AC
EA
AA
AM
AP

Addition Strategies

Adding in Parts

We are learning to add numbers by splitting them into parts.

Sometimes problems can be done by splitting up one of the numbers so that the other number can be made into a tidy number.

eg. 19 + 7

Split 7 into 1 + 6 and make 19 into a tidy number by adding 1

so 19 + 7 = 19 + 1 + 6
= 20 + 6
= 26

eg. 34 + 18 = 32 + 2 + 18
= 32 + 20
= 52

Exercise 1

What to do

1) Use the strategy of splitting a number into parts to do these additions.
2) Do the problems in your head first.
3) Check you are correct by writing them down. Show them like the examples above.

1)	28 + 14	(2)	76 + 9	(3)	37 + 15
4)	46 + 17	(5)	68 + 24	(6)	48 + 37
7)	29 + 62	(8)	18 + 63	(9)	55 + 17
10)	29 + 54	(11)	38 + 17	(12)	37 + 54
13)	69 + 73	(14)	78 + 45	(15)	27 + 57
16)	19 + 64	(17)	27 + 46	(18)	38 + 75
19)	47 + 86	(20)	34 + 68	(21)	58 + 86
22)	74 + 38	(23)	95 + 29	(24)	88 + 36

Using larger numbers

146 + 38 = 146 + 4 + 34
= 150 + 34
= 184

or 146 + 38 = 144 + 2 + 38
= 144 + 40
= 184

Exercise 2: larger numbers

What to do

1) Use the strategy of splitting a number into parts to do these additions.
2) Do the problems in your head first.
3) Check you are correct by writing them down. Show them like the examples above.

1)	294 + 87	(2)	392 + 118	(3)	698 + 77
4)	247 + 45	(5)	329 + 68	(6)	488 + 36
7)	539 + 83	(8)	495 + 126	(9)	597 + 363
10)	296 + 438	(11)	794 + 197	(12)	899 + 73
13)	998 + 115	(14)	724 + 89	(15)	1098 + 89
16)	3996 + 257	(17)	5997 + 325	(18)	2798 + 275

Decimals can be added in a similar way. Make one number into a whole number and adjust the other number.

eg. 32.8 + 24.7

2 tenths or 0.2 is needed to make 32.8 into a whole number and 2 tenths or 0.2 taken from 24.7 gives 24.5

so 32.8 + 24.7 = 33 + 24.5
= 57.5

Exercise 3: adding tenths

Knowledge Check – What number goes in the ☐ to make the decimal into a whole number?

1)	4.8 + ☐ = 5	(2)	7.6 + ☐ = 8	(3)	2.9 + ☐ = 3
4)	12.7 + ☐ = 13	(5)	15.9 + ☐ = 16	(6)	23.5 + ☐ = 24
7)	32.8 + ☐ = 33	(8)	74.7 + ☐ = 75	(9)	42.6 + ☐ = 43

Exercise 4: using decimals

What to do

1) Use the strategy of splitting a number into parts to do these additions.
2) Do the problems in your head first.
3) Check you are correct by writing them down. Show them like the examples above.

1)	3.9 + 6.7	(2)	4.8 + 7.3	(3)	5.9 + 8.4
4)	7.4 + 1.8	(5)	8.8 + 7.6	(6)	10.6 + 7.8
7)	2.8 + 0.9	(8)	16.7 + 22.8	(9)	34.9 + 12.6
10)	52.7 + 16.8	(11)	21.9 + 17.8	(12)	63.8 + 34.7
13)	42.6 + 16.7	(14)	14.5 + 33.9	(15)	27.8 + 31.7
16)	42.9 + 35.6	(17)	54.9 + 22.7	(18)	36.9 + 52.7
19)	54.8 + 23.4	(20)	83.7 + 12.5	(21)	86.8 + 23.2

Jane knows 34 + 18 = 32 + 20
How does she know this without working out the answer?

Exercise 5

What to do

1) Decide whether each statement is True or False.
2) Do this without working out the answer.

