

Maths Spring 1 week 3: Inverse + -, missing numbers

For each new teaching point in a maths unit, we have uploaded an input video to watch. Due to the file size, these are located on our Year 2 channel on YouTube - you can only access the videos using the links provided.

Everybody should be able to complete the starter questions, and have a go at the practise questions.



Then, when you are confident give the mastery questions a go.



Finally, for some steps, there are some challenge questions - Greater Depth questions; give these a go so you can really put your skills to the test!



*If you are working at home or in school, we will all be doing the same work.

Tackle a 'step' each day, and it's ok to go back and repeat things which you find challenging.

*Use the questions in this document to work through, but you don't need to print them out - you can view them on screen and then work on paper or in an exercise book. The part whole models are easy to draw - we have had practise drawing them before in our maths books.

*Remember if you make an error when finding an answer, you need to go back and try again; just like we would do in school.

*This week will see us looking at how the inverse can be used to solve missing number calculation and problems; or to check our thinking when we have solved a missing number question.

*Again, the modelled examples in the input videos use jottings to solve the calculations as we all know how to use that method; but if you have been shown, and are confident using column method, then you can use that to help you solve the calculations.

*You don't need to print out the tasks below, you can look at them online and then complete them on paper or in an exercise book.

*Remember, we'd love to see how you are getting on, so please send a photo of some of your work to your class email address. 😊

woodpeckers.class@glenfieldschool.co.uk

ducks.class@glenfieldschool.co.uk

owls.class@glenfieldschool.co.uk

Step 1&2 - Monday & Tuesday

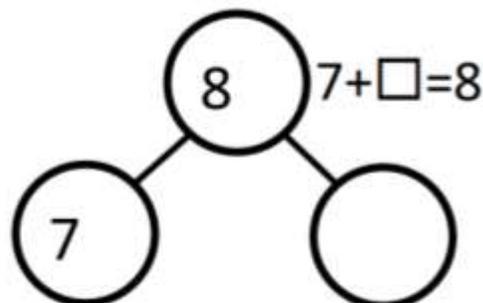
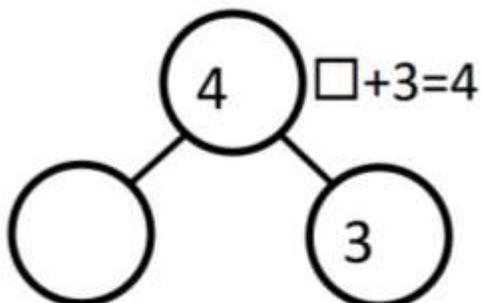
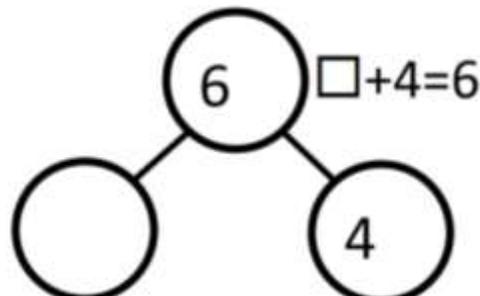
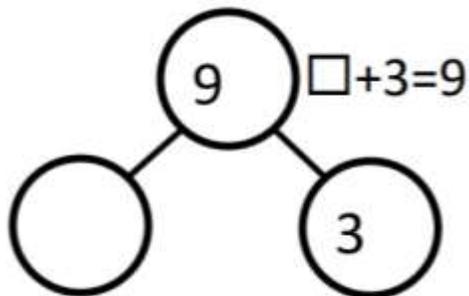
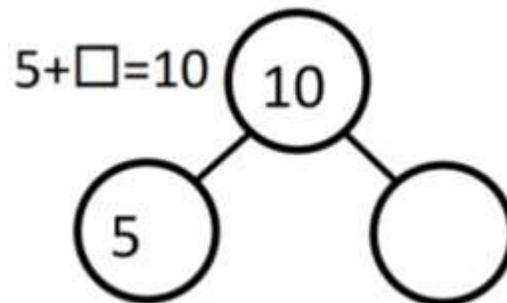
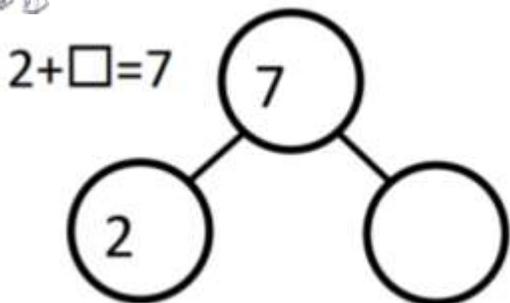
We are going to move our skills on, to see how the inverse and the part-whole models and the fact families they create, can help us solve missing number questions.

