




Teacher note: If children are secure with exchanging within column method, move them onto reasoning or problem solving questions once you are happy with their progress.

L5	WALT: <i>I can subtract using column addition with exchanges</i>	
	<i>I can subtract using column method</i> <i>I can reason how to subtract using column method</i>	
	<i>I can subtract using column addition</i> <i>I can discuss common mistakes when using column method.</i>	
	<i>I can subtract using column method and dienes</i>	
Nasty Maths	No Nasty Maths	

## Recap

Tell me how to subtract using column method

[illegible]

Misconception - subtracting from the bottom number

5 2 4

3 5 6

---

---

Make 4 ones. Can you take 6 from them?

Make 2 tens. Can you take 5 tens from them?

What do we need to do?



Misconception - 0 subtract 5 = 5

5 0 7

3 5 6

---

---

You have 0 in front of you.

Can you take 5 from it?

What do we need to do?

What other top tips can you think of  
when using column method?

5 0 7

3 5 6

---

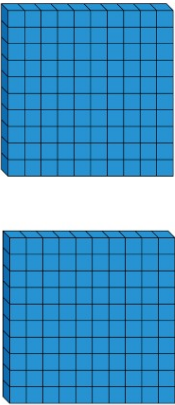
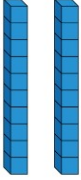
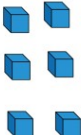

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# Place Value Grid


I do

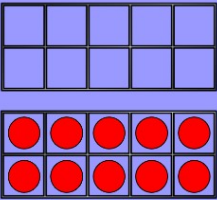
# Calculation

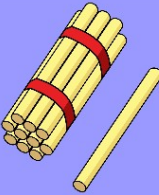



Hundreds	Tens	Ones	2	2	6	-	1	1	8
									




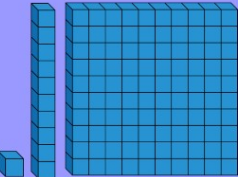










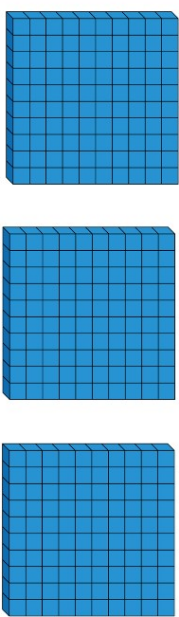
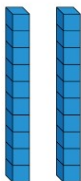
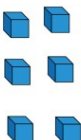
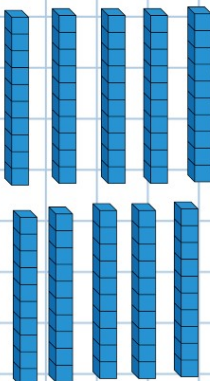



# Place Value Grid


We do

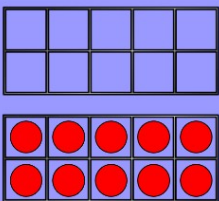
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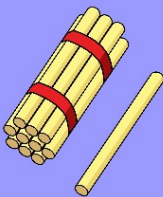



Hundreds	Tens	Ones	3	2	6	-	1	4	3
									




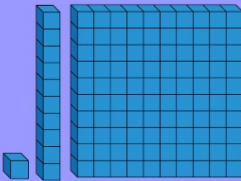










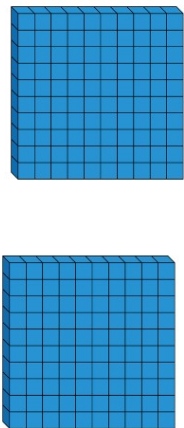
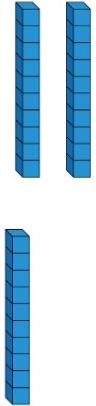
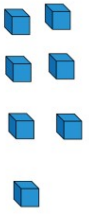




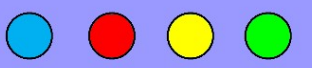
# Place Value Grid


*You do*


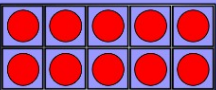
# Calculation

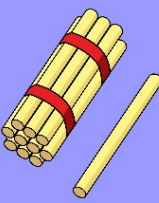




Hundreds	Tens	Ones	2	3	7	-	1	1	9
									

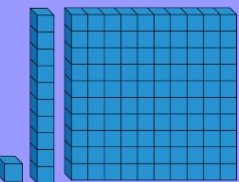












L6	WALT: <i>I can add and subtract to solve problems.</i>	
	I can use column addition and subtraction to problem solve	
	I can explain how I solved the problems proving that I am correct	
	I can use column addition and subtraction to problem solve	
	I can explain how I solved the problems using drawings to help me	
	I can solve word problems with support	
Nasty Maths	No Nasty Maths	

Recap															
		2	4	5			3	6	2			3	5	3	
	-	1	5	2			-	2	3	4		+	4	7	8
		<hr/>					<hr/>					<hr/>			
		<hr/>					<hr/>					<hr/>			
If you are subtracting and you do not have enough, you should:															
a) take away from the bottom number instead.															
b) exchange from the tens.															
c) exchange from the next biggest column.															

