

Dr Fog Presents

Mental Models to Add and Subtract

Year 3 (National Numeracy Strategy)
(Based on DFEE Sample Lessons)



Resources

- Number Lines
- Worksheet on missing numbers



Mental Learning Objective

- I can counting on in steps of 2, 5, and 10.



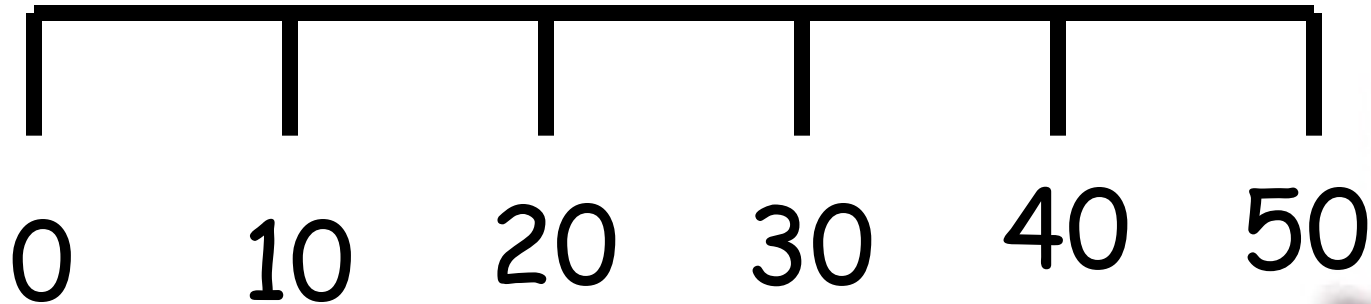
Mental Learning Task

- Today your teacher will count on or back in different numbers.
- What are they counting or back in?



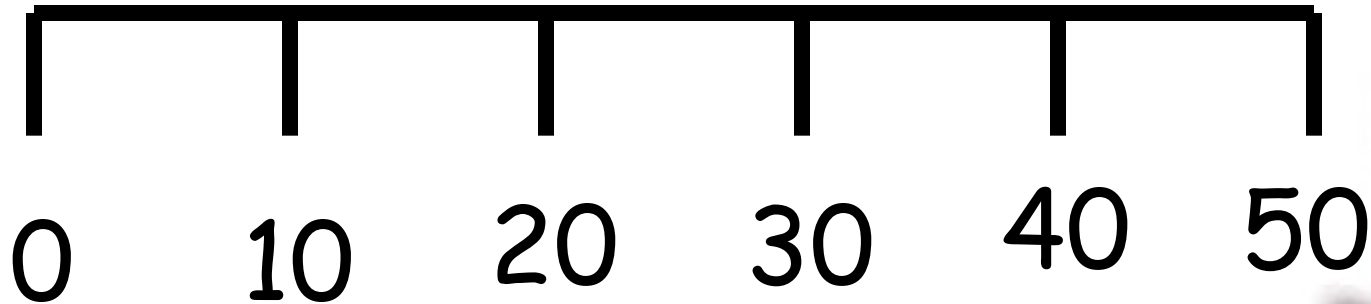
Mental Learning Task

- Here is a number line from 0 to 50.