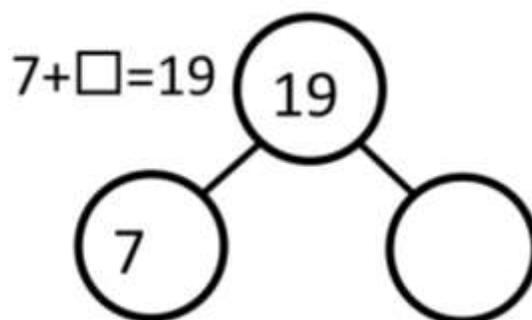
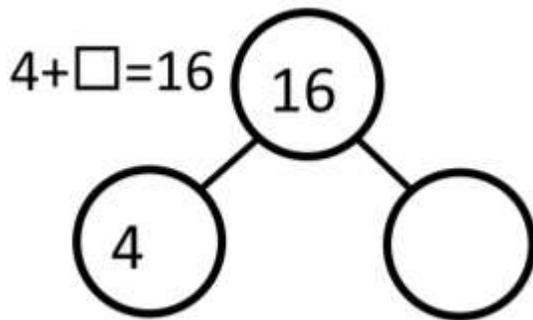
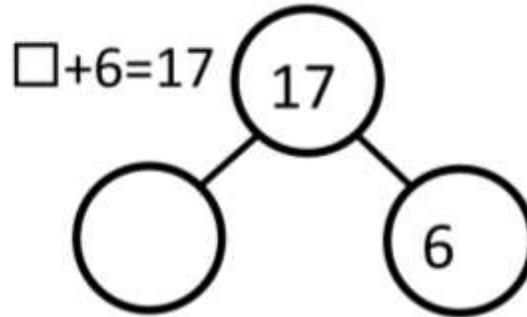
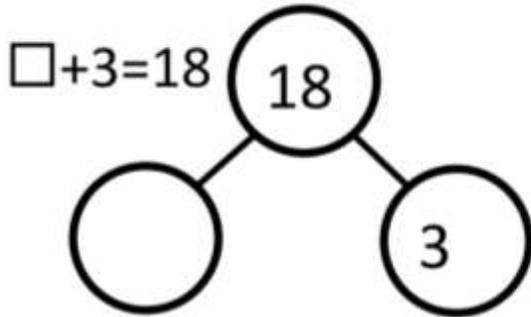
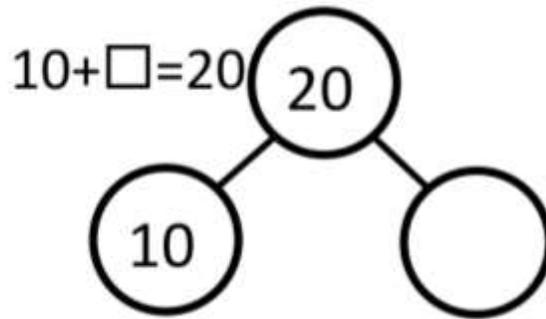
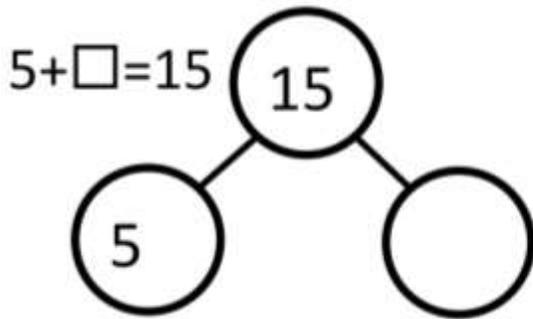
Take a look at the input video: *4 Inverse Missing Numbers*