## How to use 'RUCSAC' to help us to solve word problems



### Read

Read the question.  
What is the important  
information?

### Understand

Understand the question.  
What do you need to  
find out?

### Choose

Choose the correct  
method of calculation  
and operation(s).

### Solve

Solve the problem.  
Make sure you follow  
the steps.

### Answer

Answer the question.  
What were you meant  
to find out?

### Check

Check your answer.  
Use the inverse to check  
your working out.



Read the word problems with your partner.  
Use 'RUCSAC' to find the important information and what method you need to use.

If you have time, try and find an answer.

There are 345 people at the football match. 134 leave at half time. How many people are left?

Mr. Jolley has 560 Bright Spark awards. He gives out 72. How many Bright Spark awards are left?

During spring 234 plants grow in the garden. In summer another 146 plants grow. How many plants are in the garden?



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Solve the problem.  
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#### Answer

Answer the question.  
What were you meant to find out?

#### Check

Check your answer.  
Use the inverse to check your working out.

I do

There are 342 chairs on the beach. 234 are full.  
How many are empty?

R

U

C

S

A

C

Read

Read the question.  
What is the important information?

Understand

Understand the question.  
What do you need to find out?

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Choose the correct method of calculation and operation(s).

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Read the question.  
What is the important information?

Understand

Understand the question.  
What do you need to find out?

Choose

Choose the correct method of calculation and operation(s).

Solve

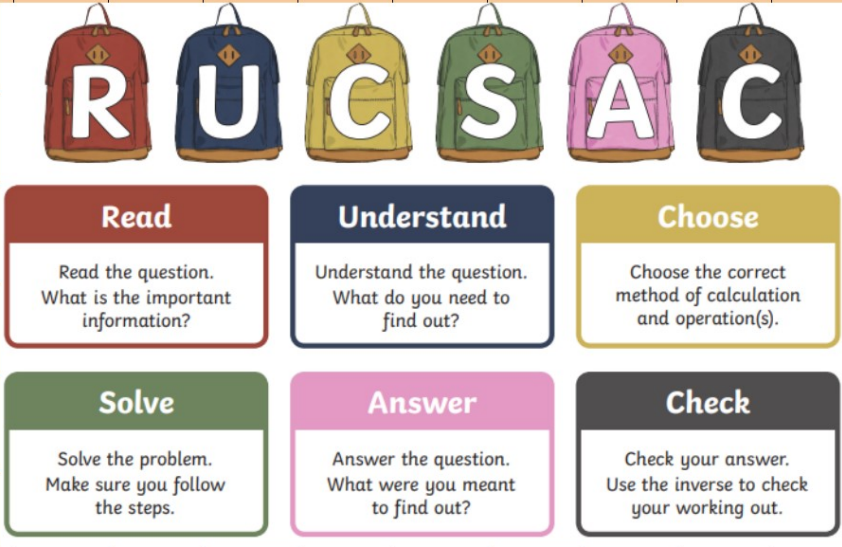
Solve the problem.  
Make sure you follow the steps.

Answer

Answer the question.  
What were you meant to find out?

Check

Check your answer.  
Use the inverse to check your working out.



The diagram illustrates the RUCSAC problem-solving strategy. At the top, six backpacks are arranged in a row, each with a large white letter on its front: R (red), U (blue), C (yellow), S (green), A (pink), and C (dark grey). Below the backpacks are six colored rectangular boxes, each containing a step of the strategy:

- Read** (Red box): Read the question. What is the important information?
- Understand** (Dark Blue box): Understand the question. What do you need to find out?
- Choose** (Yellow box): Choose the correct method of calculation and operation(s).
- Solve** (Green box): Solve the problem. Make sure you follow the steps.
- Answer** (Pink box): Answer the question. What were you meant to find out?
- Check** (Dark Grey box): Check your answer. Use the inverse to check your working out.