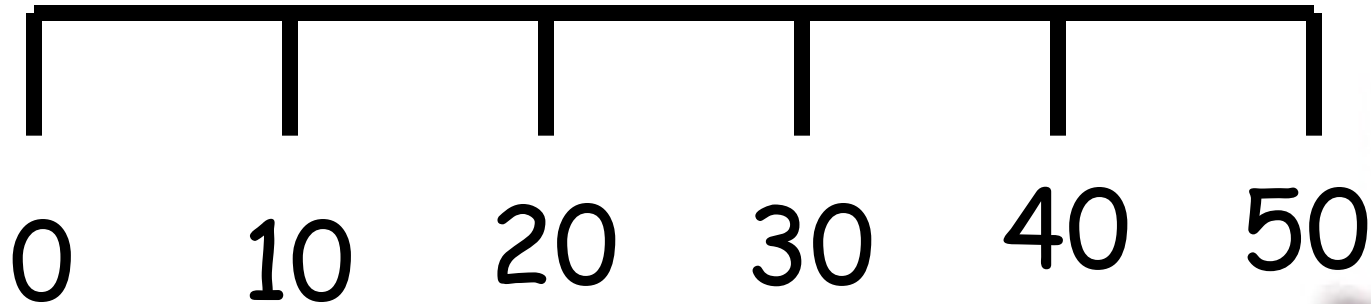
Mental Learning Task

- Solve this question $10 + 20 =$



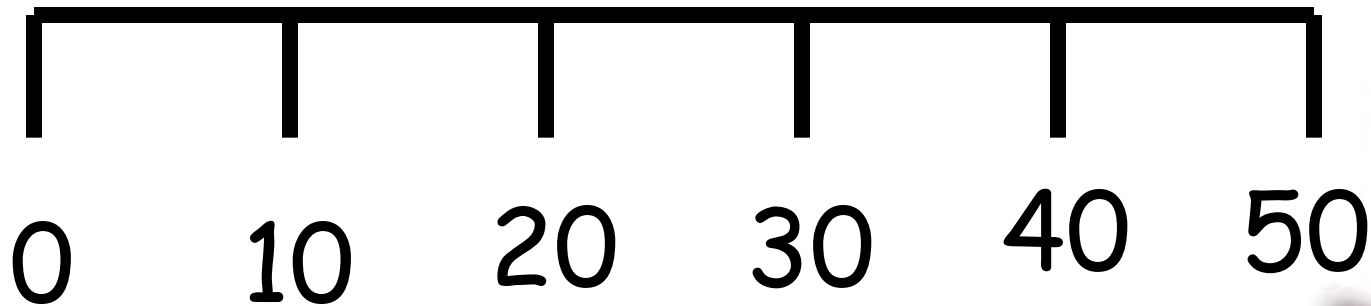
Mental Learning Task

- Solve this question $30 - 20 =$



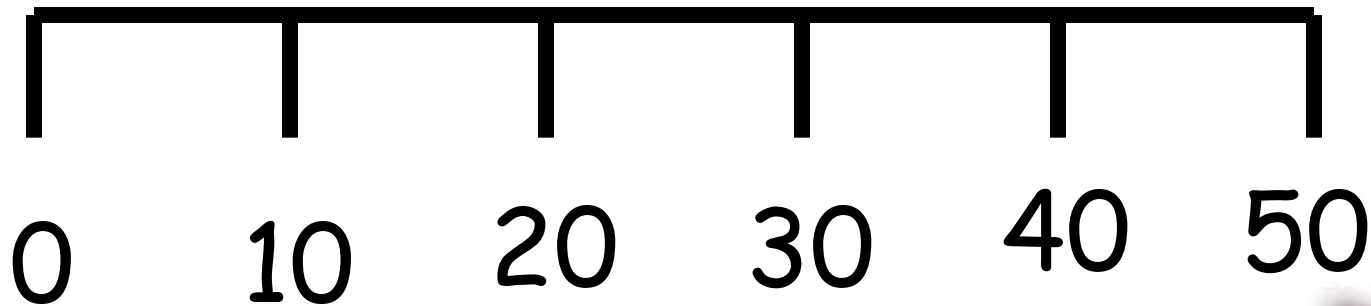
Mental Learning Task

- Solve this question $20 + 30 =$



Mental Learning Task

- Solve this question $50 - 20 =$



Mental Learning Task

- However often you are adding or subtracting where one number is a tens number and one is not....
- What do you do?



Mental Learning Task

- How would I solve $30 - 12$?