<https://youtu.be/YzqKW3FZI20>



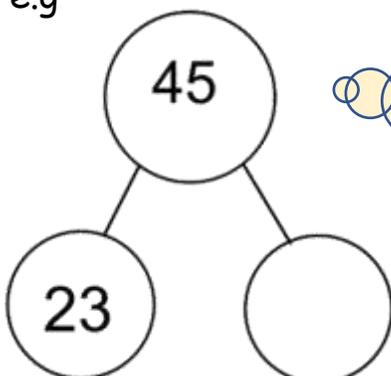
Now have a go at the missing number calculations... There are plenty of them here, and as this is using what we know but in a different way, we suggest you take 2 days to really get to grips with using the inverse to help you solve find missing number questions.





For this set of questions, you are not given the missing number-number sentence only the part whole model. You need to use what you have learnt and what you know from the part whole model to help you to find and write the missing number-number sentence, and then solve it.

e.g

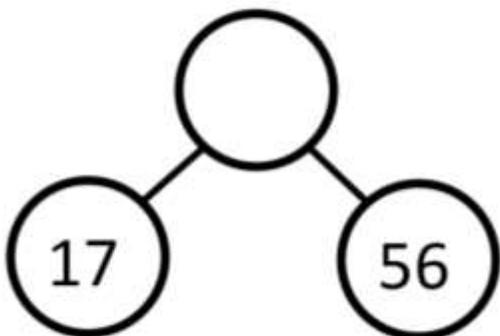
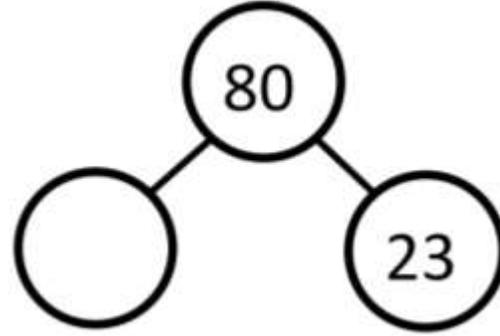
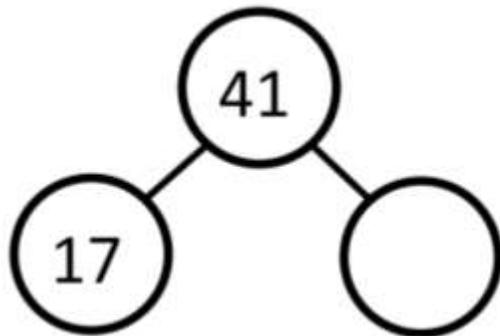
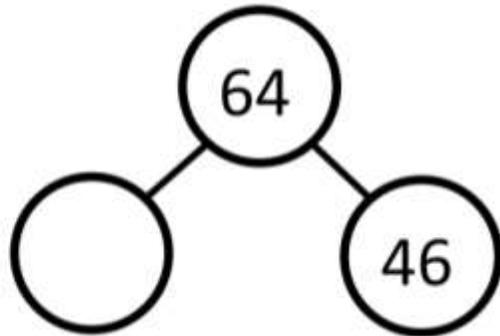
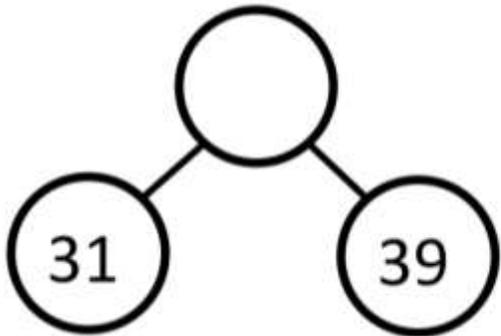
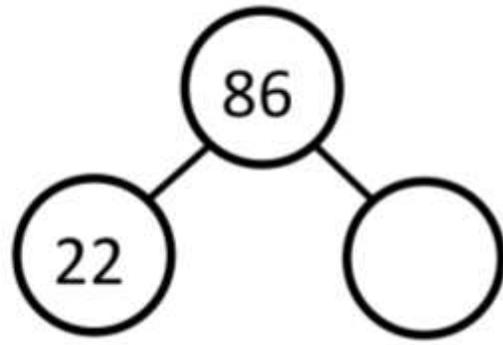
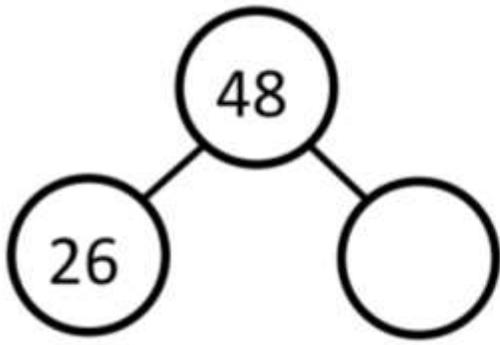


