apart

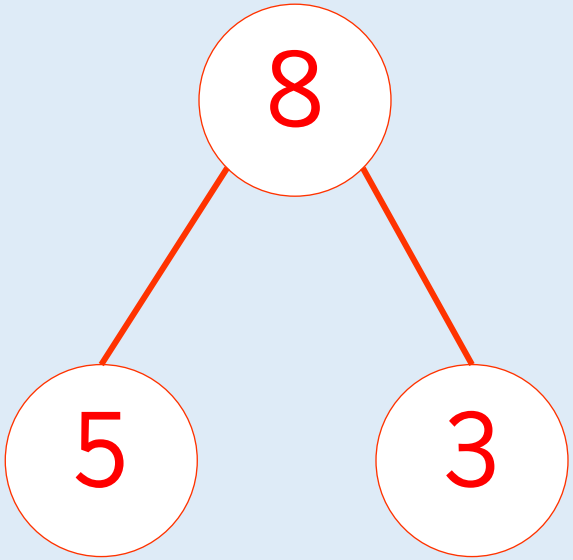
In total there are 8 counters.
How many counters are there in the bag?
Show this in a part-whole model and as a calculation.



How many ways can I partition 8 into parts?

Activity 3 Subtraction – Break Apart

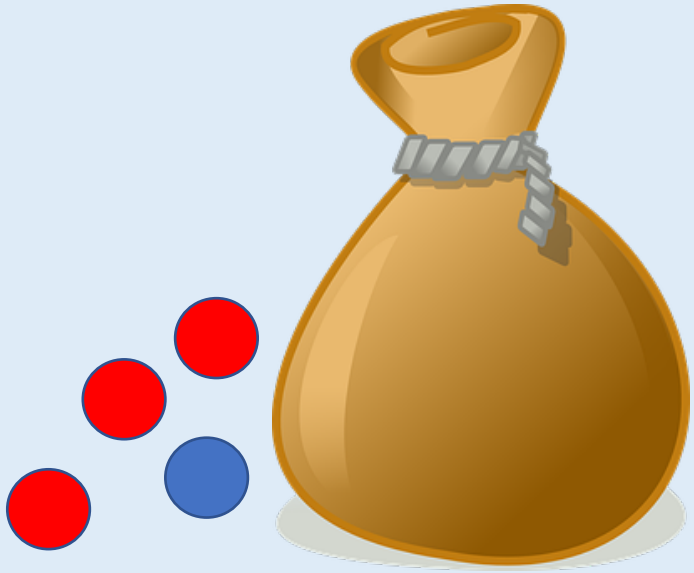
In total there are 8 counters.
How many counters are there in the bag?
Show this in a part-whole model and as a calculation.



$\underline{3} = 8 - 5$

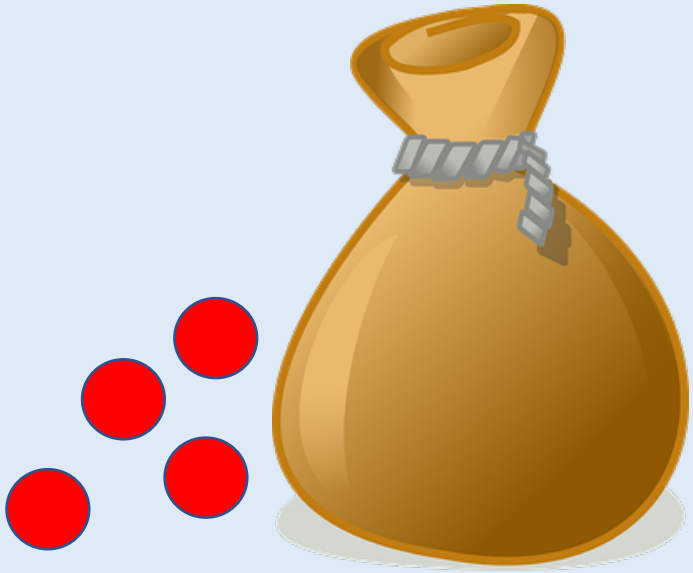
Activity 3 Subtraction – Break Apart

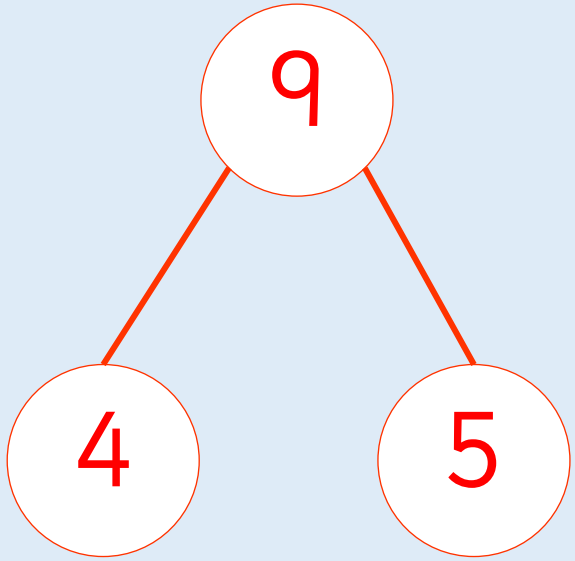
In total there are 9 counters.
How many counters are there in the bag?
Show this in a part-whole model and as a calculation.



Activity 3 Subtraction – Break Apart

In total there are 9 counters.
How many counters are there in the bag?
Show this in a part-whole model and as a calculation.



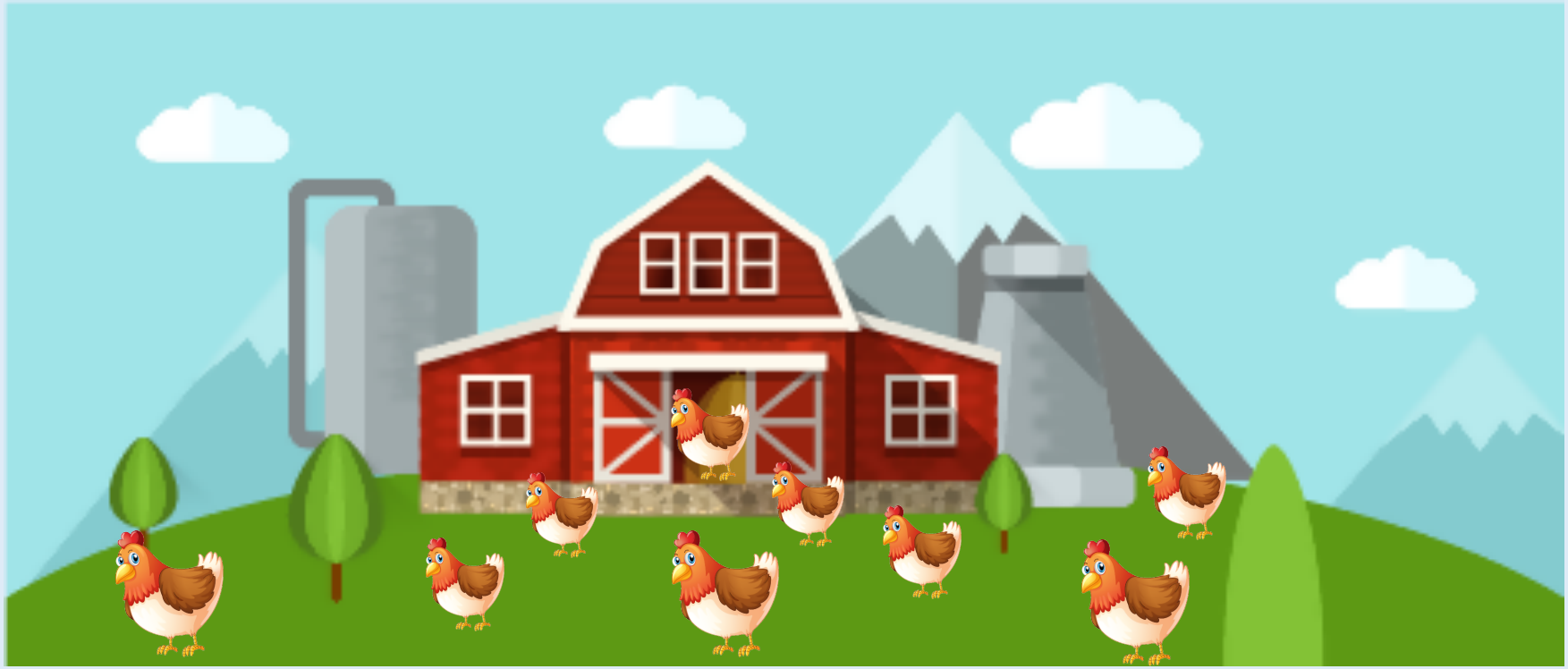


$\underline{5} = 9 - 4$

Reasoning - 1

Subtraction – Break Apart

Think of two questions to ask your friend about the image.



Represent your questions and answers in a part-whole model and as a number sentence.

Reasoning - 1 Subtraction – Break Apart

Think of two questions to ask your friend about the image.

Examples:

There are 9 chickens in total. 8 of them are outside the barn.
How many chickens are inside the barn?

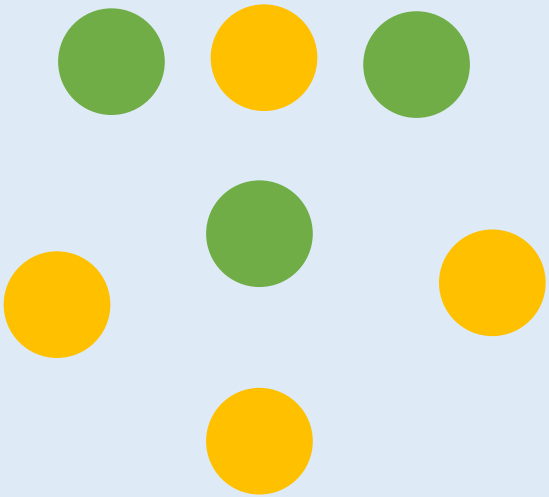
There are 9 chickens in total.
1 of them is inside the barn. How many chicken are outside the barn?

Etc.

