# Week 14, Day 3 <br> Number puzzles (1) 

Each day covers one maths topic. It should take you about 1 hour or just a little more.

1. Start by reading through the Learning Reminders.

2. Tackle the questions on the Practice Sheet. There might be a choice of either Mild (easier) or Hot (harder)!
Check the answers.

3. Finding it tricky? That's OK... have a go with a grown-up at A Bit Stuck?

4. Have I mastered the topic? A few questions to Check your understanding. Fold the page to hide the answers!

Identify the value of the ' 4 ' in the following numbers:
(a) 3.407
(b) 4.821
(c) 0.043
(d) 5.104
(e) 48,739

## Learning Reminders

Use number facts and logic to solve number puzzles.


Use number facts and logic to solve number puzzles.


The right line only has one missing number, so let's complete that next.

$$
\begin{aligned}
& 6+2+\square=16 \\
& 8+\square=16
\end{aligned}
$$

So the missing number is 8 .

## Learning Reminders

Use number facts and logic to solve number puzzles.


Use number facts and logic to solve number puzzles.


## Practice Sheet Mild Number puzzles

1. Make each line add up to 10 .

2. Make each line add up to 15 .

3. Make each line add up to 20.

## Practice Sheet Hot



## Challenge

Now can you draw your own rectangle where the total on every side is $20 ?$

## Practice Sheet Answers

## Practice Sheet (Mild)



Check that children have filled the circles in the bottom row of 3 . above with a pair of numbers that add to 10 .

## A Bit Stuck? <br> Cross counters

Things you will need:

- 5 small plates or similar, counters (you could use coins, pieces of pasta etc.)


## What to do:

- Arrange 5 small plates in a 'cross'.
- You are going to arrange 12 counters on the plates, BUT each line of plates 'across' and 'down' must have 8 counters.

Here is one way. Can you find another way? Write the additions for each line.


- Experiment with different ways to arrange the counters to solve the puzzle.
- Write the additions for each line to check.

You could try 3 in the middle and 3 at the top.
What would need to be at the bottom?
Now, what pairs of numbers could go in the horizontal line? We could try 1 and 4...

- Did you find any combinations where there were $\mathbf{O}$ counters on one or more plates?

S-t-r-e-t-c-h:
Now try using 15 counters with a total of 10 in each line.

HINT: if you get stuck, try putting 5 counters on the middle plate.

## Check your understanding:

## Questions

Write the possible pairs of missing numbers:

| 20 |  |  |
| :--- | :--- | :--- |
| 11 | $?$ | $?$ |

How many different ways are there of writing numbers in the two boxes in this addition?

$$
\square+O=10
$$

What if the total of the two missing numbers $=9$ ? $\mathrm{Or}=8$ ?

You have 21 cards: 0 to 20.
How many pairs of numbers can you create which make 20? Write these. Write the pair you cannot create.

## Answers on the next page

## Check your understanding:

## Answers

Write the possible pairs of missing numbers.

| 20 |  |  |
| :---: | :---: | :---: |
| 11 | $?$ | $?$ |

$5+4$ (or $4+5$ ); $6+3$ (or $3+6$ ); $7+2$ (or $2+7$ ); $8+1$ (or $1+8$ );
$9+0$ (or $0+9$ ). Errors may arise when children fail to recognise 9 as the difference between 20 and 11.
For this, and the following questions, consider how systematically children have listed the possibilities and challenge them to do so if they have missed some of the answers.

How many different ways are there of writing numbers in the two boxes in this addition?

$$
\square+O=10
$$

11 possibilities $10+0,9+1,8+2 \ldots 1+9,0+10$
What if the total of the two missing numbers $=9$ ? $\mathrm{Or}=8$ ?
10 possibilities if the total is 9 ; 9 possibilities if the total is 8 .

You have 21 cards: 0 to 20.
How many pairs of numbers can you create which make 20? Write these.
Write the pair you cannot create.

10 pairs:
$20+0,19+1,18+2,17+3,16+4,15+5,14+6,13+7$,
$12+8,11+9$.
The missing pair is $10+10$ (since there is only one 10 card).

