Diagnostic Quiz

Number: Number and Place Value
Pre-topic Test 1

Year 4

THIRD SPACE LEARNING

Y4 Number and Place Value 1

Name.....

Date.....Class.....

School.....Score.....

Please tick your answer to each question, like the example below. You can use any space left below a question for your working out, if you need it.

Example question

3. What fraction of the shape is shaded blue?

Select the equivalent fraction below.

a) ☐ $\frac{2}{5}$ b) ☐ $\frac{6}{4}$ c) ☑ $\frac{3}{5}$ d) ☐ $\frac{3}{2}$

1. What is 4,050 as words?

a) ☐ forty-fifty

b) ☐ four hundred and five

c) ☐ four hundred and fifty

d) ☐ four thousand and fifty

2. What is the value of 3 in 4302?

a) ☐ 3

b) ☐ 3000

c) ☐ 300

d) ☐ 30

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3. What is 64 in Roman numerals?

a) ☐ VIIV

b) ☐ LXIIII

c) ☐ XXXXXXIV

d) ☐ LXIV

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4. Round 250 to the nearest 100.

a) ☐ 300

b) ☐ 100

c) ☐ 350

d) ☐ 200

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5. The table shows the amount of time it took four people to finish a popular computer game. Who finished the game the quickest?

Name	Time
Meena	6200 seconds
Rayan	6104 seconds
Tina	7950 seconds
Jorge	7892 seconds

a) ☐ Meena

b) ☐ Rayan

c) ☐ Tina

d) ☐ Jorge

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6. What is 7050 made up of?

a) ☐ 700 + 50

b) ☐ 7000 + 50

c) ☐ 70 + 50

d) ☐ 7000 + 5

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7. What is 1000 less than 5499?

a) ☐ 6499

b) ☐ 5399

c) ☐ 4499

d) ☐ −4499

8. The concert seats six thousand and eight people.
What is this amount as numerals?

a) ☐ 68

b) ☐ 6008

c) ☐ 608

d) ☐ 60008

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9. Which symbol is missing?

472 __ 300

a) ☐ >

b) ☐ <

c) ☐ =

d) ☐ ≈

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10. 1090 − ? = 90

a) ☐ 1000

b) ☐ 10

c) ☐ 90

d) ☐ 100

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11. Bobby the dog eats three bones a day.
How many bones does he eat in a week?

a) ☐ 15

b) ☐ 21

c) ☐ 3

d) ☐ 30

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12. What are 55 tens equal to?

a) ☐ 550 ones

b) ☐ 5 hundreds

c) ☐ 505 ones

d) ☐ 550 hundreds

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13. The numbers increase by the same amount each time.
What is the missing number?

4320 5520 6720 _____ 9120

a) ☐ 8820

b) ☐ 6920

c) ☐ 1200

d) ☐ 7920

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14. Eggs are sold in packs of 9. Gordon needs 85 eggs.
How many packs will he need to buy?

a) ☐ 9

b) ☐ 10

c) ☐ 765

d) ☐ 94

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15. Order these planets' temperatures from hottest to coldest:

Planet Alpha	22°C
Planet Beta	−21°C
Planet Gamma	18°C
Planet Delta	−24°C

a) ☐ 22°C, 18°C, −21°C, −24°C

b) ☐ −24°C, 22°C, −21°C, 18°C

c) ☐ −24°C, −21°C, 18°C, 22°C

d) ☐ 22°C, 18°C, −24°C, −21°C

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16. Which is the greatest number?

a) ☐ XXXIX

b) ☐ XL

c) ☐ C

d) ☐ XXXVIII

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17. 6000 balls (rounded to the nearest 1000) were used in a tennis tournament. How many balls were actually used before the number was rounded?

a) ☐ 5000

b) ☐ 6499

c) ☐ 7000

d) ☐ 6500

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18. What is greater than 2050 but less than 3050?

a) ☐ 1000

b) ☐ 3005

c) ☐ 4050

d) ☐ 5100

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19. The thermometer showed a temperature of 9°C. Every minute it was getting colder by 3°C. What would the temperature be after 6 minutes?

a) ☐ −18°C

b) ☐ 0°C

c) ☐ 27°C

d) ☐ −9°C

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20. Zaid paid £4.90 for a main meal and 80p for his dessert. How much did he pay altogether rounded to the nearest £1?

a) ☐ £5.00

b) ☐ £5.70

c) ☐ £6.00

d) ☐ £85.00

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21. In Victoria School there are 6 classes. In each class there are 14 girls and 15 boys. How many children are there in the entire school?

a) ☐ 29 children

b) ☐ 174 children

c) ☐ 35 children

d) ☐ 72 children

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22. Lauren packs lots of items of clothing for her 6-week summer holiday. Her suitcase won't shut so her mum tells her to take half of her clothes out. She has 50 items of clothing left. How many items did she pack at the start?

a) ☐ 50

b) ☐ 100

c) ☐ 25

d) ☐ 75

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23. If 32 rounded to the nearest 10 is 30, what is 3.2 rounded to the nearest 1 (whole)?

a) ☐ 3.1

b) ☐ 3.20

c) ☐ 3

d) ☐ 0.32

Y4 Number and Place Value 1

Answer Sheet

1. What is 4,050 as words?

Checks ability to understand numerals in their written form.

a) Has simply read two separate numbers to form a number that does not exist. Needs to consolidate how to read numbers up to 10,000.

b) Has not considered the zero on the end. May lack knowledge of columns beyond hundreds. Needs to understand the significance of all zeros within a number.

c) Lacks knowledge of thousands.

d) Correct answer.