The diagram illustrates the RUCSAC problem-solving strategy. At the top, six backpacks are arranged in a row, each with a large white letter on its front: R (red), U (blue), C (yellow), S (green), A (pink), and C (dark grey). Below the backpacks are six colored rectangular boxes, each containing a step of the strategy:

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- Understand** (Dark Blue box): Understand the question. What do you need to find out?
- Choose** (Yellow box): Choose the correct method of calculation and operation(s).
- Solve** (Green box): Solve the problem. Make sure you follow the steps.
- Answer** (Pink box): Answer the question. What were you meant to find out?
- Check** (Dark Grey box): Check your answer. Use the inverse to check your working out.

## Understand

Understand the question.  
What do you need to find out?

## Understand

Understand the question.  
What do you need to find out?

**Choose**

Choose the correct method of calculation and operation(s).

**Choose**

Choose the correct method of calculation and operation(s).

**Solve**

Solve the problem.  
Make sure you follow  
the steps.

**Solve**

Solve the problem.  
Make sure you follow  
the steps.

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Answer the question.  
What were you meant to find out?

**Answer**

Answer the question.  
What were you meant to find out?

**Check**

Check your answer.  
Use the inverse to check  
your working out.

**Check**

Check your answer.  
Use the inverse to check  
your working out.

We do

The shop has 453 toys. 232 new toys arrive.

How many toys are there altogether?



**Read**

Read the question.  
What is the important  
information?

**Understand**

Understand the question.  
What do you need to  
find out?

**Choose**

Choose the correct  
method of calculation  
and operation(s).

**Solve**

Solve the problem.  
Make sure you follow  
the steps.

**Answer**

Answer the question.  
What were you meant  
to find out?

**Check**




Check your answer.  
Use the inverse to check  
your working out.

You do

The tree is 234 cm tall. The gardener cuts of 58cm? How much of the tree is left?



<b>Read</b> Read the question. What is the important information?	<b>Understand</b> Understand the question. What do you need to find out?	<b>Choose</b> Choose the correct method of calculation and operation(s).
<b>Solve</b> Solve the problem. Make sure you follow the steps.	<b>Answer</b> Answer the question. What were you meant to find out?	<b>Check</b> Check your answer. Use the inverse to check your working out.

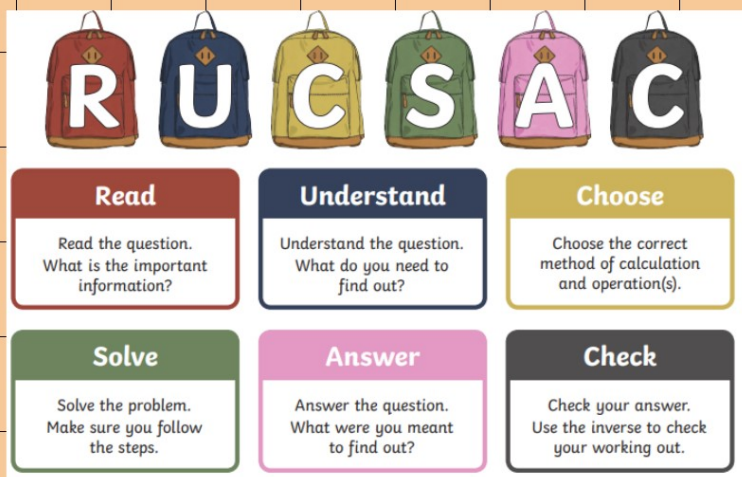
LI	<u>WALT: I can solve missing number addition problems</u>	
	I can solve missing addend problems	
	I can explain how to solve missing addend problems	
	I can solve missing addend problems that use 3 digit numbers	
	<i>I can solve missing number problems</i>	
Nasty Maths	<i>In folder</i>	

## Recap

What information in these questions is helpful? Use 'RUCSAC' to help you.

At the supermarket, there are 45 apples and 134 bananas. How much fruit is there altogether?

The baker has 32 cakes. She sells 13 of them. How many cakes does she have left?



Lesson 3 – Missing addend problems

Challenge – What is the missing number in the box? Explain how you worked it out.

$$47 + \square = 54$$

Mega Challenge – What is the missing number in the box? Explain how you worked it out.

$$329 + \square = 743$$

Bar models

The top bar shows the whole amount

WHOLE

PART

PART

The bottom bars show parts of the whole amount



We will need to learn these 2 words

**Addend** - a number that you add to another number

**Sum** - the total amount after adding addends together

The **sum** is always the **whole** amount

**Addends** are always **part** of the amount

Can you think of an example of an addend or a sum?

ADDEND + ADDEND = SUM

SUM

ADDEND

ADDEND

4 2 + 3 4 = 7 6

7 6

4 2

3 4

Label one bar model to show where the **sum** and **addends** go.

