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 = 10
Mental Learning Task

• Solve this question 20 + 30 =
Mental Learning Task

• Solve this question 50 - 20 = 30
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
Mental Learning Task

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

\[ 30 - 12 \]

\[ -10 \]
Mental Learning Task

• What do we land on?
Mental Learning Task

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

\[ 30 - 12 = 18 \]
\[ 20 - 2 = 18 \]
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.
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**

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<tbody>
<tr>
<td>10 + 13</td>
<td>15 + 22</td>
<td>35 + 14</td>
<td>20 + 15</td>
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<tr>
<td>24 - 14</td>
<td>35 - 15</td>
<td>70 - 5</td>
<td>22 + 25</td>
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<td>30 + 19</td>
<td>12 + 35</td>
<td>43 - 21</td>
<td>56 - 14</td>
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<td>15 + 32</td>
<td>47 - 25</td>
<td>36 - 15</td>
<td>70 + 25</td>
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- **Compete this sum in three different ways**

\[ \square + \square = 32 \]

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<tr>
<td>10 +</td>
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<td>33 -</td>
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**When you have finished...**

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

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<td>12 +</td>
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- **Fill in the missing numbers**

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<tbody>
<tr>
<td>6 + 11 + 13 = 37</td>
<td>12 +</td>
<td>5 + 15 +</td>
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<td>12 +</td>
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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?
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