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2. What is the value of 3 in 4302?

Checks understanding of column value.

a) Has matched the digits but has not understood the meaning of 'value'.

b) Lacks knowledge of the column value of at least hundreds and thousands.

c) Correct answer.

d) Has recognised the 30 within the middle of the number with no understanding of each digit's value.

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3. What is 64 in Roman numerals?

Checks ability to convert into Roman numerals.

a) Has correctly translated the 6 and 4 but has not identified the correct symbol to change the value of 6 to 60.

b) Has written 60 correctly but has represented 4 as four separate ones.

c) Has understood how to represent 4 but has represented 60 with six lots of 10. Needs consolidation of symbols above 10.

d) Correct answer.

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4. Round 250 to the nearest 100.

Checks understanding of rounding to 100.

a) Correct answer.

b) Has found the answer that is exactly 100. Does not understand the concept of rounding to any multiple of 100.

c) Has added on 100; lacks understanding of rounding.

d) Has rounded down. May lack understanding of what to do when a number is exactly halfway between two numbers. Needs to use visual representations to consolidate understanding of numbers' positions and their proximity to others.

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5. The table shows the amount of time it took four people to finish a popular computer game. Who finished the game the quickest?

Checks ability to compare quantities using different representations.

a) May have interpreted the greater number of zeros as less time. Needs to consolidate the process in which to compare numbers.

b) Correct answer.

c) Has chosen the greatest number; has failed to recognise the relationship between the lowest number and shortest time.

d) This time is neither the greatest nor the smallest. Lacks ability to compare numbers.

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6. What is 7050 made up of?

Checks understanding of numbers in their expanded form.

a) May lack knowledge/understanding of column

values beyond hundreds.

b) Correct answer.

c) Has read both parts separately. Lacks understanding that each digit represents a place that has a specific value.

d) Has identified and has knowledge of the thousands column. Lacks understanding of zeros as placeholders and their ability to change the value of numbers.

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7. What is 1000 less than 5499?

Checks ability to find 1000 less than a number.

a) Has chosen the incorrect operation and added both numbers together.

b) Has subtracted 100. May lack knowledge of thousands or has misread the question.

c) Correct answer.

d) Has knowledge of negative numbers, but has incorrectly read the question and subtracted the wrong number.

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8. The concert seats six thousand and eight people. What is this amount as numerals?

Checks understanding of converting words to their numerical form.

a) Has correctly identified six and eight as numerals. Has ignored the zeros as placeholders in order to change the value of 6 to 6000.

b) Correct answer.

c) Has lowered the value of the number. May lack knowledge of columns beyond hundreds.

d) Has recognised the number as two separate parts (6000 and 8).

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9. Which symbol is missing?

Checks ability to compare numbers using symbols.

a) Correct answer.

b) Has recognised that one number is bigger than the other but has put the symbol the wrong way.

c) Has recognised a common sign in equations. Does not understand the significance of the equals sign that both sides need to be worth the same.

d) A lack of understanding of the sign and/or estimation and rounding; 300 is not roughly the same as 472.

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10. 1090 − ? = 90

Checks ability to visualise and understand the changes to columns in the number system when subtracting powers of ten.

a) Correct answer.

b) Has taken the visible 10 away with no understanding of its value.

c) Has found a commonality amongst both numbers but has not understood the effect the operation has within the question.

d) May lack knowledge of thousands.

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11. Bobby, the dog eats three bones a day. How many bones does he eat in a week?

Checks ability to count in multiples of 7 and 3.

a) Has knowledge of counting in multiples of 3 but has found five days' worth of bones.

b) Correct answer.

c) Has found the number in its numerical form but has not understood the multiplicative aspect of the question.

d) Lacks knowledge of number of days in a week. Has multiplied 3 by 10. May lack knowledge of more complex times tables.

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12. What are 55 tens equal to?

Checks understanding of quantity value.

a) Correct answer.

b) Has recognised that 50 lots of 10 would have an equivalent quantity of 5 hundreds, but has ignored the 5 tens within the original amount.

c) Has recognised the 50 and 5 as 50 tens and 5 ones. Lacks understanding of quantities above tens.

d) Lacks understanding of the quantity value of each column.

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13. The numbers increase by the same amount each time. What is the missing number?