Label the other bar model with this number sentence **57 + 23 = 80**

ADDEND + ADDEND = SUM

SUM

ADDEND

ADDEND

4 2 + ? ? = 8 4

7 6

4 2

??

"There is a missing part. To find the missing part, we subtract the other part from the whole."

7 6 - 4 2 = 3 4

(4 2 + 3 4 = 7 6)

I do

$$3 + 2 + ? = 8$$

"There is a missing part. To find the missing part, we subtract the other part from the whole."

We do

$$56 + ? ? = 98$$

"There is a missing part. To find the missing part, we subtract the other part from the whole."

You do

$$78 + ? ? = 159$$

"There is a missing part. To find the missing part, we subtract the other part from the whole."

Can you spot all the related facts?

## Number Fact Families

**+ and -**      **× and ÷**

Find the number later using...




$$8 \times 7 = 56$$
$$7 \times 8 = 56$$
$$56 \div 8 = 8$$
$$56 \div 7 = 8$$

### Addition & Subtraction

$1 + 2 = 3$	$3 = 1 + 2$
Up to 10	Up to 10
Up to 20	Up to 20
Up to 50	Up to 50
Up to 100	Up to 100
Negative to -10	Negative to -10
Negative to -50	Negative to -50

[Instructions](#)      [Topmarks](#)

Addition and Subtraction up to 100

L2	WALT: I can solve missing number subtraction problems	
	I can solve missing subtrahend problems	
	I can explain how to solve missing subtrahend problems	
	I can solve missing subtrahend problems that use 3 digit numbers	
	<i>I can solve missing number problems</i>	
Nasty Maths		



## Recap

What does 'addend' mean?

What does 'sum' mean?

Tell me which numbers are addends or sum in this number sentence

3   2   4   +   1   5   2   =   4   7   6

Solve this:   3   4   2   +   ?   =   4   9   8

Lesson 4 – Missing subtrahend problems

Challenge – What is the missing number in the box? Explain how you worked it out.

$$56 - \square = 15$$

Mega Challenge – What is the missing number in the box? Explain how you worked it out.

$$477 - \square = 285$$

We will need to learn these words

Subtrahend - the number you are taking away

Minuend - the number you are taking from

Difference - the amount between the subtrahend and the minuend.

Can you think of an example for each one?

The top bar shows the whole amount

WHOLE

PART

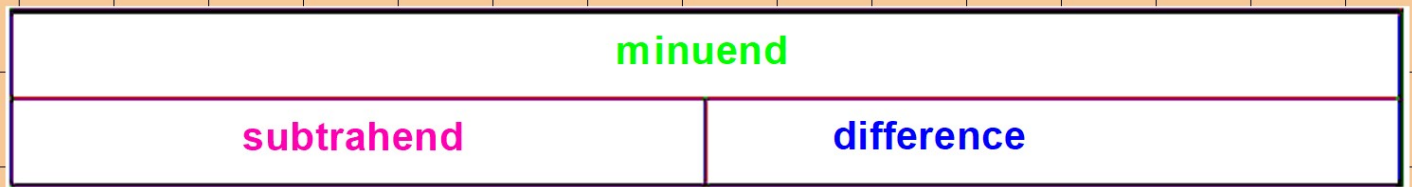
PART

The bottom bars show parts of the whole amount

Minuends are always the whole amount.

Subtrahends and difference are always part of the whole.

$$\text{minuend} - \text{subtrahend} = \text{difference}$$



Label one bar model to show where you can put the **minuend**, **subtrahend** and **difference**.

Label one bar model to show this subtraction:  
**186 - 32 = 154**

Tell me why both **parts** could be a **difference** or a **subtrahend**?

minuend - subtrahend = difference

minuend

subtrahend

difference

minuend

difference

subtrahend

both parts could be a difference or a subtrahend because subtracting either part from the whole will leave the other part as the difference

100

40

60

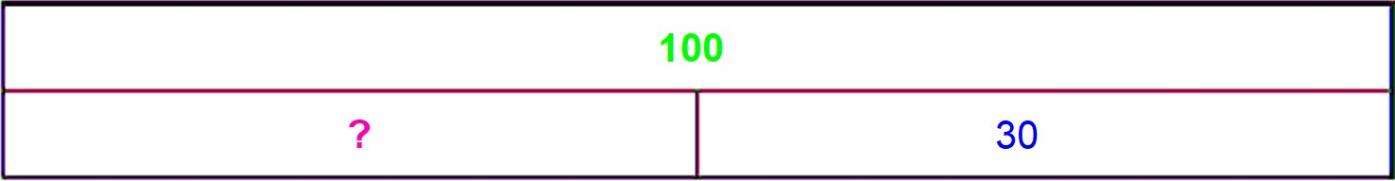
100

40

60

100 - 40 = 60 AND 100 - 60 = 40

minuend - subtrahend = difference



1 0 0 - ? = 3 0

1 0 0 - 3 0 = 7 0

“There is a missing part. To find the missing part, we subtract the other part from the whole.”