Reasoning - 2

Subtraction – Break Apart

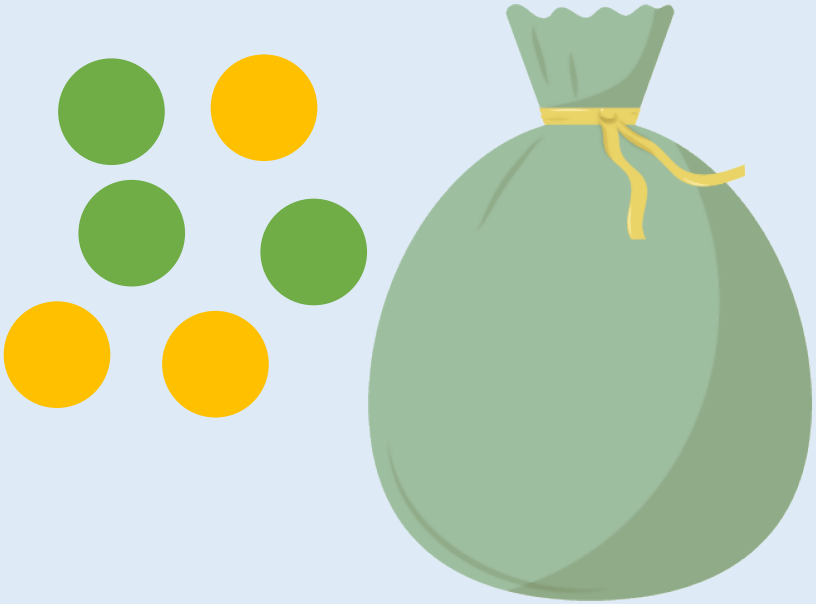
There are no more than 10 counters in total.



How many counters could be in the bag? Why can't it be five?

Reasoning - 2 Subtraction – Break Apart

There are no more than 10 counters in total.



There could be 4, 3, 2, 1 or 0.

There can't be five because then there would be 11 counters in total which is more than 10.

Discussion

Subtraction – Break Apart

What is the whole? What are the parts?

If ___ is the whole, and ___ is a part, what is the other part?

How many ways can I partition 8 into parts? Use two hoops and 8 counters to support.

Fact Families – 8 Facts

1

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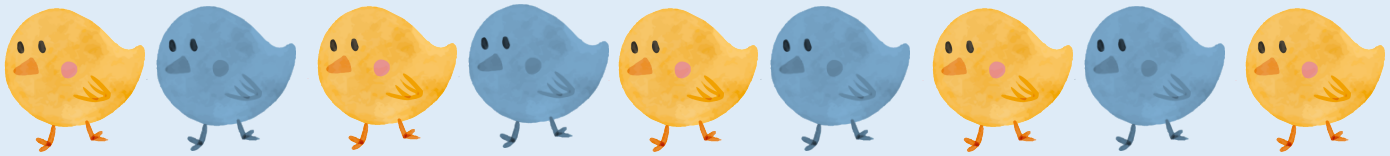
Activity 1 Fact Families – 8 Facts

Using the image, how many calculations can you create?

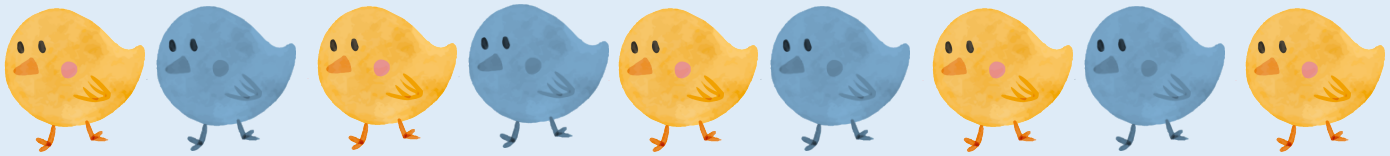


____ + ____ = ____	____ = ____ + ____
____ + ____ = ____	____ = ____ + ____
____ − ____ = ____	____ = ____ − ____
____ − ____ = ____	____ = ____ − ____

How many will you start with? Why?

Activity 1 Fact Families – 8 Facts

Using the image, how many calculations can you create?



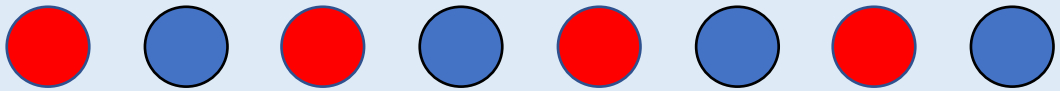
5 + 4 = 9	9 = 5 + 4
4 + 5 = 9	9 = 4 + 5
9 − 5 = 4	4 = 9 − 5
9 − 4 = 5	5 = 9 − 4

How many will you start with? Why?

Activity 1

Fact Families – 8 Facts

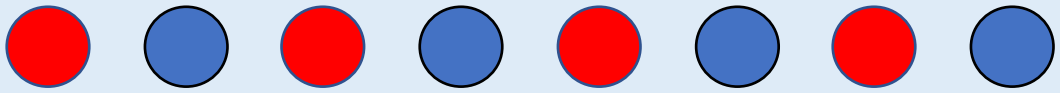
Using the image, how many calculations can you create?



____ + ____ = ____	____ = ____ + ____
____ + ____ = ____	____ = ____ + ____
____ − ____ = ____	____ = ____ − ____
____ − ____ = ____	____ = ____ − ____

Activity 1 Fact Families – 8 Facts

Using the image, how many calculations can you create?



$4 + 4 = 8$

$4 + 4 = 8$

$8 - 4 = 4$

$8 - 4 = 4$

$8 = 4 + 4$

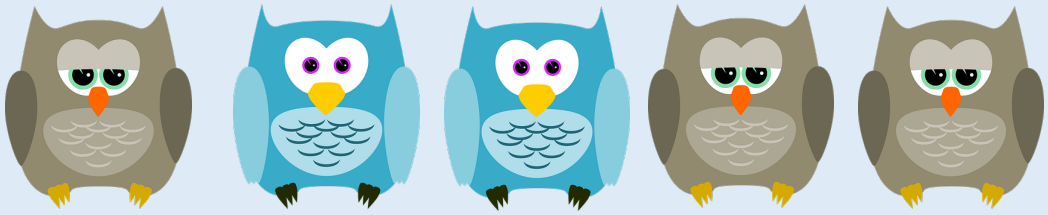
$8 = 4 + 4$

$4 = 8 - 4$

$4 = 8 - 4$

Activity 1 Fact Families – 8 Facts

Using the image, how many calculations can you create?



_____ + _____ = _____ _____ = _____ + _____

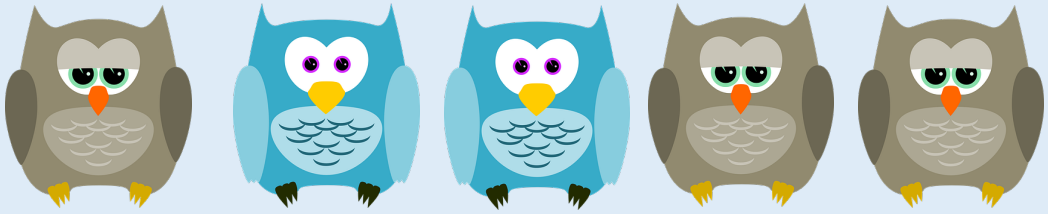
_____ + _____ = _____ _____ = _____ + _____

_____ − _____ = _____ _____ = _____ − _____

_____ − _____ = _____ _____ = _____ − _____

Activity 1 — Fact Families – 8 Facts

Using the image, how many calculations can you create?



$3 + 2 = 5$

$2 + 3 = 5$

$5 - 3 = 2$

$5 - 2 = 3$

$5 = 3 + 2$

$5 = 2 + 3$

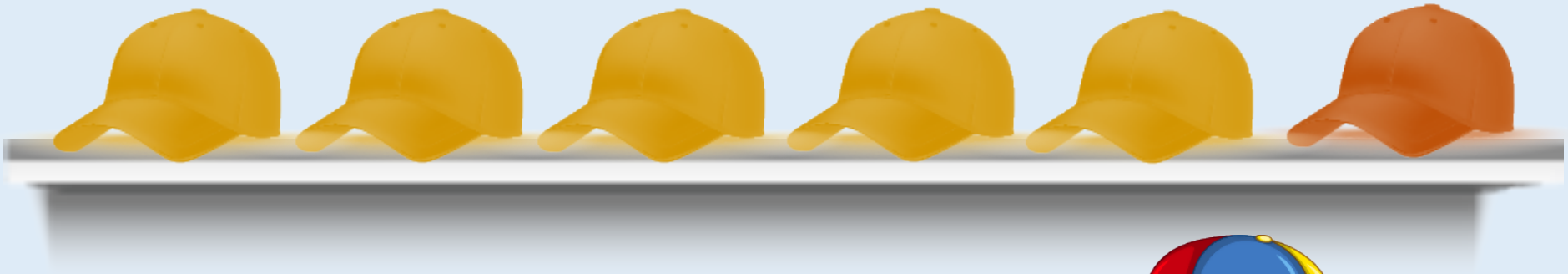
$2 = 5 - 3$

$3 = 5 - 2$

Activity 2

Fact Families – 8 Facts

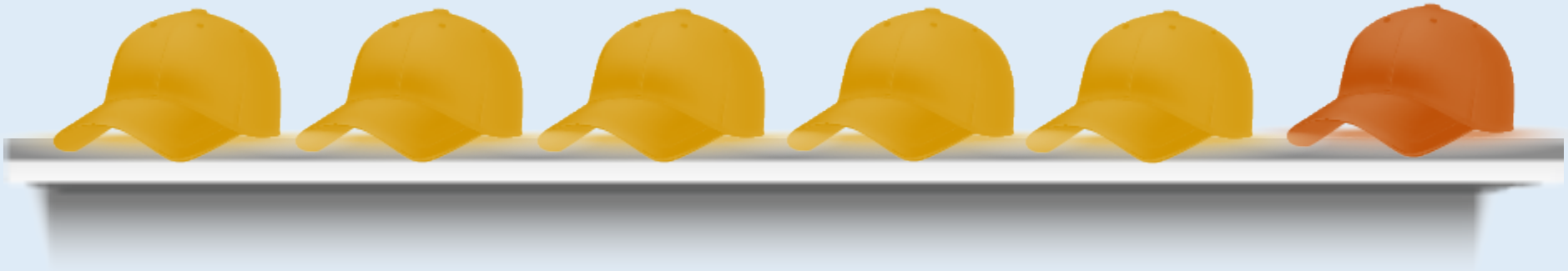
There are 6 hats on a shelf. 5 of them are yellow and 1 is orange. Write 8 number sentences to show this.



How many will you take away? Why?

Activity 2 Fact Families – 8 Facts

There are 6 hats on a shelf. 5 of them are yellow and 1 is orange. Write 8 number sentences to show this.



$5 + 1 = 6$
$1 + 5 = 6$
$6 = 5 + 1$
$6 = 1 + 5$

$6 - 1 = 5$
$6 - 5 = 1$
$5 = 6 - 1$
$1 = 6 - 5$

Activity 2

Fact Families – 8 Facts

There are 8 umbrellas. 6 of them are blue and 2 are red.
Write 8 number sentences to show this.