45 is the whole...23 is one of the parts

If I add the missing part to 23 it makes the whole...45

So, the missing number-number sentence is: $23 + \square = 45$

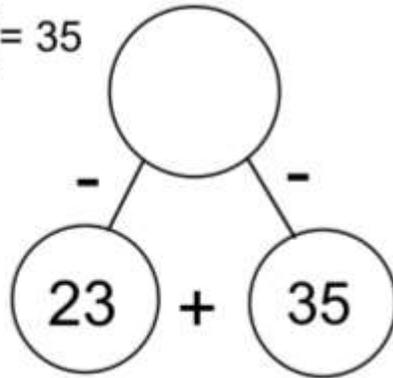
I need to use the inverse, so I will solve $45 - 23$ and that will help me find the missing number.





✘ Fix it...can you spot the error? Can you show how it should have been solved?

$$23 + \square = 35$$



$$23 + 35 = 58$$

|| |||

Talking about what you have done, and sharing what you found out.

- This reminded me of...
- I already know so...
- When I looked I found...
- Using the numbers I found a pattern...
- This is true/untrue because...
- This didn't work so I tried.....
- Before I began I knew that the answer would be about because...
- The best strategy for this calculation was...
- I wondered why....

Ma1

Find the missing numbers.

$$13 + \square = 45$$

$$19 + \square = 26$$

$$\square - 14 = 74$$

How can you prove that you are right?

Malachi is working out some calculations.



$$38 - 14 = 34$$

$$15 + 3 = 12$$

$$21 + 5 = 36$$

Is he correct?
What can you do to prove your answer?

Tia



$17 - 9 = 8$
Can you check my calculation?

$8 + 17 = 25$,
so your calculation can't be right.

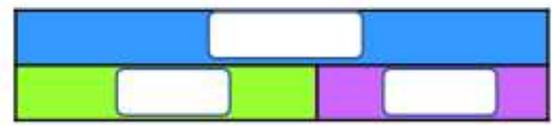
Leanna



Who has made a mistake?
Explain why.

Find the missing number and complete the bar model.