Mental Learning Task

- What do I start on?
- 30! Well done

30 - 12

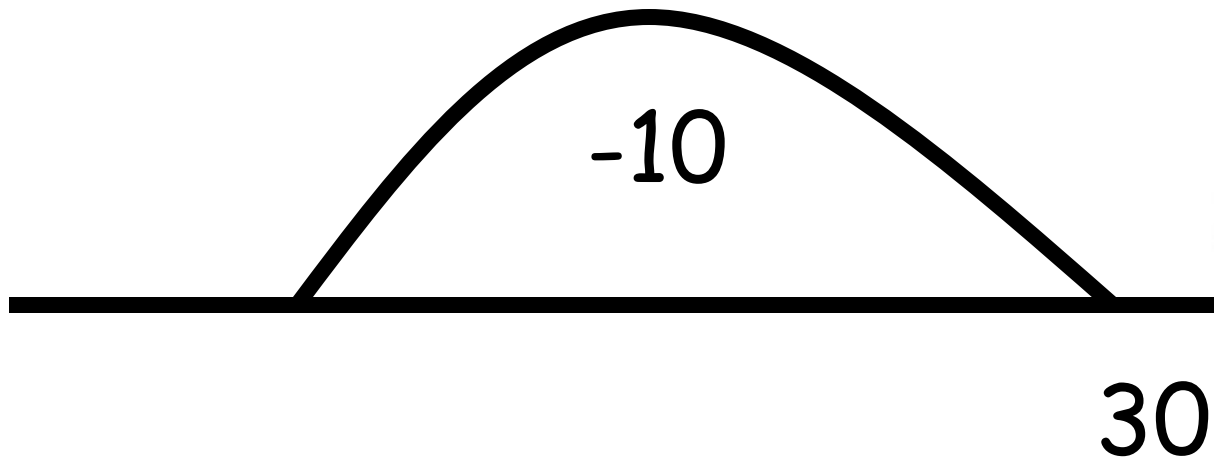
30



Mental Learning Task

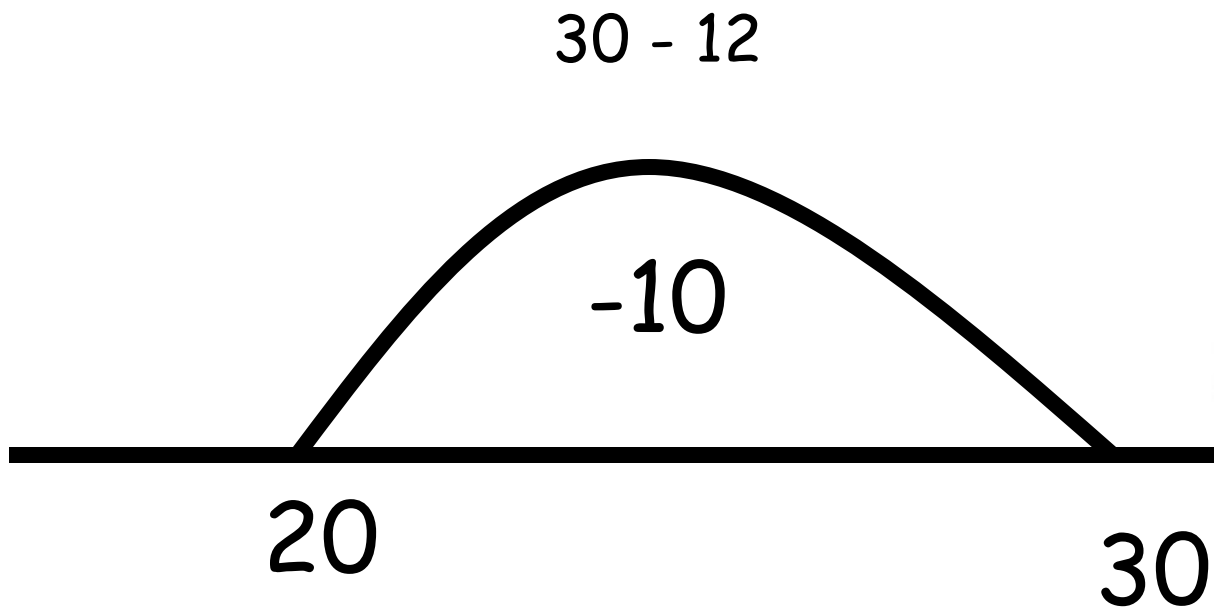
- What do we do next?
- We take off a 10

