Useful Number Pairs

Overview

This activity presents a number of strategies which will help students recognise and recall useful number pairs fundamental to 'in the head' addition and subtraction. These include pairs which total 10, such as, 2 & 8, 3 & 7 and pairs which total 100, such as, 20 & 80, 30 & 70, 75 & 25 or 35 & 65.

The activity contains strategies for exploring and learning the pairs initially and practising instant recall.

These number pairs are applied simple change calculations in the Activity *Calculating Change*. The two activities could be combined section by section if this way of thinking is new for students.

Skills and Knowledge

Recall of number pairs totalling 10 & 100

Preparation and Materials

- At least 10 counters
- At least ten 10 cent coins
- At least two 5 cent coins
- A 10 or 6 sided dice

Photocopy Practice Sheets 1 & 2
(1 per student)

Suggested Procedure

A reminder of number pairs that total 10

Several strategies can be used to revise the pairs of number which total 10:

Counters in the hand?

- Begin with a collection of 10 counters on the table.
- Take several in your hand.
- Close your hand.
- Ask students to count how many are left on the table and tell you how many must be in your hand.

Continue with different numbers of counters until you are sure that students confidently remember the number pairs.

If students do not already know these number pairs, give them their own a pile of 10 counters, ask them to make two separate piles and record the numbers of counters in each. Ask them to see how many different pairs they can make with the 10 counters.

Throw of a dice

- Throw a dice (preferably 10 sided, but 6 will do).
- Call the number you have thrown.
- Ask students to tell you the number needed to add up to 10.

The 10 sided dice also includes 0 which will draw attention to the 10, 0 pair.

It could be useful to practise this in pairs. Just give one dice to each pair of students and ask them to take turns throwing and calling the pairs.

Introducing Number grids - pairs totalling 10

Practice Sheet 1 contains several grids designed for students to develop instant recall of the number pairs totalling 10.

Distribute one copy to each student.

Explain:

- *These grids have lots of pairs of numbers that add to 10*
- *They also have one spare number*
- *Your task is find all the pairs and cross them off until you find the spare number*
- *The best way is to find each pair and draw a line connecting the two numbers*
- *Then put a cross or a circle round the numbers*
- *Keep doing this till you have just one number left in the grid*

Correcting solutions

There are many ways of matching the number pairs but if all the pairs are correct then only one number remains unmatched at the end.

Explain:

- *Check with another student to see if you have the same single number left over*
- *If you don't agree then both of you check back and make sure all of your pairs are correct*
- *It is useful for checking if you drew the lines between the pairs of numbers as you found them*

Ask students to complete several of the grids.

If anyone finishes the first three grids whilst others are still going, ask them to try and use the blank to create their own version. Others could perhaps try this at another time, or for homework.

Ask students to then get others in the class to test their grid by finding the one spare number as before. [If the grid has not been done correctly then many unmatched numbers will remain.]

Extension grids – pairs which add to the next ten

The last two grids on *Practice Sheet 1* extend the idea of pairs which add to 10 by recognising pairs which will add up to the next ten, such as 15 & 5 which total 20, or 24 & 6 which total 30.

Extending to pairs that total 100

Display a pile of ten 10 cent coins and explain:

- *I have ten 10 cent coins here in the 'kitty'*

Ask:

- *How much money is this?*
- *How many cents altogether?*

Explain:

- *I am going to use these coins to make pairs that total 100*

Count out 6 of the 10cent coins: *10c, 20c, 30c, … 60c*

Ask:

- *Now I have 60 cents over here*
- *How much will I have left in kitty?*

Record the pair 60 + 40 = 100 on the board.
Repeat this for a few more pairs.

Ask:

- *Write down all of the possible pairs that we could make with these 10 cent coins*
- *Knowing these pairs helps to work out change easily*
- *We will try some of these later*

The first two grids on *Practice Sheet 2* use these pairs only, and would be useful at this point if students need to consolidate these before progressing to the next stage.

Where to next?

At this point there are **two possible choices** depending on how challenging the students are finding the content so far.

If they are challenged they may need to spend more time consolidating these pairs and also the motivation of seeing how they apply to calculating change, before going on to further pairs. See *Calculating Change Activity* following.

If they are not yet challenged then extend the number pairs to those ending in 5 such as, 65 & 35, immediately.

Extending to pairs ending in 5 (eg 65 & 35)

Explain:

- *I am now going to change one of these 10 cent coins for two 5 cent coins*
- *How much money is in kitty now?*

[There is still $1 or 100cents in kitty]

Count out a pile of coins that ends with a 5 cent coin, such as:

- *10c, 20c, 30c, 35c*

Ask:

- *How much is left in the kitty now?*

Count the money out loud together to check students' answers.

Demonstrate and explain:

- *One way to work this out is to imagine the other 5 cents in the kitty*
- *35 cents here, and another 5 from kitty would be 40 cents*
- *We know that the pair for 40c is 60c*
- *So in kitty we have 60c and the other 5c*
- *That's 60c and 5c which is 65c*

Use the coins to go through this thinking process until students see it clearly.

Record the pair 35+ 65 = 100 on the board

Try a few more examples together. For example, ask:

- *If I take 55c from kitty how much is left?*
- *What about 25c?*

Keep counting these out with the coins until students are really clear about the thinking process.

Continue until all possible pairs are recorded.

When the pairs are all recorded on the board ask:

- *Can you see a pattern here that will help remember these pairs?*

Students may readily see a pattern, such as: *the tens part of these numbers always adds up to 9 (or 90) and the two 5s make up the extra 10 to get to 100*. Or they may need extra prompting to see it.

Exploring the pattern is worthwhile, because seeing the pattern makes remembering the pairs much easier than if they were rote learned.

Practice Sheet 2 has several examples of grids for consolidating these pairs.

Useful Pairs

Practice Sheet 1

In each of these grids
Cross out the pairs that total 10.
What number is left in the grid?

3	2	4	6	1
10	4	7	5	0
7	4	8	9	2
3	5	6	8	6
8	9	2	7	1

5	5	8	4	2
3	8	4	5	1
4	2	2	7	6
3	5	7	3	9
8	6	2	8	6

5	6	2	1	8
10	5	4	3	1
8	9	7	6	5
5	4	4	9	2
7	3	8	2	0

Use the blank to create a grid or your own

In this grid
Cross out the pairs that total 20

15	6	2	11	8
10	5	14	13	1
18	9	17	6	15
5	14	4	19	12
7	3	18	2	10

In this grid
Cross out the pairs that total 30

24	22	3	4	29
9	7	21	20	23
1	26	8	6	28
27	9	27	28	5
10	2	25	3	2

Useful Pairs

Practice Sheet 2

In each of these grids:

Cross out the pairs that total 100.
What number is left in the grid?
Use the blank to create your own

50	60	20	40	70
30	60	70	90	80
10	90	40	30	10
40	10	10	80	60
90	20	70	90	50

60	50	30	10	90
70	40	30	90	80
10	90	40	70	10
60	10	10	80	60
90	20	20	90	50

25	95	80	95	35
15	65	75	35	30
45	65	15	85	5
70	10	65	90	35
5	55	40	20	60

15	95	20	70	60
55	40	70	50	20
85	30	5	85	25
50	65	80	35	45
80	15	85	75	30

20	25	55	40	95
15	35	10	75	70
20	25	20	80	65
30	35	90	85	80
5	45	80	60	75