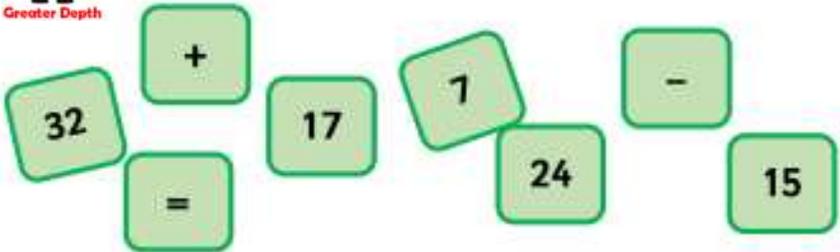
$$\square - 14 = 13$$



Explain your answer.

Greater Depth

Here are some cards.



Can you make six different calculations using these cards?
Explain your reasoning.

Reasoning Maths Hub

Step 3 & 4 - Wednesday and Thursday

Over the next two days you will need to apply your skills to solve a selection of problems.

Take a look at the input video to get you started: *5 Inverse Missing Number problem solving*

<https://youtu.be/BD-2SctIjNU>



Use your missing number, inverse and part whole skills to tackle these questions...some of the questions might need you to do more than one thing to find the final answer...think carefully about each step that needs to be solved.



Doing and Undoing

Can you think what you would have to do to "undo" these three children's maths?

"I took 4 away, what should I do to get back to my starting number?"



"I added 8, what should I do to get back to my starting number?"



★ Challenge:

Now, if they all finished with a 12 what were their starting numbers?



Fill in the missing numbers to make each pair of cards total 19.



One pair is done for you.

10 9

□ 6

4 □

Ali's work is covered in mud! Find three different ways to complete each calculation using a one-digit number and a two-digit number.



$\text{mud} + 11 = \text{mud}$
 $14 - \text{mud} = \text{mud}$



Complete these number sentences.

One is done for you

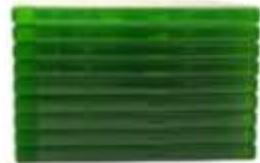
$$\boxed{2} + \boxed{8} = \boxed{10}$$

$$\boxed{42} + \boxed{} = \boxed{50}$$

$$\boxed{} + \boxed{8} = \boxed{70}$$

A game costs £35

Tom has £17

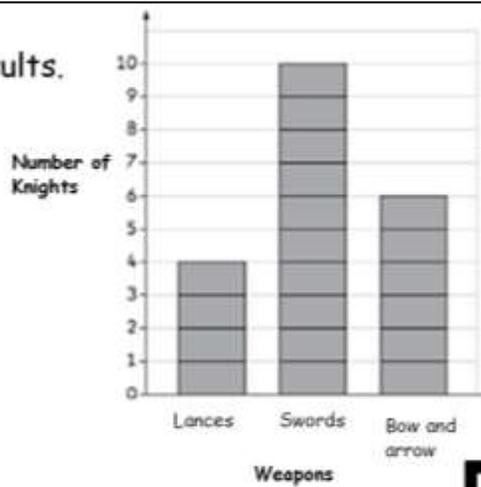


How much more money does Tom need to buy the game?



£

The chart shows results.



How many more knights chose swords than lances?

The apple weighs 36 grams.



The banana and apple together weigh 78 grams.



What does the banana weigh?



Secret numbers...

Annie and Ben are playing. Annie puts her secret number into the calculator without showing Ben.

Annie then asks Ben, "What do you want to add?"

Ben tells Annie the number he wants to add. "I want to add four."

Annie presses the 'add' button and then the four button. The calculator now shows '4'.

Annie gives the calculator to Ben.



Ben presses the 'equals' button and the calculator gives the answer '10'.

What was Annie's secret number?

How do you know?

You could play this with a friend.

If you work out your friend's secret number correctly, it is your turn to put in a secret number of your own.

You could score a point for every one you get right.