Activity 2

Fact Families – 8 Facts

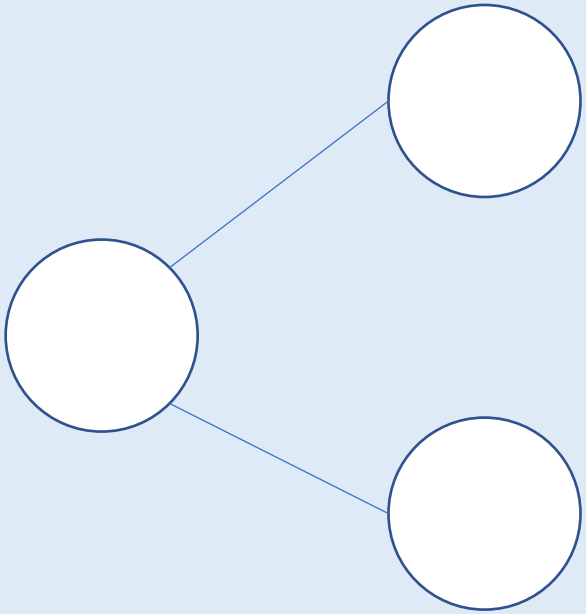
There are 8 umbrellas. 6 of them are blue and 2 are red.
Write 8 number sentences to show this.

$6 + 2 = 8$
$2 + 6 = 8$
$8 = 6 + 2$
$8 = 2 + 6$

$8 - 2 = 6$
$8 - 6 = 2$
$2 = 8 - 6$
$6 = 8 - 2$

Activity 3 Fact Families – 8 Facts

Write 8 number sentences to match the part-whole model.



Can you draw an image to show this?

Fact Families – 8 Facts

Explain the mistakes that have been made.

$6 + 3 = 9$
$3 + 6 = 9$
$9 - 3 = 6$
$9 - 5 = 3$

$9 = 6 + 3$
$9 = 3 + 6$
$9 = 6 - 3$
$9 = 3 - 6$

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Fact Families – 8 Facts

Explain the mistakes that have been made.

$6 + 3 = 9$
$3 + 6 = 9$
$9 - 3 = 6$
$9 - 5 = 3$

$9 = 6 + 3$
$9 = 3 + 6$
$9 = 6 - 3$
$9 = 3 - 6$

The bottom two on the right should be:

$6 = 9 - 3$
$3 = 9 - 6$

Reasoning - 2

Fact Families – 8 Facts

Zach has 6 counters in total. Each of his counters are either in a bag or a cup.

How many different ways could the counters be split between the bag and the cup?
Write 8 number sentences to go with each.

Are any of the sets of number sentences the same? Why?

Reasoning - 2 Fact Families – 8 Facts

Zach has 6 counters in total. Each of his counters are either in a bag or a cup.

There could be:
6 in the cup, 0 in the bag
5 in the cup, 1 in the bag
Etc.

Children should notice that number sentences are the same for "5 in the cup, 1 in the bag" "1 in the cup and 5 in the bag" etc. because the parts are the same.

Discussion

Fact Families – 8 Facts

How many counters were there at first? How many were taken away? How many are left? Can you draw an image to show this?

How many will you start with? Why?

How many will you take away? Why?

What is the same and what is different about the calculations?

Count Back 1

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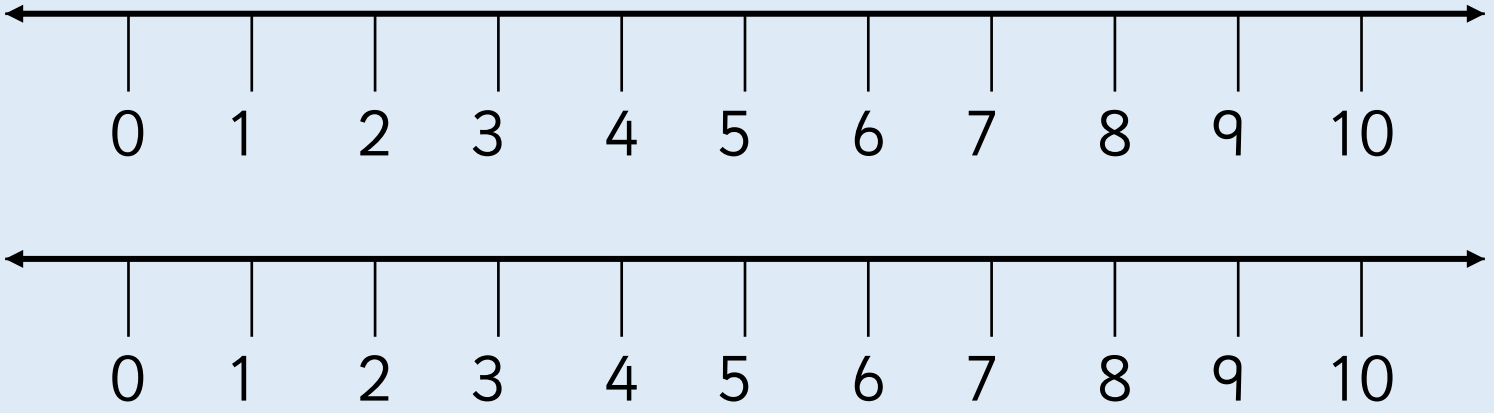
Activity 1 Count Back

Complete:

7 – 3 = ____

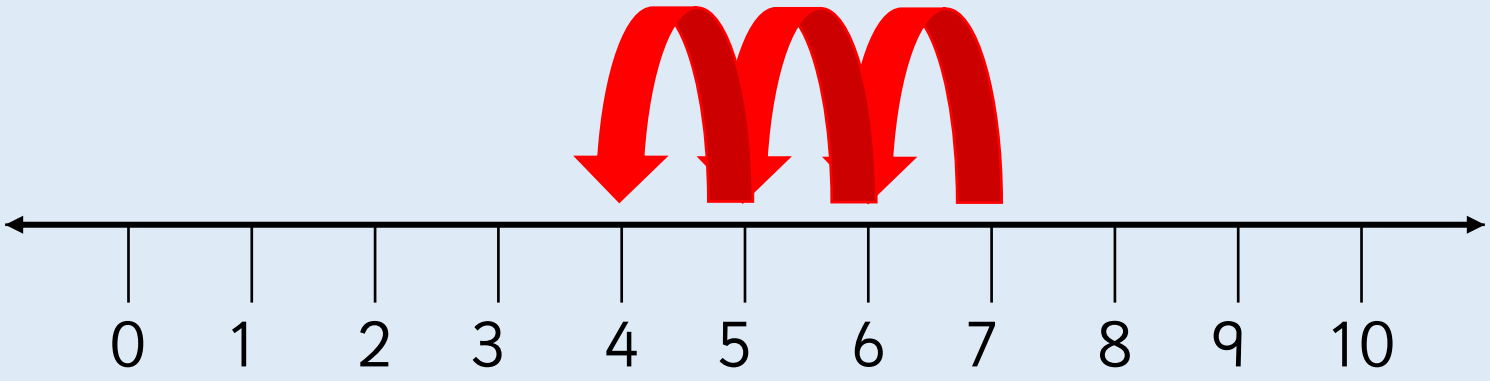


4 – 4 = ____

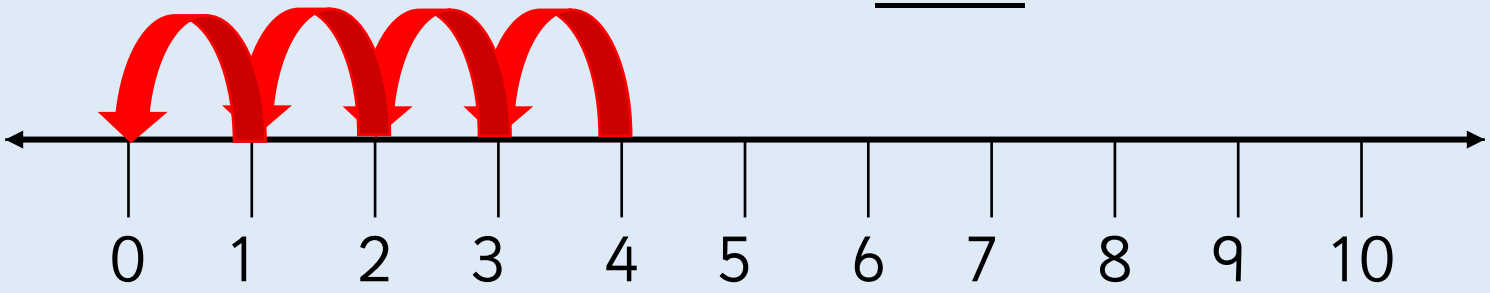
What number comes before 6?

Activity 1 Count Back

Complete:



7 – 3 = 4

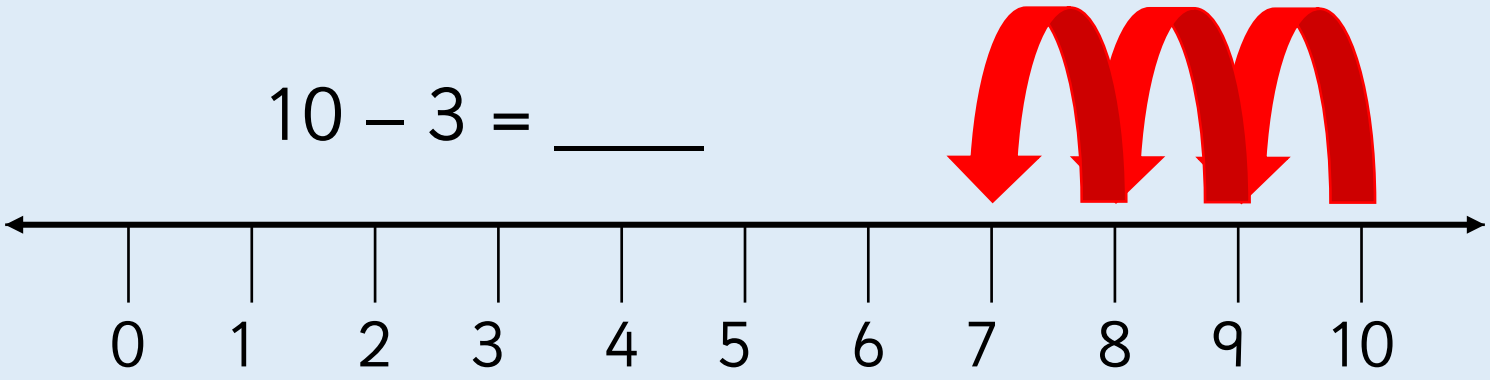


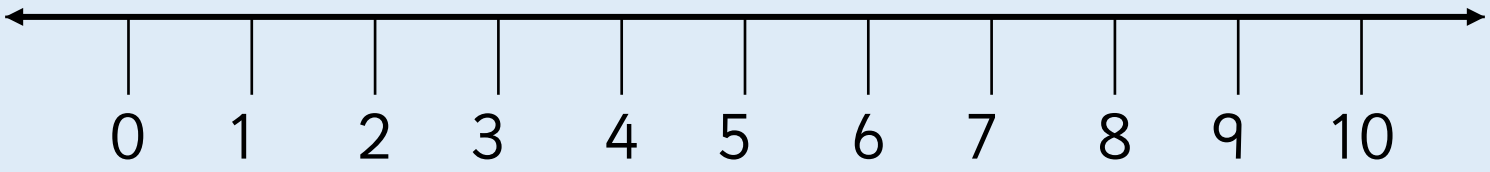
4 – 4 = 0

Activity 1 Count Back

Complete:

10 – 3 = ____



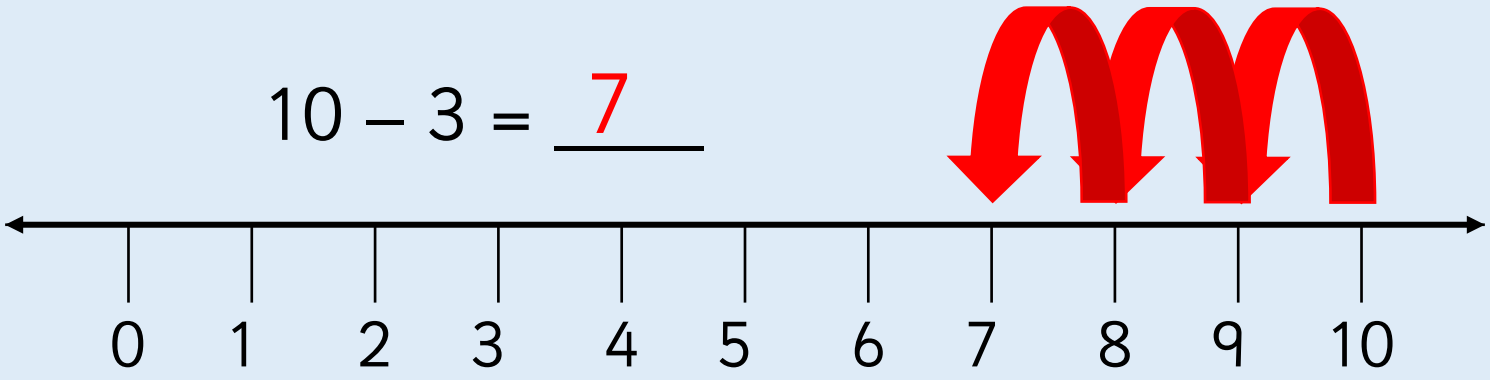


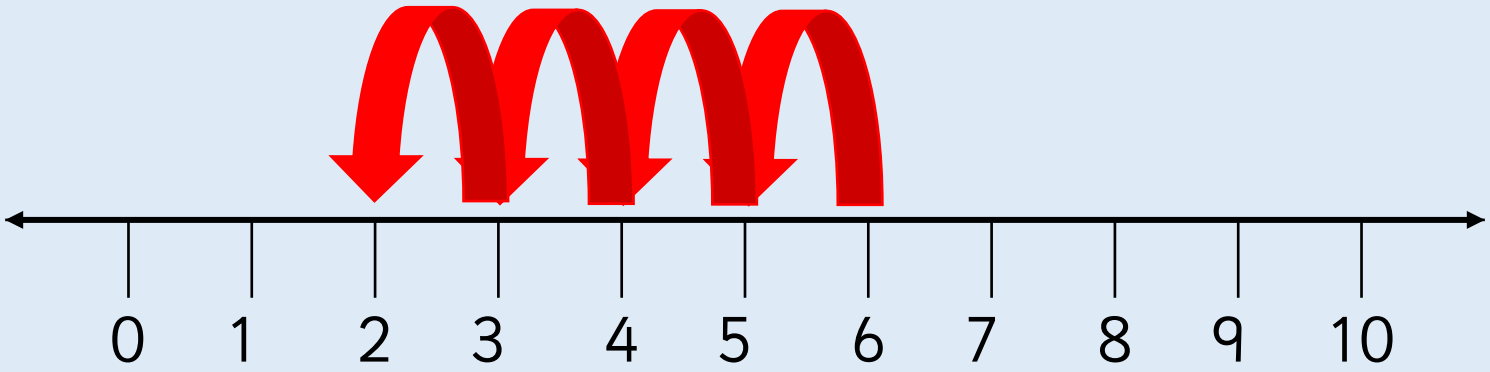
6 – 4 = ____

Activity 1 Count Back

Complete:

10 – 3 = 7

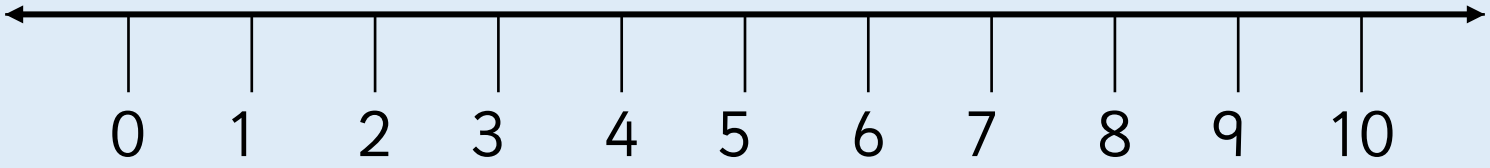




6 – 4 = 2

Activity 2 Count Back

Use the number line to count back and match the calculations with the same answers.



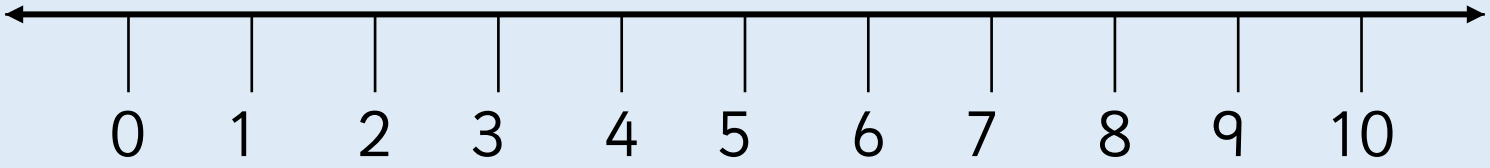
7 – 3 = ____ 6 – 6 = ____ 10 – 6 = ____

5 – 0 = ____ 9 – 4 = ____ 4 – 4 = ____

Which calculations do you know match straight away?

Activity 2 Count Back

Use the number line to count back and match the calculations with the same answers.



7 – 3 = 4

6 – 6 = 0

10 – 6 = 4

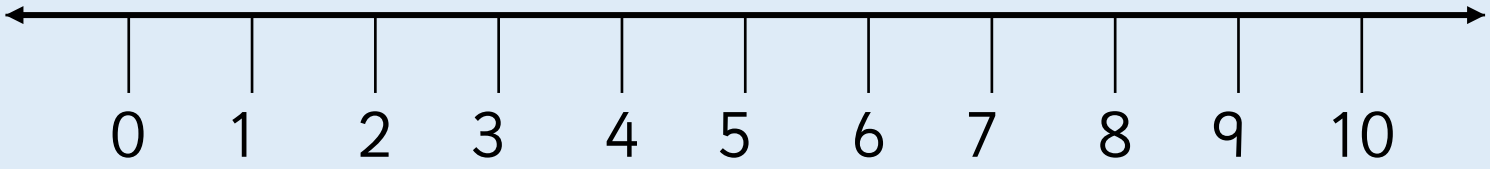
5 – 0 = 5

9 – 4 = 5

4 – 4 = 0

Activity 2 Count Back

Use the number line to count back and match the calculations with the same answers.



$8 - 4 =$ ☐

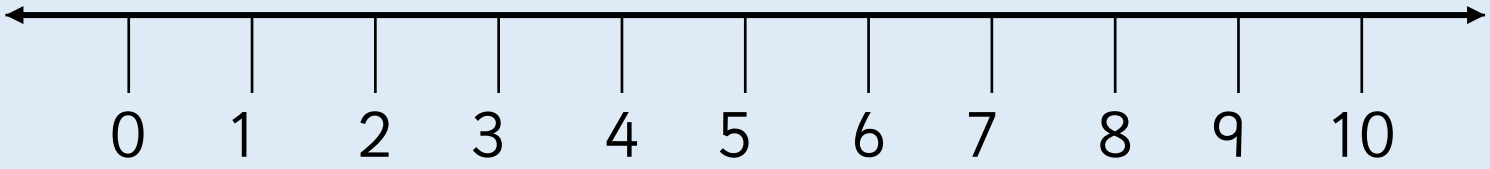
$6 - 6 =$ ☐

$3 - 2 =$ ☐

$9 - 8 =$ ☐

Activity 2 Count Back

Use the number line to count back and match the calculations with the same answers.



8 – 4 = 4

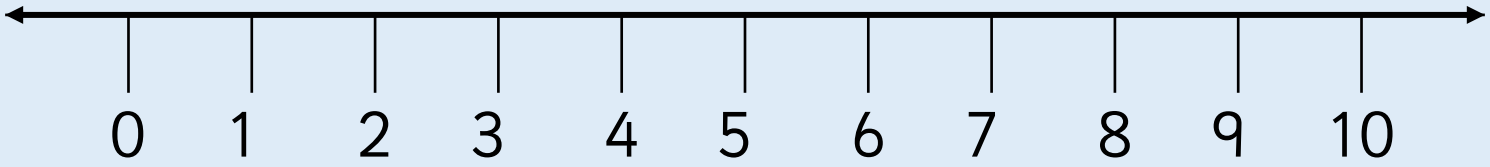
6 – 6 = 0

3 – 2 = 1

9 – 8 = 1

Activity 2 Count Back

Use the number line to count back and match the calculations with the same answers.



8 – 6 = ☐

2 – 1 = ☐

5 – 4 = ☐

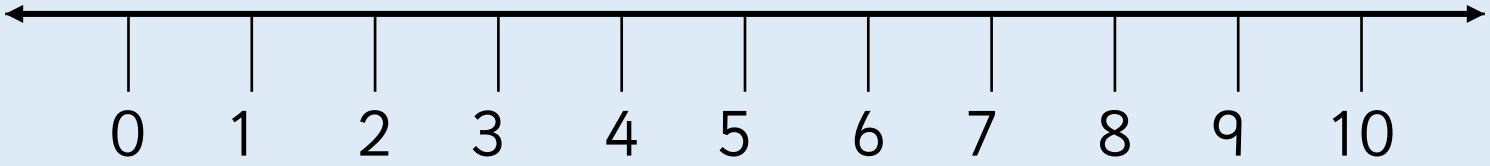
6 – 4 = ☐

5 – 5 = ☐

6 – 6 = ☐

Activity 2 Count Back

Use the number line to count back and match the calculations with the same answers.