$$30 - 12$$



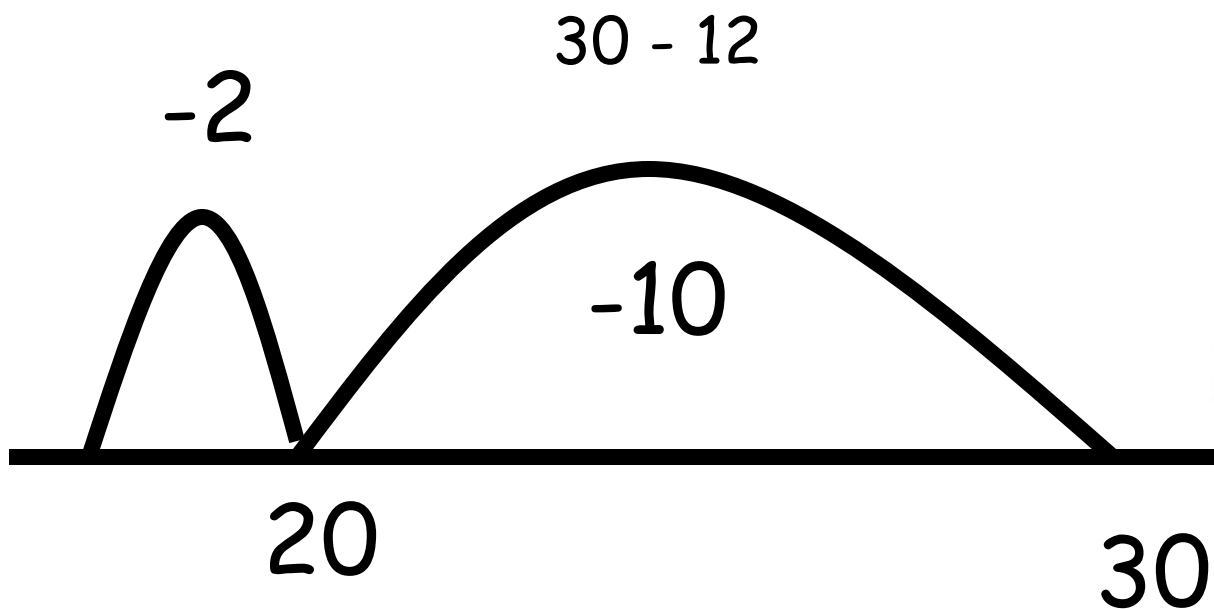
Mental Learning Task

- What do we land on?



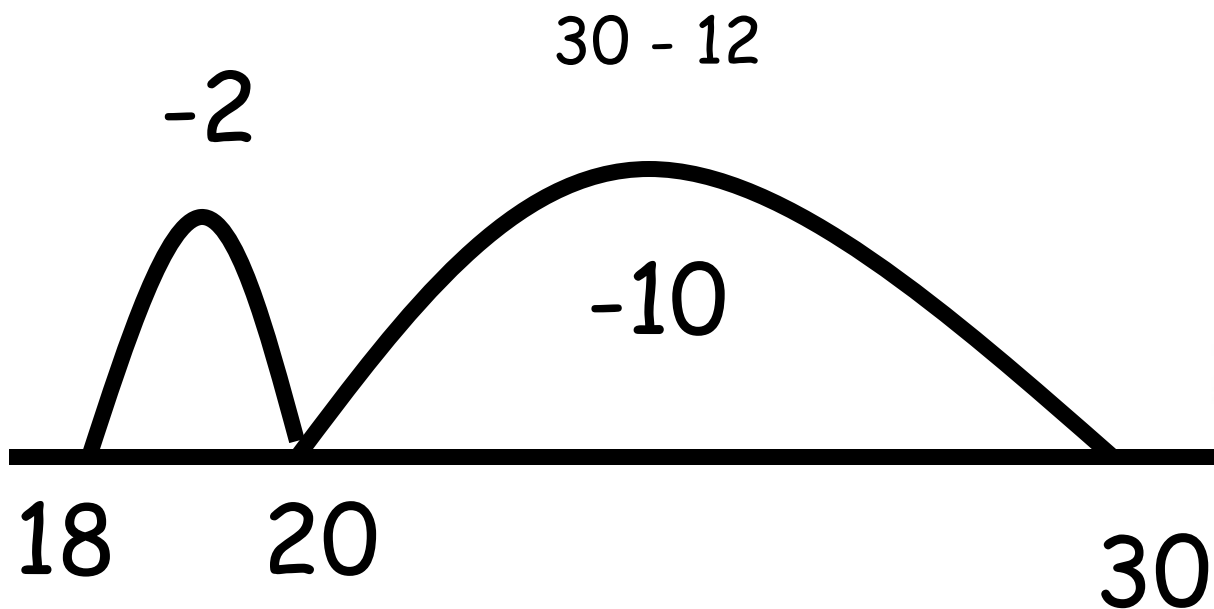
Mental Learning Task

- 20! Well done!
- How much more do we have to subtract?