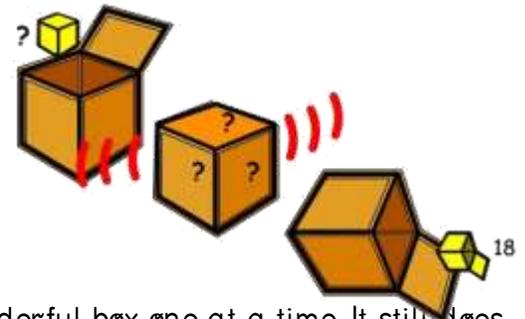
Phones, tablets and computers will have a calculator on them...remember to use the inverse and part whole model to help you to find the 'secret number'



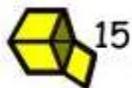
What Was in the Box?

A number in a little box is put into a wonderful big box that adds something to the number and then a new number comes out at the end:

*The first time this happens, 10 is put into the little box, so what happened in the big box to get the answer in the little yellow box?



** Now three more boxes with new numbers in, go into the wonderful box one at a time. It still does the same as before. Here are the three boxes when they come out...



So, what were the three new numbers that went in? Remember that the wonderful big box did the same for all four numbers that went in.



These problems are going to put all your maths skills to the test...there are a number of steps you will need to complete in order to reach the final answer/find the final missing number.

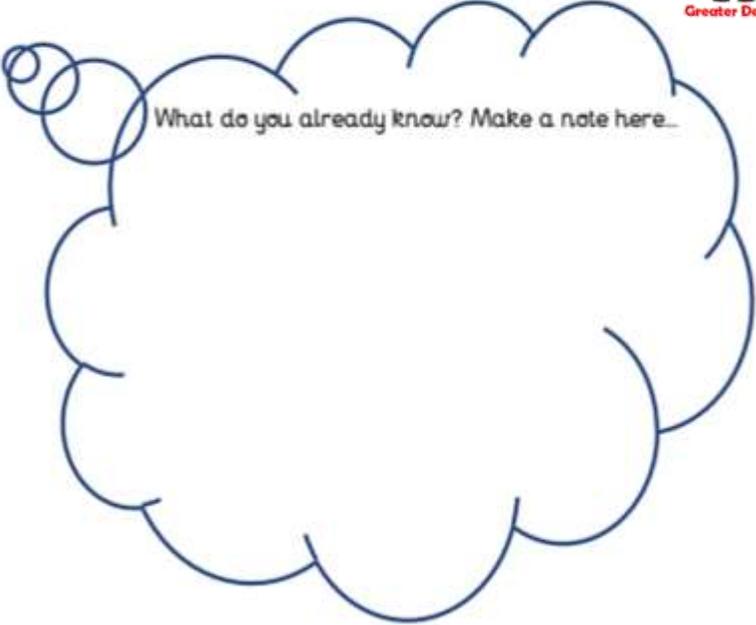
Look carefully, take your time to think about what information you have been given...What do you already know? How can this help you? Will drawing a part-whole model be helpful? How will you use the inverse? Where is the best place to start to begin to solve each question?

Think carefully...look to see what information you have been given, or what you might already know... Then see if you can work out the best place to begin, so you can find the value of the mushroom!



$\star + \text{mushroom} = 29$
 $\star = \text{flower}$
 $\text{cube} + \text{cube} = 18$
 $\text{flower} - \text{cube} = 2$
 $\text{mushroom} = ?$

What do you already know? Make a note here...



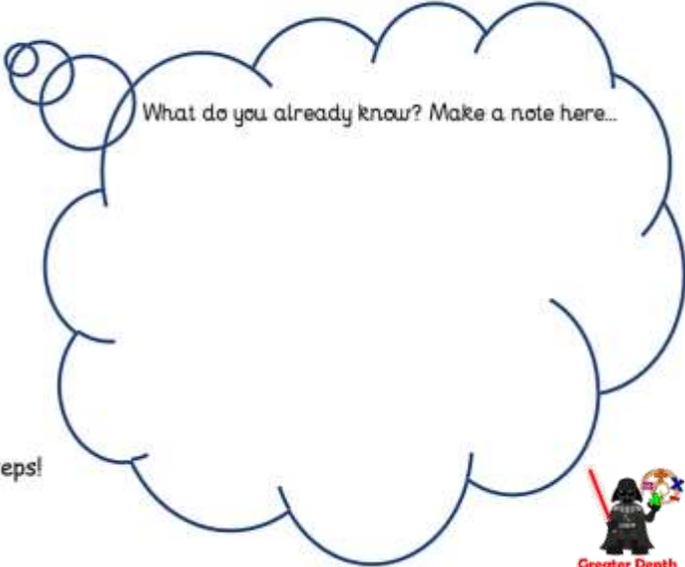
To get you started, this is the price of the apple:

$\text{apple} = 7p$
 $\text{apple} + \text{apple} + \text{banana} = 22p$
 $\text{grapes} + \text{banana} = 18p$
 $\text{grapes} - 6 = \text{orange}$
 $\text{apple} + \text{grapes} - \text{orange} = ?$

☆Challenge...you might need to use more than 2 steps!

$\text{orange} + \text{orange} + \text{grapes} + \text{apple} + \text{banana} = ?$

What do you already know? Make a note here...




Can you find the final 'missing' answer?

Where will you need to begin?

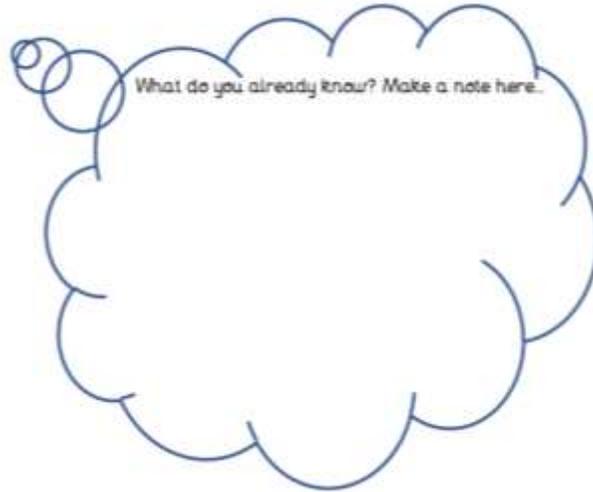


$$\text{Apple} + \text{Apple} + \text{Apple} = 30$$

$$\text{Apple} + \text{Banana} + \text{Banana} = 18$$

$$\text{Banana} - \text{Coconut} = 2$$

$$\text{Coconut} + \text{Apple} + \text{Banana} = ??$$



$$\text{Red Flower} + \text{Red Flower} + \text{Red Flower} = 60$$

$$\text{Red Flower} + \text{Blue Flower} + \text{Blue Flower} = 30$$

$$\text{Blue Flower} - \text{Yellow Flower} = 3$$

$$\text{Yellow Flower} + \text{Red Flower} + \text{Blue Flower} = \square$$



Create your own 'picture maths' problem to try out on someone else.

Use + and -

You will need to make sure it works - so think it through carefully.

You might need to have a couple of goes before you design a problem that works and is a challenge.

Here are some sets of symbols you can use - you could cut them out and move them around as you design your own questions.



Step 5 - Friday

Use today to go over anything you found tricky this week, and have another practise; as we will be moving on to a different maths focus next week.

When you are confident at using the inverse, there is a link to 'hit the button', which is a great game to put your knowledge to the test.

<https://www.topmarks.co.uk/maths-games/hit-the-button>



In the 'number bonds' section, there is a missing numbers game to play...put your inverse skills to the test. Can you add these to your mental maths facts which you can just recall?

You can also use this to keep your times tables skills bubbling ready for 'Times Table Mountain Challenge' when we are all back in class. The division facts will be useful for anyone who is working their way through the 'Peaks' on the challenge!

There is also a link to 'Mental Maths Train' for you to keep your addition and subtraction skills bubbling too: <https://www.topmarks.co.uk/maths-games/mental-maths-train>