I do

minuend - subtrahend = difference

2 5 8 - ? = 3 2

258

?

32

"There is a missing part. To find the missing part, we subtract the other part from the whole."



We do

minuend - subtrahend = difference

3 4 5 - ? = 7 3

345

73

?

"There is a missing part. To find the missing part, we subtract the other part from the whole."

You do

minuend - subtrahend = difference




6 7 4 - ? = 1 3 5

674

135

?

"There is a missing part. To find the missing part, we subtract the other part from the whole."

L3	WALT: I can solve missing number subtraction problems	
	I can solve missing minuend problems	
	I can explain how to solve missing minuend problems	
	I can solve missing minuend problems that use 3 digit numbers	
	<i>I can solve missing number problems</i>	
Nasty Maths	<i>In folder</i>	

The top bar shows the whole amount

WHOLE

PART

PART

The bottom bars show parts of the whole amount

**Tell me how to solve these missing number problems**

$$342 + ??? = 524$$

$$523 - ??? = 245$$

**10 HP for using any of the key language we have been using**

Lesson 5 – Missing minuend problems

Challenge – What is missing number in the box? Explain how you worked it out.

$$\square - 43 = 78$$

Mega Challenge – What is the missing number in the box? Explain how you worked it out.

$$\square - 527 = 87$$

We will need to learn these words

Subtrahend -

A solid red rectangular box with a thin white border, intended for a student to write an example of a subtrahend.

Minuend -

A solid red rectangular box with a thin white border, intended for a student to write an example of a minuend.

Difference -

A solid red rectangular box with a thin white border, intended for a student to write an example of a difference.

Can you think of an example for each one?

I do

minuend - subtrahend = difference

$$? - 45 = 135$$

?

135

45

"There is a missing whole. To find the missing whole, we add the 2 parts."



We do                      minuend - subtrahend = difference

$$? - 75 = 252$$

?	
75	252

“There is a missing whole. To find the missing whole, we add the 2 parts.”

You do                    minuend - subtrahend = difference

?       -    3 7    3    =    1    8    6

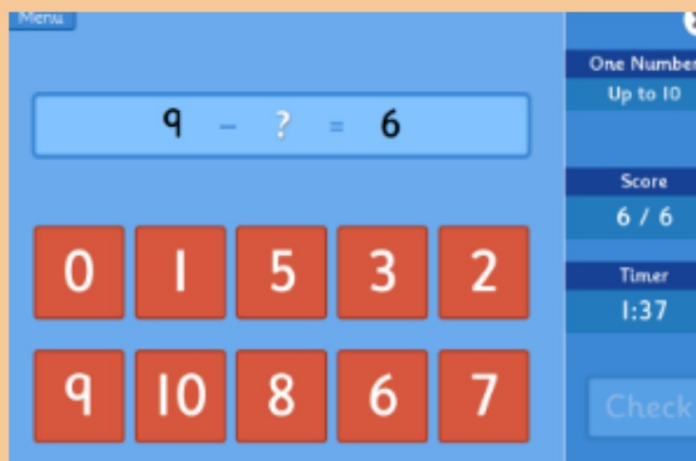
?									
75					252				

“There is a missing whole. To find the missing whole, we add the 2 parts.”

**Can you solve missing  
number subtraction problems?**

**(Click on 'Up to 100')**

**<https://www.topmarks.co.uk/maths-games/subtraction-grids>**



The screenshot shows the 'Subtraction Grids' game interface. At the top left is a 'Menu' button. The main display area has a light blue background. At the top of this area is a white input box containing the subtraction problem  $9 - ? = 6$ . Below the input box is a grid of red buttons with white numbers. The first row contains buttons for 0, 1, 5, 3, and 2. The second row contains buttons for 9, 10, 8, 6, and 7. To the right of the main display area is a vertical sidebar with a dark blue background. It contains the following text: 'One Number' (in white), 'Up to 10' (in white), 'Score' (in white), '6 / 6' (in white), 'Timer' (in white), '1:37' (in white), and a 'Check' button (in white).