AC
EA
AA
AM
AP

Exploring addition

Addition/Subtraction Strategies

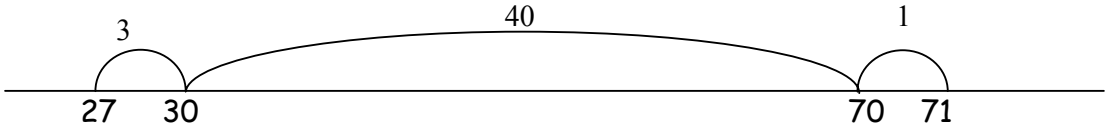
We are practising strategies for adding and subtracting numbers.

Exercise 1: Jumping the number line

example

27 + ☐ = 71

We can use the jumping the number line strategy to solve this



☐ = 3 + 40 + 1 = 44

What to do

Draw a number line like the one in the example to work out the answers to each of these problems.

1)	26 + ☐ = 55	(2)	38 + ☐ = 62	(3)	37 + ☐ = 91
4)	105 + ☐ = 231	(5)	142 + ☐ = 212	(5)	351 + ☐ = 504

In these next problems, the box sometimes comes first. Explain why you can still use the strategy above to work out the answer.

7)	☐ + 32 = 59	(8)	☐ + 49 = 71	(9)	☐ + 108 = 453
10)	2.7 + ☐ = 5.2	(11)	1.9 + ☐ = 7.1	(12)	6.7 + ☐ = 32.1
13)	3.47 + ☐ = 6.25	(14)	11.55 + ☐ = 27.9	(15)	☐ + 3.8 = 10.2
16)	☐ + 192.6 = 225.1	(17)	☐ + 1 370.25= 2,160.18		

18) Write a problem of your own like number 15 that the jumping the number line strategy would be a sensible strategy for.

19) 26 + ☐ = 55

Show how you could solve this problem using a different strategy.

Don’t subtract - add

example

90 – 68 = ☐

this is the same as 68 + ☐ = 90

I know that I can use the number line to answer this question.

68 + 22 = 90

☐ = 22

Exercise 2: Don’t subtract - add

What to do

Write these subtraction problems as addition problems, then answer them.

1)	60 - 26 = ☐	(2)	70 – 38 = ☐	(3)	92 - 47 = ☐
4)	405 – 347 = ☐	(5)	352 - 147 = ☐	(6)	530 – 358 = ☐
7)	4,750 – 3,860 = ☐	(8)	6,704 – 3,819 = ☐	(9)	2.7 – 1.9 = ☐
10)	6.3 - 2.7 = ☐	(11)	8.3 - 3.9 = ☐	(12)	45.3 - 26.7 = ☐

13) Write a subtraction problem of your own like number 11 that the addition strategy would be a sensible strategy for.

14) 60 – 26 = ☐

Show how you could solve this problem using a different strategy.

Using tidy numbers

Example

14 + ☐ = 82

I know that 14 + 6 = 20

and I need 62 more to get 82

so ☐ = 6 + 62 = 68

Exercise 3: Using tidy numbers

What to do

Use tidy numbers to work out the answers. Write at least one line of working.

1)	23 + ☐ = 94	(2)	52 + ☐ = 68	(3)	43 + ☐ = 84
4)	16 + ☐ = 58	(5)	23 + ☐ = 86	6)	13 + ☐ = 52

7)	☐ + 81 = 163	(8)	☐ + 159 = 362	(9)	☐ + 488 = 552
10)	1,189 + ☐ = 2,340	(11)	☐ + 170 = 425	(12)	☐ + 316 = 876
13)	2.7 + ☐ = 5.2	(14)	2.9 + ☐ = 6.1	(15)	6.7 + ☐ = 32.4

16) Write a problem of your own like number 15 that the tidy number strategy would be a sensible strategy for.

When one number is near 100

Example

There are at least two different strategies that work well when one number is near 100

Method 1: 87 + 98 can be solved as 87 + 100 = 187 but this is 2 too many so take 2 off the answer

So 87 + 98 = 185

Method 2: transfer 2 from the 87 to the 98 so that 87 + 98 becomes

85 + 100 = 185

Exercise 4: When one number is near 100

What to do

Use one of the above methods to answer these questions. Write down enough working so that someone else can understand which strategy you have used.

1)	62 + 99	(2)	77 + 98	(3)	97 + 84
4)	38 + 399	(5)	295 + 47	(6)	389 + 235
7)	4 099 + 2,125	(8)	7 295 + 477	(9)	2 285 + 367
10)	4.7 + 2.5	(11)	23.5 + 14.9	(12)	17.8 + 3.4
13)	4.99 + 2.03	(14)	5.87 + 1.35	(15)	35.79 + 2.04

Equal Additions

Example

For a problem like 346 – 297, the fact that 297 is very close to a tidy number suggests that a useful way of solving it is by equal additions, in this case, by adding 3 to both numbers.

The problem then becomes 349 – 300 which is obviously 49

Exercise 5: Equal Additions

What to do

Use the strategy of equal additions to solve these. Write down enough working so that someone else can understand how you have worked the problem out.