8 – 6 = 2	2 – 1 = 1
5 – 4 = 1	6 – 4 = 2
5 – 5 = 0	6 – 6 = 0

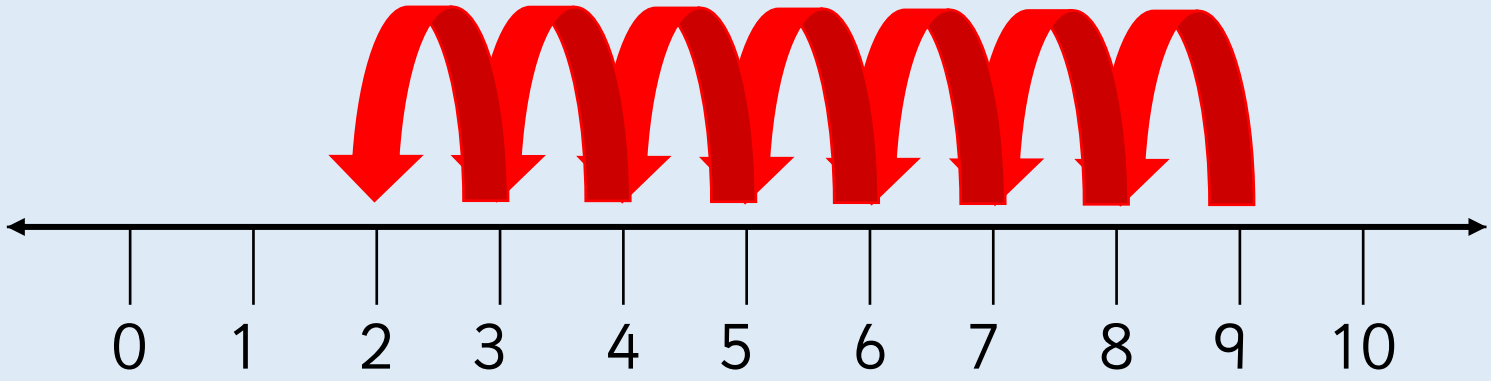
Activity 3 Count Back

I count backwards from 9.
How many steps does it take to get to two?
Show this in a number sentence.

What number should we start on?

Activity 3 Count Back

I count backwards from 9.
How many steps does it take to get to two?
Show this in a number sentence.



It will take 7 steps to get to 2.

Activity 3 Count Back

I count backwards from 8.
How many steps does it take to get to 4?

Show this in a number sentence.

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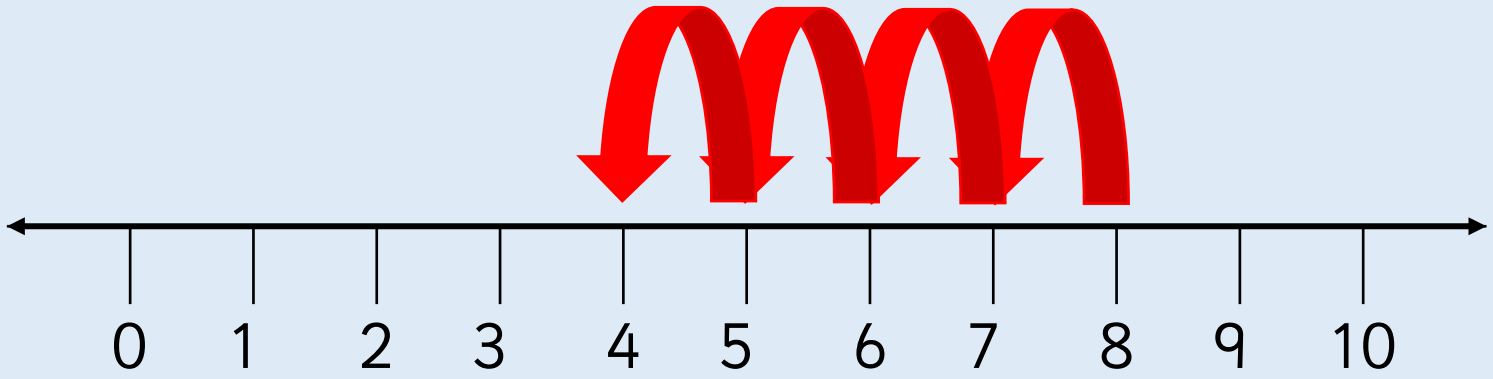
Activity 3 Count Back

I count backwards from 8. How many steps does it take to get to 4? Show this in a number sentence.



It will take 4 steps to get to 4.

Reasoning - 1 Count Back

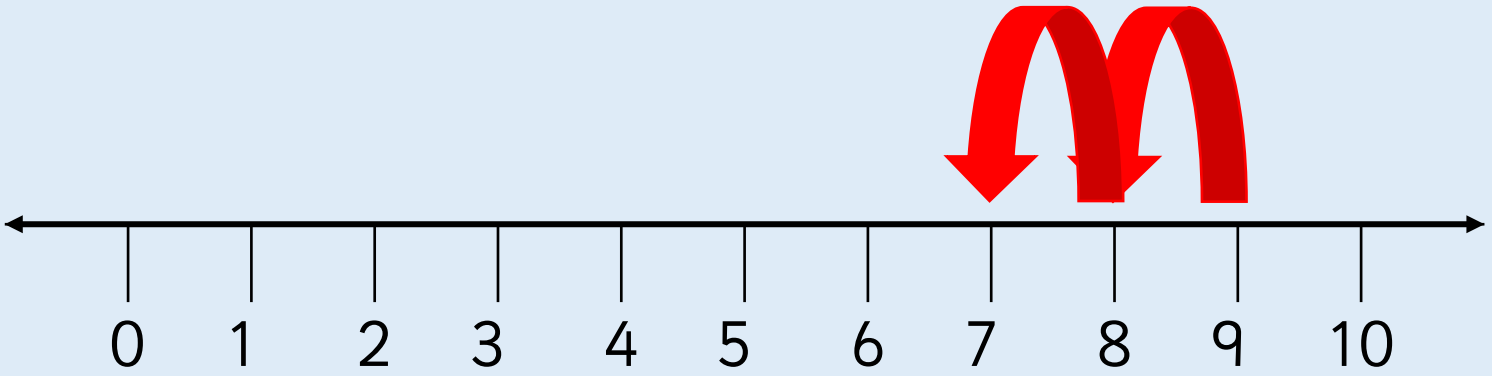
Rosie is calculating 9 – 2 and does this by counting backwards on a number line.

She gets an answer of 8.

What mistakes has she made?
What should the answer be?

Reasoning - 1 Count Back

Rosie is calculating 9 – 2 and does this by counting backwards on a number line.

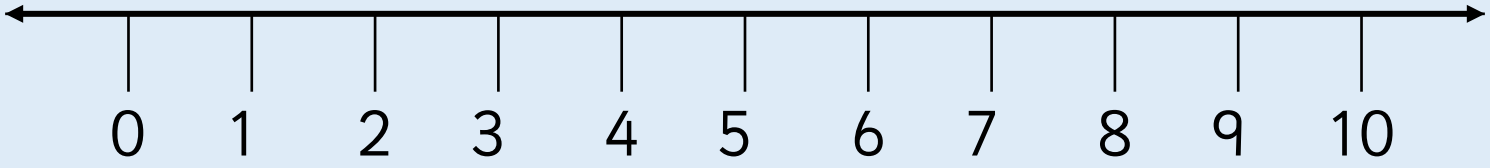


The answer should have been 7 not 8.

Count Back

The answer is 3.

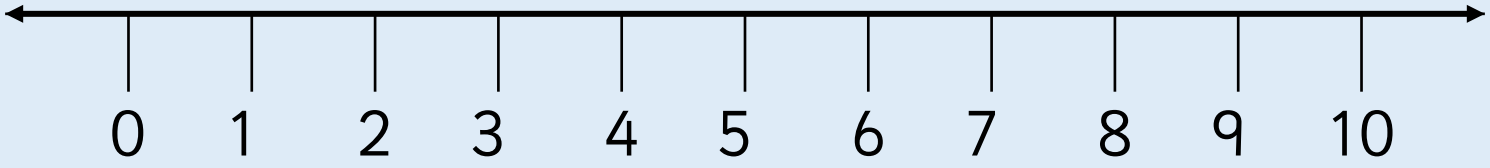
How many ways can you get this by counting backwards on this number line?



Reasoning - 2 Count Back

The answer is 3.

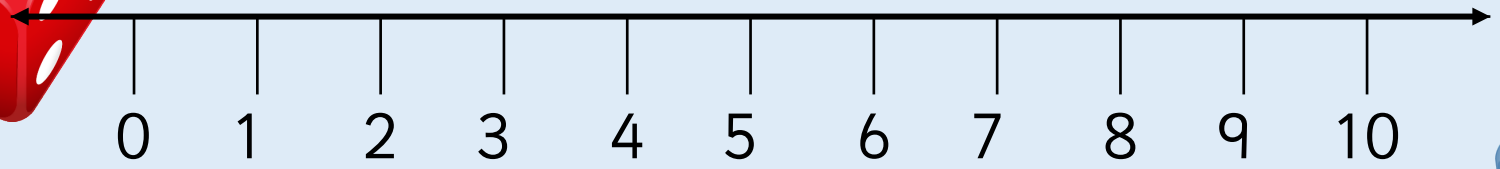
10 – 7, 9 – 6, 8 – 5, 7 – 4 etc.



Count Back

Game

Race to one!
Start at 10 on a number line.
Roll a dice and subtract this amount.
The first person to land on 1 wins.



What would you like to roll? Why?
Why would you not want to roll a 1?

Count Back

Game

You might like to roll a 6 because it is a large amount to take away and so you end up neared to 1.

You might not want to roll 1 because it's a small amount and so it would take longer to get to 1.

Discussion

Count Back

What number comes before 6?
What number should we start on?

Which calculations do you know match straight away?

How do you know this?

Find the Difference

1

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Activity 1 Find the Difference

How many more cakes does Tia have than Malachi?

Tia

Malachi

Tia has ____ more cakes than Malachi.

Who has more? How do you know?

Activity 1 Find the Difference

How many more cakes does Tia have than Malachi?

Tia

Malachi

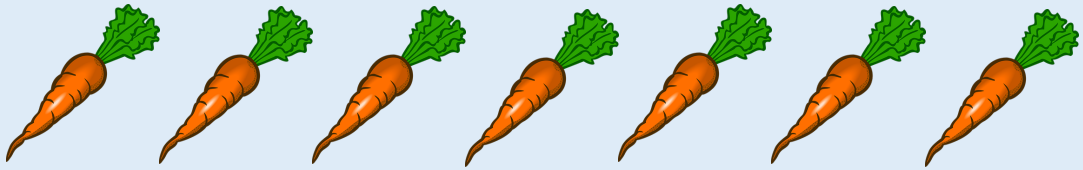
Tia has 2 more cakes than Malachi.