1)	68 + 34 = 70 + 32	(2)	36 + 57 = 39 + 54	(3)	87 + 15 = 90 + 18
4)	74 + 18 = 72 + 20	(5)	95 + 37 = 98 + 40	(6)	65 + 17 = 68 + 14
7)	153 + 19 = 154 + 20	(8)	325 + 216 = 329 + 220	(9)	274 + 38 = 272 + 40
10)	73.8 + 15.4 = 74 + 15.6	(11)	45.7 + 11.6 = 46 + 11.3	(12)	82.3 + 17.7 = 82 + 18

Exercise 6

What number goes in the ☐ to make a true statement?

1)	26 + 35 = 30 + ☐	(2)	18 + 77 = 20 + ☐	(3)	37 + 18 = 40 + ☐
4)	44 + 78 = ☐ + 80	(5)	54 + 28 = ☐ + 30	(6)	93 + 79 = ☐ + 80
7)	46 + 48 = 47 + ☐	(8)	47 + 85 = ☐ + 88	(9)	54 + 28 = 58 + ☐
10)	56 + 38 = ☐ + 35	(11)	74 + 49 = 77 + ☐	(12)	73 + 45 = 70 + ☐
13)	26 + 57 = 23 + ☐	(14)	56 + 17 = ☐ + 13	(15)	93 + 79 = 90 + ☐

Exercise 7

Find two numbers that can be placed in the ☐ and the △ to make a true statement.
Do each problem in three different ways.

1) 38 + ☐ = 36 + △ 38 + ☐ = 36 + △ 38 + ☐ = 36 + △
Describe the relationship between the ☐ and the △.

2) 26 + ☐ = 29 + △ 26 + ☐ = 29 + △ 26 + ☐ = 29 + △
Describe the relationship between the ☐ and the △.

3) 51 + ☐ = 56 + △ 51 + ☐ = 56 + △ 51 + ☐ = 56 + △
Describe the relationship between the ☐ and the △.

4) 75 + ☐ = 72 + △ 75 + ☐ = 72 + △ 75 + ☐ = 72 + △
Describe the relationship between the ☐ and the △.

5) 87 + ☐ = 83 + △ 87 + ☐ = 83 + △ 87 + ☐ = 83 + △
Describe the relationship between the ☐ and the △.

6) 93 + ☐ = 90 + △ 93 + ☐ = 90 + △ 93 + ☐ = 90 + △
Describe the relationship between the ☐ and the △.

7) 86 + ☐ = 100 + △ 86 + ☐ = 100 + △ 86 + ☐ = 100 + △
Describe the relationship between the ☐ and the △.

8) 148 + ☐ = 150 + △ 148 + ☐ = 150 + △ 148 + ☐ =150 + △
Describe the relationship between the ☐ and the △.

9) 574 + ☐ = 600 + △ 574 + ☐ = 600 + △ 574 + ☐ = 600 + △
Describe the relationship between the ☐ and the △.

10) 423 + ☐ = 450 + △ 423 + ☐ = 450 + △ 423 + ☐ = 450 + △
Describe the relationship between the ☐ and the △.

Exercise 8:

Without working out the answer how do you know that each of the following are true? Write an explanation and then discuss with other members of your group.

1) $0.7 + 0.5 > 1$

2) $54 + 28 = 52 + 30$

3) $246 + 238 > 480$

4) $49 + 51 + 52 > 3 \times 50$

5) $28 + 33 + 38 = 33 + 33 + 33$

6) $16 + {}^{-}4 = 12 + 0$

7) $\triangle + \mathrm{O} = (\triangle + 2) + (\mathrm{O} - 2)$ where $\triangle$ and O are any numbers

Exercise 9: generalising the relationship

What to do

1) Fill in the brackets to make a true statement.
2) The letter stands for *any number*.
3) Write the statement in your book.