1)	423 - 398	(2)	652 - 497	(3)	447 - 389
4)	5 643 - 398	(5)	4 276 - 697	(6)	9 230 – 388
7)	3.4 – 2.9	(8)	4.5 – 3.7	(9)	12.8 – 3.8

Look at questions 10 and 11. Explain the difference between the problems. Does having the = ☐ at the end of the problem change the way you want to do it?

10)	4.36 – 3. 97	(11)	8.35 - 3.98 = ☐	(12)	43.32 - 26.75 = ☐

13) Write a subtraction problem of your own like number 11 that the addition strategy would be a sensible strategy for.

15) 60 – 26 = ☐

Show how you could solve this problem using a different strategy.

Near Doubles

Example

267 + 263 can be worked out using at least two different strategies

Method 1: take 2 off 267 and add it to the 263 to make 265 + 265. The answer is double 265, which is 530.

Method 2: Work out 260 + 260 (double 260) which is 520. The answer to 267 + 263 is 7 + 3 more than this so the final answer is 520 + 10 = 530

Exercise 6: Near Doubles

What to do

Use one of these methods to work out the answers. Show enough working so that someone else can follow your method

1)	351 + 349	(2)	204 + 196	(3)	347 + 353
4)	1 308 + 1,292	(5)	9 996 + 10,008	(6)	7 898 + 8,002
7)	4.9 + 4.1	(8)	35.7 + 35.3	(9)	74.8 + 74.2
10)	1.27 + 1.23	(11)	4.59 + 4.57	(12)	17.08 + 17.42

13) Write a problem of your own like number 12 that the near doubles would be a sensible strategy for.

Using multiplication

Example

45 + 27 can be worked out using the fact that 45 and 27 are both multiples of 9

45 = 5 × 9 and 27 = 3 × 9
So 45 + 27 = 5 x 9 + 3 x 9
= (5 + 3) x 9
= 8 x 9
= 72

Exercise 7: Using multiplication

What to do

Use one of the strategy of looking for multiples to work out the answers. Show enough working so that someone else can follow your method

1)	48 + 36	(2)	72 - 27	(3)	88 – 56
4)	120 - 54	(5)	72 - 36	(6)	125 - 75

Exercise 8: Adding in Parts – decimals

Example

A decimal can be split into different parts, and these added separately.
21 .3 + 7.45 splitting the wholes and the parts gives 21 + 7 and 0.3 + 0.45

21 .3 + 7.45 = 28 + 0.75
= 28.75

Use this method to answer the following. Show at least one step for each question.

1)	12.5 + 6.35	(2)	33.8 + 5.15	(3)	34.1 + 5.55
4)	8.15 + 17.3	(5)	6.4 + 13.35	(6)	15.65 + 3.2
7)	18.6 + 5.25	(8)	35.7 + 35.3	(9)	74.8 + 74.2
10)	1.27 + 1.23	(11)	4.59 + 4.57	(12)	17.08 + 17.42
13)	27.3+ 7.55	(14)	3.4 + 3.15	(15)	5.25 + 19.3

Answers

Exercise 1

1)	29	(2)	24	(3)	54	(4)	126
5)	80	(6)	153				

Changing the order of the numbers in an addition does not change the answer. Here, □ + 3 is the same as 3 + □, so the strategy still works.

(7)	26	(8)	22				
9)	345	(10)	2.5	(11)	5.2	(12)	25.4
13)	2.78	(14)	16.35	(15)	6.4	(16)	32.5
17)	790.55	(18)	Own problem				

Exercise 2

1)	34	(2)	32	(3)	45	(4)	58
5)	205	(6)	172	(7)	890	(8)	2885
9)	0.8	(10)	3.6	(11)	4.4	(12)	18.6

Exercise 3

1)	71	(2)	16	(3)	41	(4)	42
5)	63	(6)	39	(7)	82	(8)	203
9)	64	(10)	1151	(11)	255	(12)	560
13)	2.5	(14)	3.2	(15)	25.7		

Exercise 4

1)	161	(2)	175	(3)	181	(4)	437
5)	342	(6)	273	(7)	6224	(8)	7772
9)	2652	(10)	7.2	(11)	38.4	(12)	21.2
13)	7.02	(14)	7.22	(15)	37.83		

Exercise 5

1)	21	(2)	155	(3)	58	(4)	5245
5)	3579	(6)	8842	(7)	0.5	(8)	0.8

Having the = □ at the end of the problem does not change it. The method used can be the same one that was used for all of the other problems.

9)	9.0	(10)	0.39	(11)	4.37	(12)	16.57

Exercise 6

1)	700	(2)	400	(3)	700	(4)	2600
5)	20004	(6)	15900	(7)	9	(8)	71
9)	149	(10)	2.5	(11)	9.16	(12)	34.5

Exercise 7

1)	84	(2)	45	(3)	32	(4)	66
5)	36	(6)	50				

Exercise 8

1)	110	(2)	4.5	(3)	3.15	(4)	3766
5)	136	(6)	69	(7)	1300	(8)	2400
9)	7	(10)	2.6	(11)	20.04	(12)	152
13)	42	(14)	91	(15)	189		