$7 - 4 = 2$

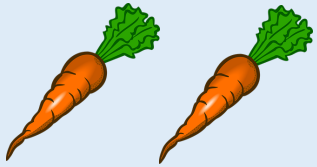
Activity 1 Find the Difference

How many more carrots does Leanna have than Zach?

Leanna



Zach

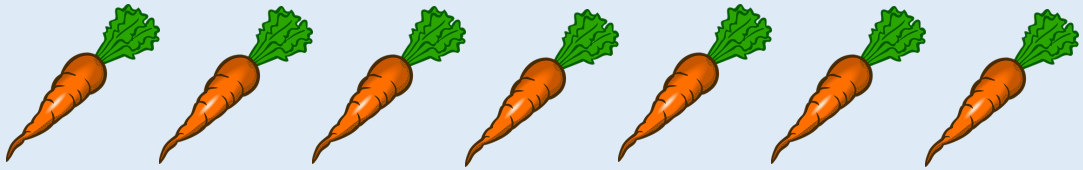


Leanna has ____ more carrots than Zach.

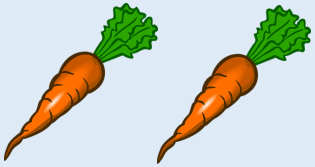
Activity 1 Find the Difference

How many more carrots does Leanna have than Zach?

Leanna



Zach



Leanna has 5 more carrots than Zach.

$7 - 2 = 5$

Activity 1 Find the Difference

How many more cupcakes does Rosie have than Esin?

Rosie

Esin

Rosie has ____ more cup cakes than Esin.

Activity 1 Find the Difference

How many more cupcakes does Rosie have than Esin?

Rosie

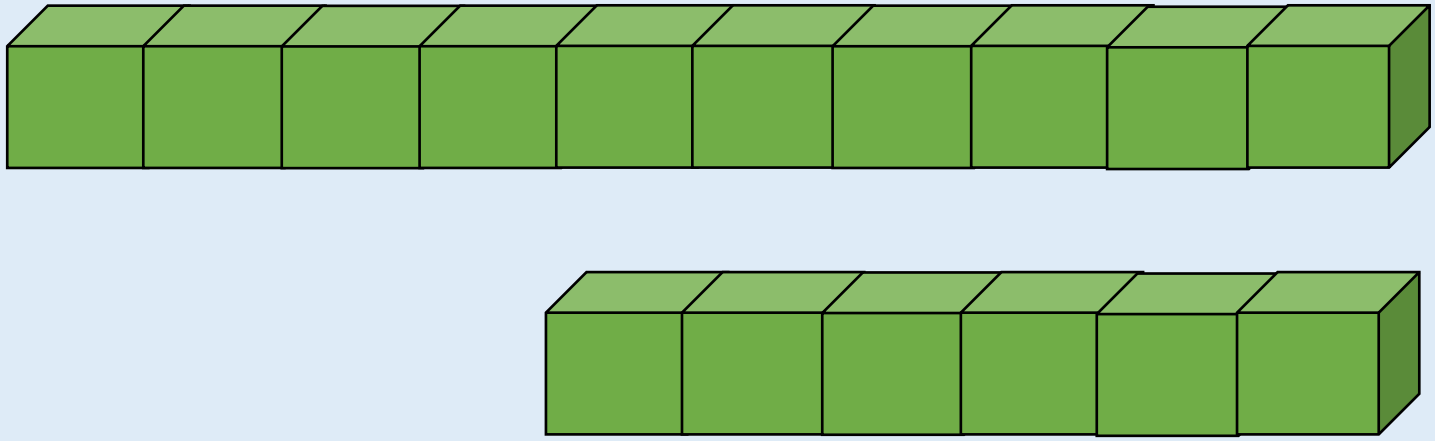
Esin

Rosie has 3 more cupcakes than Esin.

$6 - 3 = 3$

Activity 2 Find the Difference

What's the difference between 10 and 6?



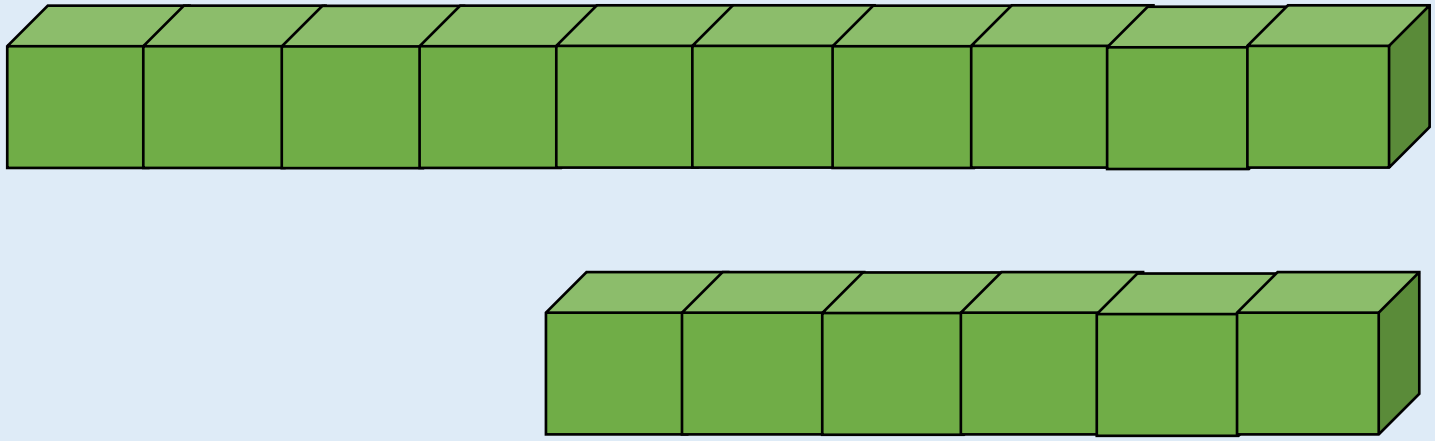
The difference between 10 and 6 is _____.

10 – 6 = _____

What does difference mean?

Activity 2 Find the Difference

What's the difference between 10 and 6?

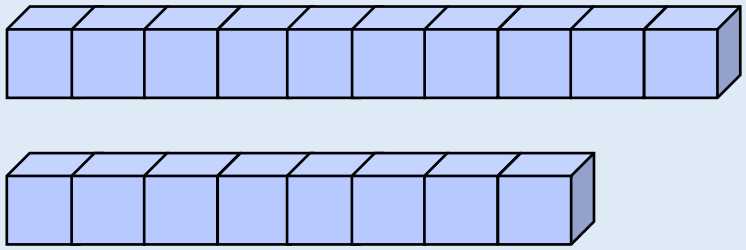


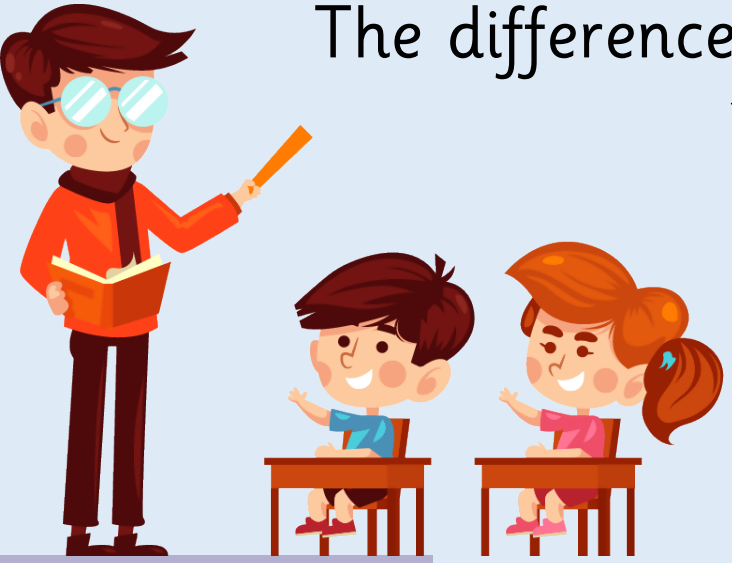
The difference between 10 and 6 is 4.

10 – 6 = 4

Activity 2 Find the Difference

What's the difference between 10 and 8?



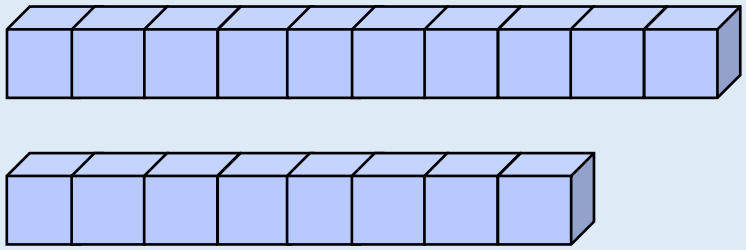


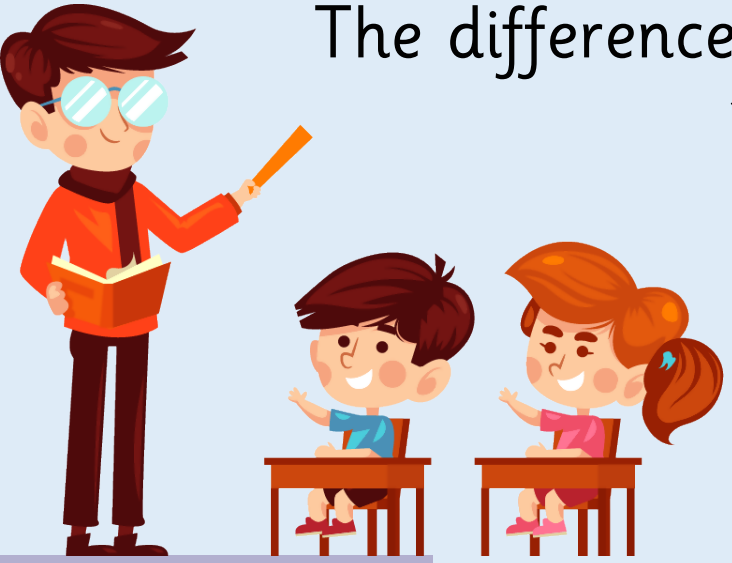
The difference between 10 and 8 is _____.

10 – 8 = _____

Activity 2 Find the Difference

What's the difference between 10 and 8?



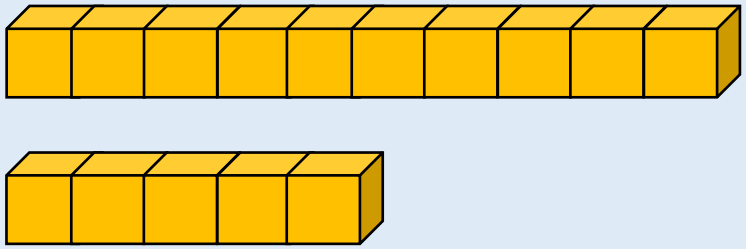


The difference between 10 and 8 is 2.