1) $27 + n = 30 + (\ldots\ldots)$

(2) $68 + e = 70 + (\ldots\ldots)$

3) $89 + a = 100 + (\ldots\ldots)$

(4) $46 + (\ldots\ldots) = 50 + y$

5) $37 + (\ldots\ldots) = 60 + b$

(6) $34 + w = 30 + (\ldots\ldots)$

7) $14.6 + m = 15 + (\ldots\ldots)$

(8) $48 + g = 47.9 + (\ldots\ldots)$

9) $65 + (\ldots\ldots) = 50 + b$

(10) $36 + (\ldots\ldots) = 50 + p$

11) $n + 37 = (\ldots\ldots) + 50$

(12) $(\ldots\ldots) + 113 = c + 100$

13) $(\ldots\ldots) + 388 = h + 400$

(14) $s + 227 = (\ldots\ldots) + 250$

Adding in Parts
Answers

Exercise 1

1)	42	(2)	85	(3)	52
4)	63	(5)	92	(6)	85
7)	91	(8)	81	(9)	72
10)	83	(11)	55	(12)	91
13)	142	(14)	123	(15)	84
16)	83	(17)	73	(18)	113
19)	133	(20)	102	(21)	144
22)	112	(23)	124	(24)	124

Exercise 2

1)	381	(2)	510	(3)	775
4)	292	(5)	397	(6)	524
7)	622	(8)	621	(9)	960
10)	734	(11)	991	(12)	972
13)	1113	(14)	813	(15)	1187
16)	4253	(17)	6322	(18)	3073

Exercise 3

1)	0.2	(2)	0.4	(3)	0.1
4)	0.3	(5)	0.1	(6)	0.5
7)	0.2	(8)	0.3	(9)	0.4

Exercise 4

1)	10.6	(2)	12.1	(3)	14.3
4)	9.2	(5)	16.4	(6)	18.4
7)	3.7	(8)	39.5	(9)	47.5
10)	69.5	(11)	39.7	(12)	98.5
13)	59.3	(14)	48.4	(15)	59.5
16)	78.5	(17)	77.6	(18)	89.6
19)	78.2	(20)	96.2	(21)	110

Exercise 5

1)	True	(2)	True	(3)	False
4)	True	(5)	False	(6)	True
7)	False	(8)	False	(9)	True
10)	False	(11)	True	(12)	True

Exercise 6

1)	31	(2)	75	(3)	15
4)	42	(5)	52	(6)	92
7)	47	(8)	44	(9)	24
10)	59	(11)	46	(12)	48
13)	60	(14)	60	(15)	82

Exercise 7

Statements for each question will vary.

1) the number in the △ is 2 more than the number in the □
2) the number in the △ is 3 less than the number in the □
3) the number in the △ is 5 less than the number in the □
4) the number in the △ is 3 more than the number in the □
5) the number in the △ is 4 more than the number in the □
6) the number in the △ is 3 more than the number in the □
7) the number in the △ is 14 less than the number in the □
8) the number in the △ is 2 less than the number in the □
9) the number in the △ is 26 less than the number in the □
10) the number in the △ is 27 less than the number in the □

Exercise 8

Answers will vary.

1) 0.7 > 0.5 so total will be more than 0.5 + 0.5
2) adding 2 to 28 gives 30 and subtracting 2 from 54 gives 52
3) 2 lots of 240 gives 480 and 246 is further from 240 than 238
4) 49 is one below 50, other two numbers are both above 50
5) 28 is five below 33 and 38 is five above 33 so their total is the same as 33 + 33
6) ¯4 is increased by 4 and 16 is decreased by 4 so total is unchanged
7) △ is increased by 2 and O is decreased by 2 so total is unchanged

Exercise 9

1)	n - 3	(2)	e - 2	(3)	a - 11
4)	y + 4	(5)	b + 23	(6)	w + 4
7)	m – 0.4	(8)	g + 0.1	(9)	b - 15
10)	p + 14	(11)	n - 13	(12)	c - 13
13)	h + 12	(14)	s - 23		