Unit 2: Place value within 1,000,000

Lesson 1: 100,000s, 10,000s, 1,000s, 100s, 10s and 1s (1)

→ pages 32–34

1. 600,000 six hundred thousand

2. a) 500,000 five hundred thousand
b) 1,000,000 one million (not 'a million')

3. a) One hundred and twenty-three thousand, four hundred and nineteen.
b) Six hundred and ninety thousand, four hundred and three.

4. a) 329,100
b) 37,581
c) 600,040
d) 400,596

5. a) 4,000 (4 thousands)
b) 40 (4 tens)
c) 40 (4 tens)
d) 4 (4 ones)
e) 400,000 (4 hundred thousands)

6. Answers will vary; all answers must have one counter in the thousands column. For example:

111,225 301,035 311,205 411,114 301,134

Reflect

Check that the number drawn on the place value grid matches numerals and words.

Lesson 2: 100,000s, 10,000s, 1,000s, 100s, 10s and 1s (2)

→ pages 35–37

1. 252,723

2. a) 310,450
b) Circled: 2 × £100,000 1 × £10,000 5 × £1,000 4 × £1

3. a) Circled: 1 × 100,000 7 × 10,000 6 × 1,000 3 × 1
b) Circled: 4 × 10,000 5 × 1,000 1 × 100 4 × 10

4. a) 218,492 = 200,000 + 10,000 + 8,000 + 400 + 9 + 2
b) 710,388 = 700,000 + 10,000 + 300 + 80 + 8
c) 39,448 = 30,000 + 9,000 + 400 + 40 + 8
d) 279,731
e) 502,981
f) 7,073
g) 650,103

5. a) 549,527
b) 70,506
c) 910,028

6. a) 536,215
b) 735,000
c) 10,976
d) 15,100
e) 2,132

Reflect

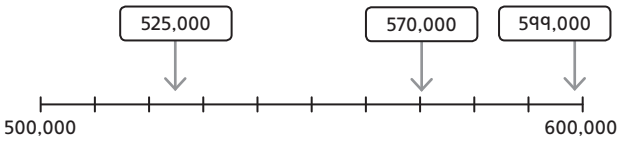
Answers may vary. Look for 452,093 partitioned in a variety of ways; for example:
400,000 + 50,000 + 2,000 + 90 + 3
200,000 + 200,000 + 52,000 + 80 + 13

Lesson 3: Number line to 1,000,000

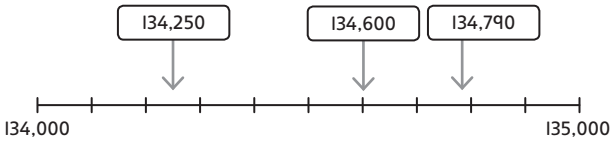
→ pages 38–40

1. a) 200,000 650,000 900,000
b) 210,000 270,000
Allow answers between 297,500 and 299,000.
c) 270,500 275,000 279,000

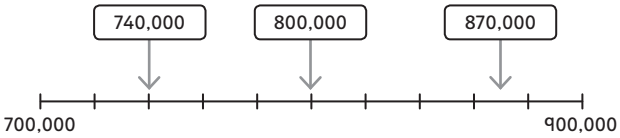
2. a)



b)



c)

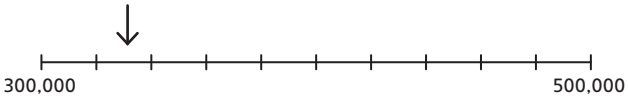


3. A: approximately 410,000
B: approximately 475,000
C: approximately 495,000
Answers will vary and children should explain their reasoning for estimation.

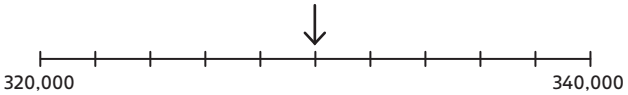
4. Circled: 370,000 507,000 429,781

5. Top number: 330,000

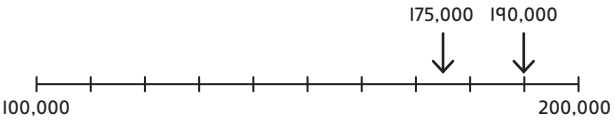
Middle number line:



Lower number line:



Reflect



Answers will vary; for example:

150,000 is half-way between 100,000 and 200,000 so 175,000 is $\frac{3}{4}$ of the way along the line.

Lesson 4: Comparing and ordering numbers to 1,000,000

➜ pages 41–43

1. Circled numbers:
a) Lower number (258,300)
b) Lower number (131,500)
c) Right-hand number (70,000)
d) Right-hand number (six hundred thousand)
e) Middle number (523,000)

2. a) Cliff Edge
b) Cliff Edge Fred's Farm Shaw Farm High Top

3. a) 56,720 < 73,405
b) 300,000 > 37,940
c) 517,182 < 517,185
d) 59,472 < 59,505
e) one million > 764,914
f) 3,189 < thirty thousand

4.

	Population
Hull	265,180
Southampton	238,700
Dover	31,200

5. Missing digits:
a) Number between 0 and 4.
b) If 2nd digit is 4 or less, 1st digit can have any value. If 2nd digit is 5, 1st digit must be 3 or more.
c) If 1st digit is 8 or 9, other digits can take any value. If 1st box is 7, there are many possible answers – check answer given.
d) 2nd digit = 8; 1st digit = 3rd digit.
e) 2nd digit = 3; other digits can take any value.