10 – 8 = 2

Activity 2 Find the Difference

What's the difference between 10 and 5?

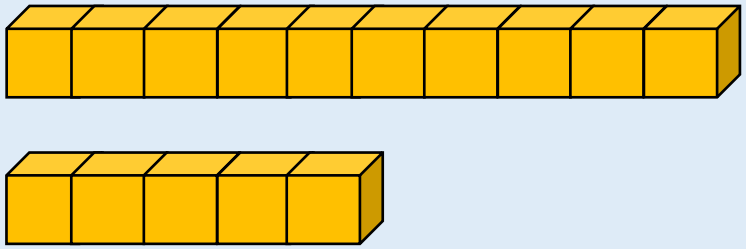


The difference between 10 and 5 is _____.

10 – 5 = _____

Activity 2 Find the Difference

What's the difference between 10 and 5?



The difference between 10 and 5 is 5.

10 – 5 = 5

Activity 3 Find the Difference

Leanna has 7 sweets and Zach has 3 sweets.
How many more sweets does Leanna have?
How can you show this using cubes, counters or as an image?

Leanna

Zach

Leanna has ____ more sweets than Zach.

The difference between 7 and 3 is ____.

7 – 3 = _____

What strategy can we use to help us find the difference?

Activity 3 Find the Difference

Leanna has 7 sweets and Zach has 3 sweets.
How many more sweets does Leanna have?
How can you show this using cubes, counters or as an image?

Leanna

Zach

Leanna has 4 more sweets than Zach.

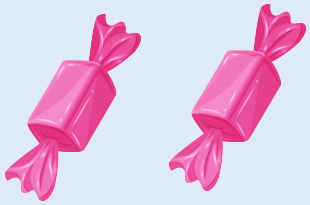
The difference between 7 and 3 is 4.

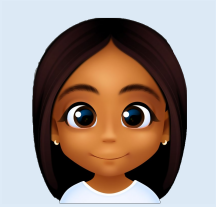
7 – 3 = 4

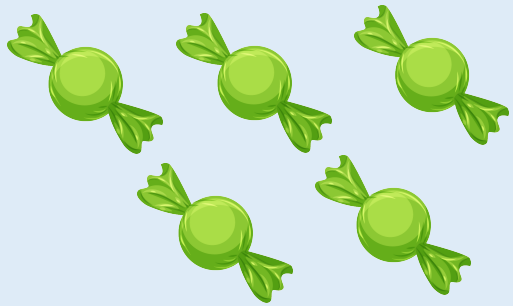
Activity 3 Find the Difference

Rosie has 5 sweets and Tia has 2 sweets.
How many more sweets does Rosie have?
How can you show this using cubes, counters or as an image?

Tia



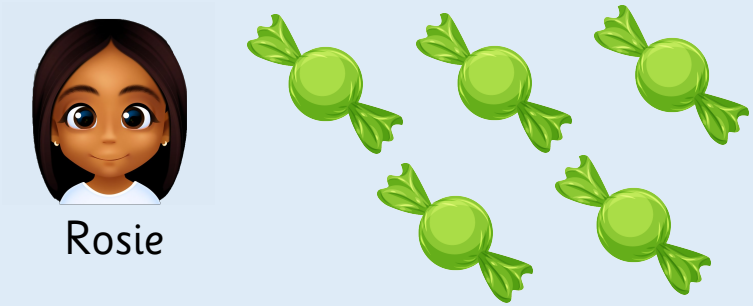

Rosie



Rosie has _____ more sweets than Tia.
The difference between 5 and 2 is _____.
5 – 2 = _____

Activity 3 Find the Difference

Rosie has 5 sweets and Tia has 2 sweets.
How many more sweets does Rosie have?
How can you show this using cubes, counters or as an image?



Rosie has 3 more sweets than Tia.

The difference between 5 and 2 is 3.

5 – 2 = 3

Reasoning - 1 Find the Difference

Two numbers have a difference of 5.

The larger number is less than 10.

What could the two numbers be?

Reasoning - 1

Find the Difference

Two numbers have a difference of 5.

The larger number is less than 10.

9 – 4

8 – 3

7 – 2

6 – 1

5 – 0

Find the Difference

True or False?

Esin

The difference between 8 and 5 is 3.

Can you show this in more than one way?

Find the Difference

True or False?

Esin

The difference between 8 and 5 is 3.

Children could show this by representing both numbers using cubes, bead strings, straws etc. or relating it back to counting backwards on a number line.

Discussion

Find the Difference

Who has more? How do you know? How many does Beth have?

What does difference mean? Which is most? How do you know? What strategy can we use to help us find the difference?

What image/resource can we use to show this?

How can we complete the sentences?

Compare Statements (1)

1

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Activity 1 Compare Statements (1)

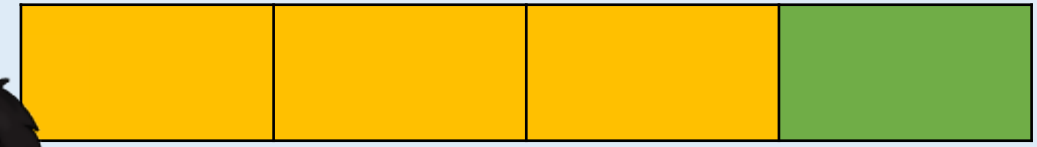
Complete the sentences.

3 + 1 is greater than _____

3 + 1 is greater than _____

3 + 1 is less than _____

3 + 1 is less than _____



What does greater than mean?

Activity 1 Compare Statements (1)

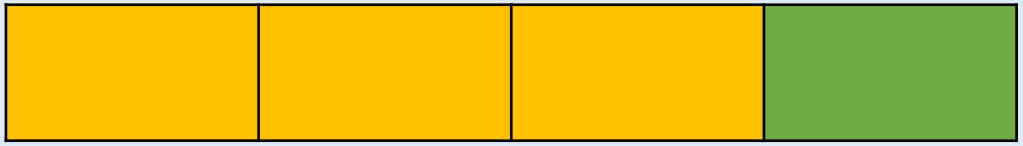
Complete the sentences.

3 + 1 is greater than 2

3 + 1 is greater than 3

3 + 1 is less than 5

3 + 1 is less than 6



Activity 1 Compare Statements (1)

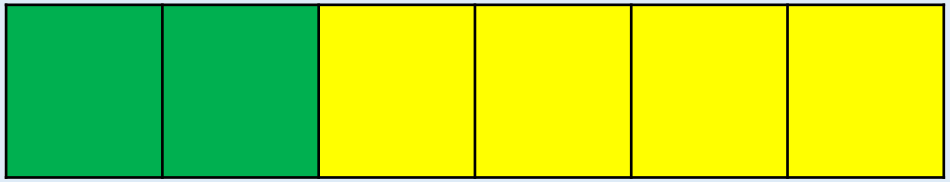
Complete the sentences.

2 + 4 is greater than _____

2 + 4 is greater than _____

2 + 4 is less than _____

2 + 4 is less than _____



Activity 1 Compare Statements (1)

Complete the sentences.

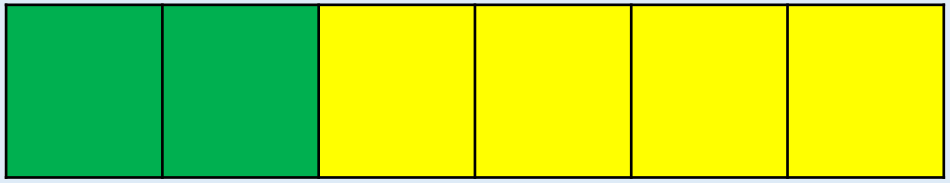
Examples

2 + 4 is greater than 5

2 + 4 is greater than 4

2 + 4 is less than 7

2 + 4 is less than 8



Activity 1 Compare Statements (1)

Complete the sentences.

1 + 6 is greater than _____

1 + 6 is greater than _____

1 + 6 is less than _____

1 + 6 is less than _____

Activity 1 Compare Statements (1)

Complete the sentences.

Examples

1 + 6 is greater than 5

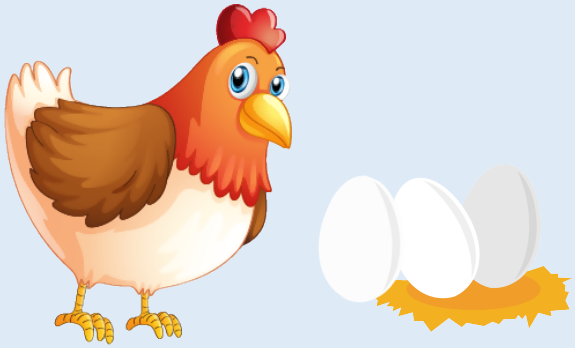
1 + 6 is greater than 6

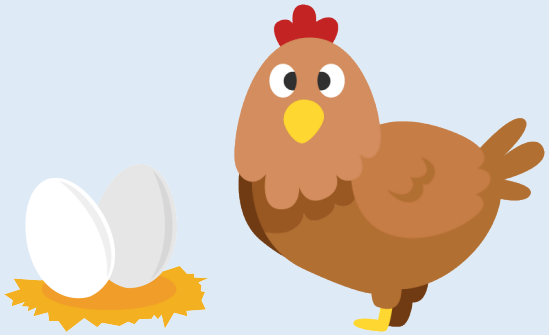
1 + 6 is less than 8

1 + 6 is less than 9

Activity 2 Compare Statements (1)

One hen lays 3 eggs. Another hen lays 2 eggs.





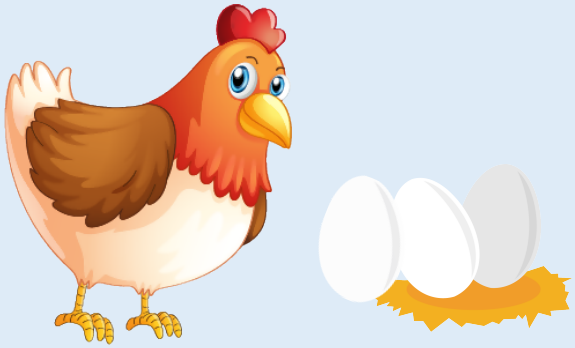
Complete the sentence using greater than, less than or equal to.

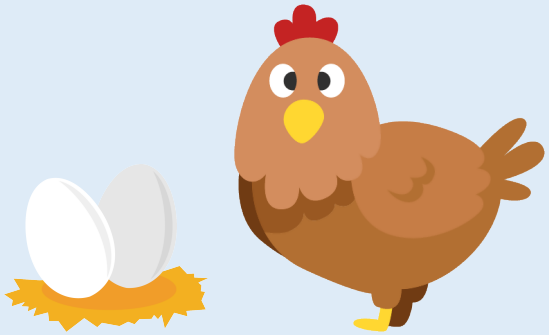
2 plus 3 is _____ 6

How do we know that ___ + ___ is greater than ___?

