2 NUMBER: PLACE VALUE

LEARNING OBJECTIVES

- To read, write, order and compare numbers up to 10,000,000 and determine the value of each digit
- To identify the value of each digit in numbers with up to three decimal places and to order the numbers
- To use negative numbers in context and order them

CONTENT DOMAINS

- N2 read, write, order and compare numbers
- N3 place value
- N5 negative numbers
- F8 compare and order decimals

STARTER ACTIVITIES

- **Find the number; 5 minutes; page 24**
  Recap the names of the place-value columns for whole numbers up to millions. Ask the student to identify numbers on the page that fit particular criteria, such as: *A number that has a 7 in the 100s column*.

MAIN ACTIVITIES

- **Values of digits; 15 minutes; page 25**
  Cut out the cards before the lesson. Check and correct any misconceptions about place value before moving on to the second part of the activity.
- **Ordering numbers; 15 minutes; page 26**
  To help with questions 2–4 on the activity sheet, encourage the student to focus on the place value column that will change and discuss how it will change.
- **Negative numbers; 10 minutes**
  Ask the student to explain what they know about negative numbers. In particular, encourage them to explain that numerically larger negative numbers have lower values. Demonstrate this by marking −15, −5, 0, 5, and 15 on a number line.
  Write three numbers on a whiteboard (some positive and some negative) and challenge the student to order them from lowest to highest. Repeat with a range of numbers and then progress to ordering five numbers.

PLENARY ACTIVITY

- **Quick-fire ordering; 5 minutes**
  Ask the student to order these three sets of numbers from smallest to largest:
  7,564; 7,654; 7,566; 7,666; 6,564   8.65; 9.65; 8.66; 8.640; 8.604   −88; 8; −86; 0; −3; −16; −56; 17

HOMEWORK ACTIVITIES

- **Perfect fit; 30 minutes; page 27**
  Full instructions are given on the activity sheet.

DIFFERENTIATION AND EXTENSION IDEAS

- **Find the number** Extend by asking the student to order the numbers.
- **Values of digits** If a student struggles with place value, support by asking them to state the place-value column and what each digit is worth: *The 7 is in the 10s column so it is worth 70*
- **Values of digits** Extend by asking the student to create numbers that follow other rules, such as: *A number greater than 100* or *a 4-digit number that has a 3 in the 10s column*.

PROGRESS AND OBSERVATIONS

STARTER ACTIVITY: FIND THE NUMBER

TIMING: 5 MINS

LEARNING OBJECTIVES

- To read and write numbers up to 10,000,000 and determine the value of each digit

EQUIPMENT

Find the numbers that fit your tutor's descriptions.

6,785,743	12,678,345	694
43	301	34,876
1,001	101,001	8,703,052
765,093	205,432	65,702
8,930	789	3

MAIN ACTIVITY: VALUES OF DIGITS

TIMING: 15 MINS

LEARNING OBJECTIVES

- To read and write numbers up to 10,000,000 and determine the value of each digit
- To identify the value of each digit in numbers given to three decimal places

EQUIPMENT

- scissors

Arrange the place-value cards to show the correct order of the columns.
Then, use the 0-9 digit cards to make:

1. a 4-digit whole number with a 9 in the 100s column
2. a 6-digit whole number with a 2 in both the 10s and 10,000s columns
3. a number with 3 decimal places and a 6 in the hundredths column
4. a number that is larger than 1,345
5. a number that has 2 decimal places with a 3 in both the 100s and the hundredths columns
6. a number larger than 8,675 with an 8 in the 1000s column.

100s	10,000s	1s	1,000,000s
1,000s	100,000s	10s	
hundredths	tenths	.	thousandths

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

MATHS
— YEAR 6 —

MAIN ACTIVITY: ORDERING NUMBERS   **TIMING: 15 MINS**

LEARNING OBJECTIVES

- To identify the value of each digit in numbers with up to three decimal places and to order the numbers
- To read, write, order and compare numbers up to 10,000,000 and determine the value of each digit

EQUIPMENT

1. Write the numbers in order from smallest to largest.

a) 789   356   987   ....

b) 967   958   968   ....

c) 3,567   3,598   3,534   ....

d) 12,654   12,645   12,655   ....

e) 3.25   3.65   3.14   ....

f) 12.045   12.056   12.044   ....

g) 154.956   155.956   154.854   ....

2. Look at the number 8,678

a) Write the number that is 3,000 more than this number.   ....

b) Write the number that is 700 more than this number.   ....

3. Look at the number 12,765,009

a) Write the number that is six million less than this number.   ....

b) Write the number that is six thousand more than this number. ....

4. Look at the number 567.543

a) Write the number that is four-tenths more than this number.   ....

b) Write the number that is six-hundredths more than this number. ....

HOMEWORK ACTIVITY: PERFECT FIT

TIMING: 30 MINS

LEARNING OBJECTIVES

- To read, write, order and compare numbers up to 10,000,000 and determine the value of each digit
- To identify the value of each digit in numbers given to three decimal places and order them
- To order negative numbers

EQUIPMENT

Write a number that fits each description.

1. a 6-digit number with an 8 in the 1000s column   ....

2. a number that has 7 digits with no repeating digits   ....

3. a number with a 6 in the hundredths column   ....

4. a negative number with a value greater than –15   ....

5. the number that is 600 larger than 678,564   ....

6. the number that is four thousand less than 1,543,895   ....

7. the number that is three million more than 5,765,893   ....

8. the number that is 70 more than 543.67   ....

9. the number that is 30 more than –24   ....

10. the number that is six-tenths less than 98.765   ....

11. the number that is 45 less than –16   ....

12. the number that is 67 more than 3,568.302   ....

13. the number that is 10 thousand more than 3,678,902   ....

14. the number that is 546 more than –124   ....

2 ANSWERS

STARTER ACTIVITY: FIND THE NUMBER

Answers are dependent on the questions asked; check answers fit your criteria.

MAIN ACTIVITY: VALUES OF DIGITS

Each question has more than one answer; check answers meet the criteria given.

MAIN ACTIVITY: ORDERING NUMBERS

1. a) 356 789 987 b) 958 967 968
   c) 3,534 3,567 3,598 d) 12,645 12,654 12,655
   e) 3.14 3.25 3.65 f) 12.044 12.045 12.056
   g) 154.854 154.956 155.956
2. a) 11,678 b) 9,378
3. a) 6,765,009 b) 12,771,009
4. a) 567.943 b) 567.603

HOMEWORK ACTIVITY: PERFECT FIT

1. Any 6-digit number with 8 in 1000s column
2. Any 7-digit number with no repeating digits
3. Any number with 6 in the hundredths column
4. Any negative number greater than −15
5. 679,164
6. 1,539,895
7. 8,765,893
8. 613.67
9. 6
10. 98.165
11. −61
12. 3,635.302
13. 3,688,902
14. 422

GLOSSARY

Place value

What a digit is worth depends on where it is in a number. This is called place value. If a 3 is in the 10s column, it is worth 3 lots of 10, which is 30. If a 3 is in the 100s column, it is worth 3 lots of 100, which is 300