6. a) 5
b) 7
c) Answers will vary; middle number must start with a digit between 4 and 7.

Reflect

Explanations will vary. Children should explain that they will compare the digits with the greatest place value first (hundred thousands). If these are the same, they will need to compare the digits with the second greatest place value (ten thousands) and so on.

Lesson 5: Rounding numbers to 1,000,000

➜ pages 44 –46

1. a) 200,000
b) 600,000
c) 300,000
d) 700,000
e) 100,000
f) 700,000

2. a) 240,000
b) 470,000
c) 160,000
d) 420,000
e) 30,000
f) 720,000
g) 350,000
h) 610,000

3. (Danny's number is 237,412.)
a) 200,000
b) 237,000
c) Counters cannot be drawn in the hundred thousands or ten thousands columns but can be drawn anywhere else, to make numbers such as: 239,634 or 237,492.

4.

Number	Rounded to the nearest 10,000	Rounded to the nearest 1,000	Rounded to the nearest 10
239,145	240,000	239,000	239,150
128,783	130,000	129,000	128,780
758,007	760,000	758,000	758,010
632,175 – 632,184	630,000	632,000	632,180
825,425 – 825,434	830,000	825,000	825,430
627,141 – 627,149	630,000	627,000	627,150
635,*72 (* any digit)	640,000	635,000 or 636,000	635,*70

(Bottom row: third column will be 635,000 if * is between 0 and 4, and 636,000 if * is between 5 and 9.)

5. Answers will vary.
a) Allow numbers 450,000 to 549,999 made with correct digits.
b) Allow numbers 605,000 to 614,999 made with correct digits.
c) 610,548 or 610,584.

6. Answers will vary.
a) Ten thousands digit must be 5 or more; other digits cannot be 0.
For example: 151,111 ➜ 200,000
372,481 ➜ 400,000
699,999 ➜ 700,000
b) Ten thousands digit and thousands digit must be 9; other digits cannot be 0.
For example: 199,111 ➜ 200,000
399,481 ➜ 400,000
699,999 ➜ 700,000

Reflect

Explanations will vary; for example:
I would look at the ten thousands digit. If it is 4 or less I will need to round down. If it is 5 or more I will need to round up.

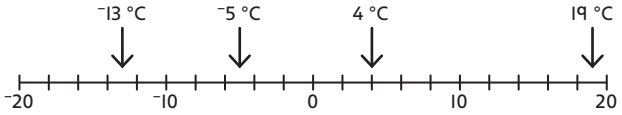
Lesson 6: Negative numbers

➜ pages 47–49

1. a) ⁻8
b) 5
c) 13

2. 11

3. a)



b) 17
c) ⁻13 ⁻5 4 19
d) ⁻4

4. a) 15
b) 7

5. 2,300

6. 108

Reflect

Answers will vary; for example:
From 6 am to 2 pm the temperature increases by 19 °C. The temperature is below freezing before 6:00 am and after 10:00 pm.

Lesson 7: Counting in 10s, 100s, 1,000s, 10,000s

➜ pages 50–52

1. a) 230,416
b) 240,416
c) 230,516
d) 220,516 (assuming she is starting from 230,516)

2. Missing numbers:
a) 170,000 180,000 190,000 200,000
b) 97,000 100,000 101,000 102,000
c) 760,400 760,700 760,800 761,000

3. Missing numbers:
a) 308,150 408,150 508,150 708,150
b) 555,420 565,420 575,420 585,420
c) 751,097 751,107 751,127 751,137

4. Answers will vary; for example:
+ 100,000: 320,000 420,000 520,000 620,000 720,000 820,000
+ 10,000: 680,000 690,000 700,000 710,000 720,000 730,000

5.

100,000 less	695,104	100,000 more	895,104
10,000 less	785,104	10,000 more	805,104
1,000 less	794,104	1,000 more	796,104
100 less	795,004	100 more	795,204
10 less	795,094	10 more	795,114

6. a) 877,777
b) 434,444
c) 556,555

7. a) 825,007
b) 184,512
c) 869,300
d) 382,150
e) 392,107
f) 184,512

8. A = 126,928 B = 26,928 C = 36,928

Reflect

Answers will vary. Children should recognise that there will be more steps of 100 than steps of 10,000 so it will take longer to count in 100s than to count in 10,000s.

Lesson 8: Number sequences

➜ pages 53–55

1. a) Children should draw three matches to make 3 linked horizontal squares.
b) 4 7 10 13 16
c) 22 matchsticks. Explanations will vary; for example: The rule for the pattern is to add 3 each time so I added 3 and 3 again to 16 (which is the 5th number in the pattern).

2. Rule for the sequence is to add 4 but 19 + 4 = 23, not 22. All numbers in the sequence will be odd.

3. a) 23 26
b) 11 13
c) 23 27
d) 4 0
e) 31 37
f) 125 100
g) 7 2
h) 21 31
i) 7 10
j) ⁻2 ⁻8

4. 41

5. 204

6. 48

Reflect

Children should design and describe their own sequence.

End of unit check

➜ pages 56–57

My journal

1.

A number between 250,000 and 35,000.	For example: 315,689 315,869
A number that has a smaller number of 100s than 10,000s.	For example: 536,189 or 695,831
The greatest even number that can be made.	985,316
A number that rounds to 600,000 to the nearest 100,00.	For example: 613,589
The smallest number that rounds to 600,000 to the nearest 100,000.	561,389
The number that is 10,000 less than 875,913.	865,913

Power puzzle

$^{-}4$ 2 8 14 20

1 4 7 10 13 16