Activity 2 Compare Statements (1)

One hen lays 3 eggs. Another hen lays 2 eggs.





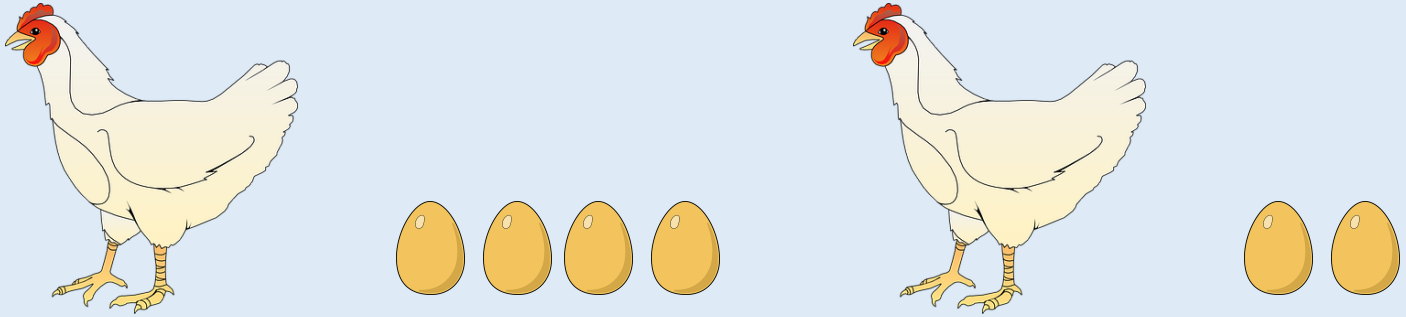
Complete the sentence using greater than, less than or equal to.

2 plus 3 is _____ 6

less than

Activity 2 Compare Statements (1)

One hen lays 4 eggs. Another hen lays 2 eggs.

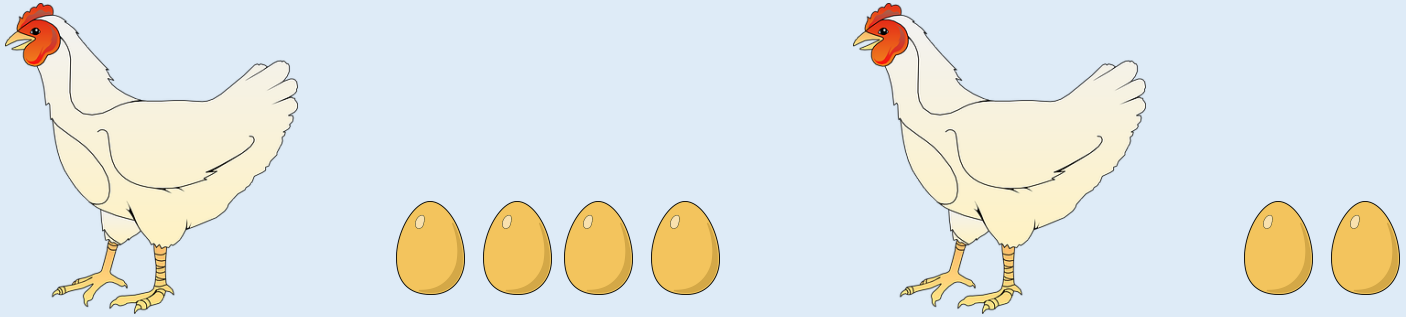


Complete the sentence using greater than, less than or equal to.

4 plus 2 is _____ 6

Activity 2 Compare Statements (1)

One hen lays 4 eggs. Another hen lays 2 eggs.



Complete the sentence using greater than, less than or equal to.

4 plus 2 is equal to 6

Activity 3 Compare Statements (1)

Complete the number sentences.

_____ + _____ is equal to 7

_____ + _____ is less than 9

5 + _____ is _____ 2

What does less than mean?

Activity 3 Compare Statements (1)

Complete the number sentences.

3 + 4 is equal to 7

3 + 3 is less than 9

5 + 3 is greater than 2

Activity 3 Compare Statements (1)

Complete the number sentences.

_____ + _____ is equal to 5

_____ + _____ is equal to 10

_____ + _____ is less than 7

_____ + _____ is greater than 7

Activity 3 Compare Statements (1)

Complete the number sentences.

Examples

2 + 3 is equal to 5

5 + 5 is equal to 10

5 + 1 is less than 7

3 + 5 is greater than 7

Reasoning - 1 Compare Statements (1)

Would you rather have 5 sweets and 2 sweets, or 7 sweets?

Using the numbers 0 – 10, how many different ways can you complete the boxes?

$\square + 7 = \square$

$\square + \square > 4$

$\square + \square < 9$

Explain your answer.
Use cubes or draw an image to help you.

Reasoning - 1 Compare Statements (1)

Would you rather have 5 sweets and 2 sweets, or 7 sweets?

I don't mind because I know that 5 and 2 is equal to 7.

Possible answers:

$3 + 7 = 10$

$1 + 4 > 4$

$1 + 1 < 9$

Reasoning - 2 Compare Statements (1)

What signs are missing?

8 + 2 ◯ 10

8 ◯ 3 + 7

8 > 10 ◯ 3

Explain how you know.

Reasoning - 2 Compare Statements (1)

What signs are missing?

8 + 2 = 10 because I know that 8 and 2 is equal to 10.

8 < 3 + 7 because I know that 8 is less than 10.

8 > 10 – 3 because I know that 8 is greater than 7.

Discussion

Compare Statements (1)

What does greater than mean?
How do we know that ___ + ___ is greater than ____?
What else can it be greater than?

What does less than mean?
How do we know that ___ + ___ is less than ____?
What else can it be less than?

What language is missing?

What steps do we need to take to help us complete the problem?

Compare Statements (2)

1

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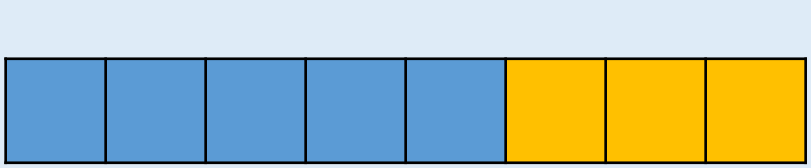
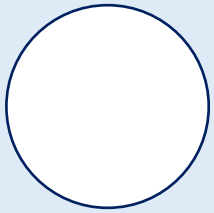
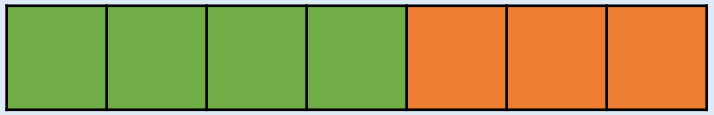
Activity 1 Compare Statements (2)

Complete using <, > or =

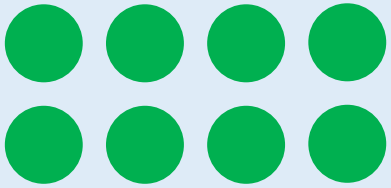


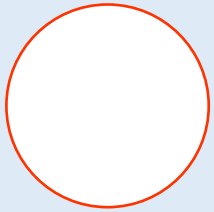




___ + ___

___ + ___





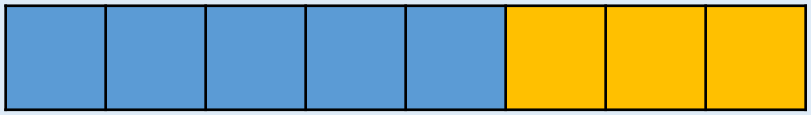
___ - ___

___ - ___

Do we always need to solve each calculation before we compare?

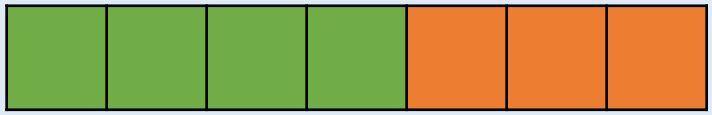
Activity 1 Compare Statements (2)

Complete using <, > or =

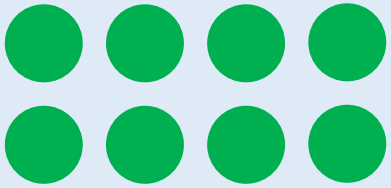


5 + 3

>



4 + 3



___ - ___

>

___ - ___

Activity 1 Compare Statements (2)

Complete using <, > or =

_____ + _____ ○ _____ + _____

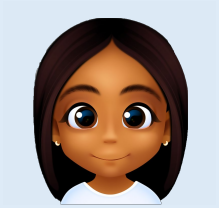
Activity 1 Compare Statements (2)

Complete using <, > or =

2 + 7 > 4 + 2

Activity 2 Compare Statements (2)

Rosie has 8 sweets and eats 4 of them.
Tia has 7 sweets and eats some of them.
They now have the same number of sweets.


Rosie

Tia

8 – 4 ◯ 7 – ____

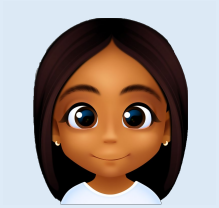
8 – 4 is equal to 7 – ____

Can you draw a picture to represent this? Use your picture to help you complete the number sentences.

How can we prove that they are equal?

Activity 2 Compare Statements (2)

Rosie has 8 sweets and eats 4 of them.
Tia has 7 sweets and eats some of them.
They now have the same number of sweets.


Rosie

Tia

8 – 4 = 7 – 3

8 – 4 is equal to 7 – 3

Can you draw a picture to represent this?
Use your picture to help you complete the number sentences.

Reasoning - 1

Compare Statements (2)

Malachi

6 + 3 is greater than 5 + 5
because 6 is greater than 5.

Is he correct? Explain why.

Reasoning - 1 Compare Statements (2)

Malachi

6 + 3 is greater than 5 + 5
because 6 is greater than 5.

No, because
6 + 3 = 9
5 + 5 = 10
and 9 < 10

Compare Statements (2)

Use the digit cards to complete the sentences.

3	4	5	6

____ + ____ = ____ + ____

____ − ____ = ____ − ____

____ − ____ > ____ − ____

____ − ____ < ____ + ____

Can you write any more number sentences using these cards?

Reasoning - 2

Compare Statements (2)

Use the digit cards to complete the sentences.

$6 + 3 = 5 + 4$

$6 - 5 = 4 - 3$

$6 - 3 > 5 - 4$

$6 - 3 < 5 + 4$

Etc.

Discussion

Compare Statements (2)

Do we always need to solve each calculation before we compare?

Which symbol should be used?

How can we prove that they are equal?