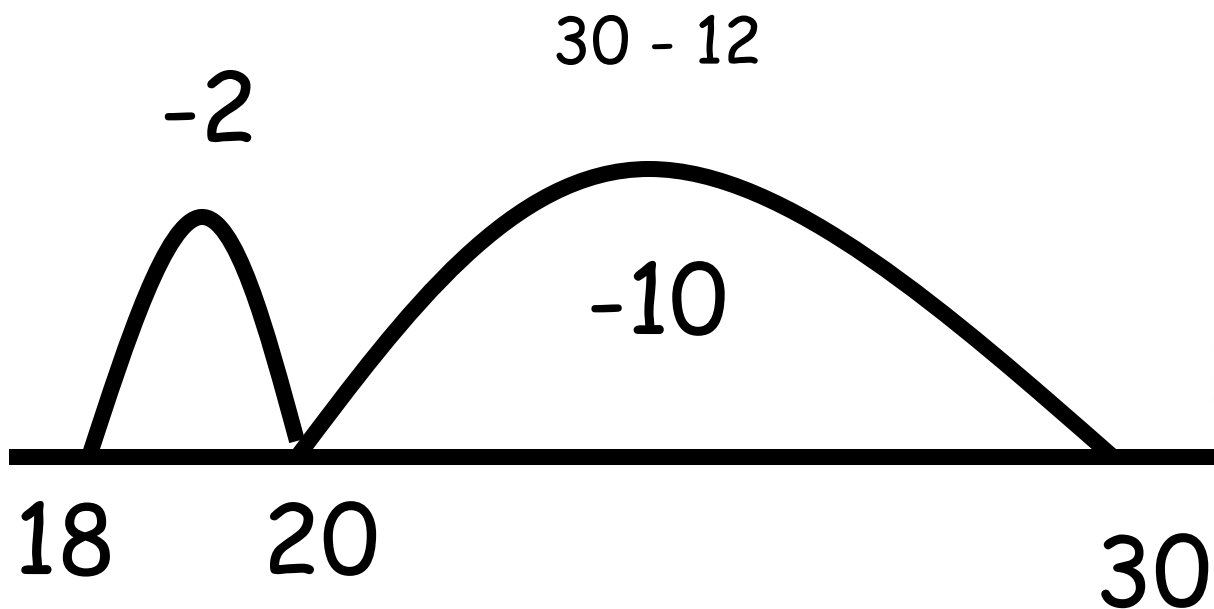
Mental Learning Task

- What number have we landed on?



Mental Learning Task

- We finished on 18.
- Try to solve the next questions in the same way.



Mental Learning Task

- Using this blank number line, solve $30 - 17$



Mental Learning Task

- Try $11 + 34$



Mental Learning Task

- Try 39 - 21



Mental Learning Task

- You can draw small jumps for each 10
- However you can also draw one big jump for all the tens.
- Remember to put the big number first when adding.



Mental Learning Task

- When you want to add 10 and 23...
- How can you do it?
- Is there another way to do it?
- Which is quicker and easier?



Mental Learning Task

- Show me both ways of adding 10 and 23.

10	33
----	----

23	33
----	----



Mental Learning Objective

- I can counting on in steps of 2, 5, and 10.



Main Learning Objective

- I can use these sequences in adding and subtraction problems.
- I can practise putting the larger number first when adding.



Key idea

**When adding and subtracting,
Break down numbers
into manageable parts.**



Main Learning Task

- Copy and complete

$$\begin{array}{cccc} 10 + 13 = & 15 + 22 = & 35 + 14 = & 20 + 15 = \\ 24 - 14 = & 35 - 15 = & 70 - 5 = & 22 + 25 = \\ 30 + 19 = & 12 + 35 = & 43 - 21 = & 56 - 14 = \\ 15 + 32 = & 47 - 25 = & 36 - 15 = & 70 + 25 = \end{array}$$

Complete
this sum
in three
different
ways $\square +$
 $\square = 32$

$$\begin{array}{ccc} 10 + \square = 35 & 25 + \square = 30 & 64 - \square = 20 \\ 33 - \square = 10 & \square - 11 = 30 & \square - 7 = 4 \end{array}$$

When you have finished...

Throw a 2 dice twice to make 2 numbers. Add them together or find the difference between them

Fill in the missing numbers

$$5 + 15 + \square = 37$$

$$12 + \square + 14 = 37$$

$$\square + 11 + 13 = 37$$

Main Learning Objective

- I can use these sequences in adding and subtracting problems.
- I can practise putting the larger number first when adding.



Plenary

- How did you solve the problems?
- Which is easier to do...
- $32 + 15$ or $15 + 32$?



Review of Key Idea

- When adding and subtracting, break down numbers into manageable parts.
- Do you learn this today?



Where Can I Find More Resources Like This?

- You can now visit my teaching resource website at <http://www.DrFog.co.uk>
- You can [click here](#) to search for more of my teaching resources.
- [Click here](#) to visit my TES shop!