Checks ability to count forwards in 100s and 1000s.

a) Has recognised the columns that are changing (thousands and hundreds) but has mixed the amounts for each; has added 2100 instead of 1200.

b) Has noticed the hundreds column changing but has not acknowledged the change in the thousands column.

c) Has recognised the amount that each number is increasing by but has not found the missing number.

d) Correct answer.

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14. Eggs are sold in packs of 9. Gordon needs 85 eggs. How many packs will he need to buy?

Checks ability to count in multiples of 9.

a) Has knowledge of counting in multiples of 9. Has not accounted for the remaining eggs that Gordon needs.

b) Correct answer.

c) Has understood that this is a multiplicative problem. Has multiplied 85 by 9 correctly, but has not understood what the question is asking for thus finding the answer to the wrong equation.

d) Has interpreted the question as an additive problem; has added 85 and 9. Does not understand what the question is asking for or the operation that is required to solve it.

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15. Order the planets' temperatures from hottest to coldest.

Checks ability to order and compare numbers including negative numbers.

a) Correct answer.

b) Has arranged the temperatures from largest to smallest without considering the (-) sign. Lacks knowledge of negative numbers.

c) Has understanding of negative numbers and their order in relation to positive numbers. Has ordered the numbers the wrong way from coldest to hottest.

d) May have some understanding of negative numbers in the context of temperature but misconception lies within understanding that the 'larger' numerals equates to the smaller number in the negative numbers.

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16. Which is the greatest number?

Checks ability to compare Roman numerals up to and including 100 (C).

a) Recognises that this number visually contains more tens.

b) Understands the value of L, but may lack knowledge beyond this as clearly does not recognise the value of C as being greater.

c) Correct answer.

d) Has chosen the number with the most digits with no consideration for their value.

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17. 6000 balls (rounded to the nearest 1000) were used in a tennis tournament. How many balls were actually used before the number was rounded?

Checks understanding of range of numbers that can be rounded to the same multiple of 1000.

a) Has misinterpreted the terminology within the question and found the number of balls before 1000 was added instead of rounded.

b) Correct answer.

c) Has added 1000 onto 6000. Lacks understanding of concept of rounding.

d) Is unsure what to do when a number is halfway between. Needs to consolidate using visual representations to show the range of numbers that round up and down.

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18. What is greater than 2050 but less than 3050?

Checks understanding of ordering numbers between two given 4-digit numbers.

a) Has found 2050 less than 3050 correctly, however, it is the wrong equation. May not understand the terminology 'greater than.'

b) Correct answer.

c) Has noticed a pattern of +1000 but has not understood the terminology within the question or ignored the second part.

d) Has added both numbers together with no regard for their significance within the question.

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19. The thermometer showed a temperature of 9°C. Every minute it was getting colder by 3°C. What would the temperature be after 6 minutes?

Checks understanding of negative numbers and counting back in multiples of 3.

a) Has correctly found a change of 18°C but has not used this information to find the answer.

b) Has counted back to zero and stopped; has no knowledge of negative numbers beyond zero.

c) Has correctly found a change of 18°C, but has made the temperature warmer by adding.

d) Correct answer.

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20. Zaid paid £4.90 for a main meal and 80p for his dessert. How much did he pay altogether rounded to the nearest £1?

Checks ability to solve a multi-step problem including addition of numbers with different units of measure and rounding in context.

a) Has not considered adding the 80p onto the price of the main meal, or lacks understanding of rounding across the decimal point to the next whole pound.

b) Has found the exact answer. Has not fully answered or understood the question, which asks for the answer to be rounded.

c) Correct answer.

d) Has misinterpreted the 80p for £80, but has rounded to the nearest £1.

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21. In Victoria School there are 6 classes. In each class there are 14 girls and 15 boys. How many children are there in the entire school?

Checks ability to solve multi-step problem including adding and counting in multiples of 6.

a) Has found the amount of children per class. May not understand how to count in multiples of 6.

b) Correct answer.

c) Has added all visible numbers with no consideration for their relevance in the question.

d) Has begun to count in multiples of 6 but has stopped after 12 lots of 6. May have rote-learned times tables to 12 and either thinks that this is where multiples of 6 end, or lacks ability to adapt this knowledge to work out higher amounts (e.g. 29 can be partitioned into 10, 10 and 9).

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22. Lauren packs lots of items of clothing for her 6-week summer holiday. Her suitcase won't shut so her mum tells her to take half of her clothes out. She has 50 items of clothing left. How many items did she pack at the start?

Checks ability to solve a number problem involving counting in multiples of 50 and using basic fraction knowledge (halving/doubling).

a) Has identified the amount of items that would have had to be taken out of the suitcase but has not added this to find the entire amount of clothes at the start.

b) Correct answer.

c) Has found half of 25, but has not understood that the halving process had already taken place.

d) Has halved 50 and added it on. Lacks knowledge of the connection between halving and doubling.

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23. If 32 rounded to the nearest 10 is 30, what is 3.2 rounded to the nearest 1 (whole)?

Checks understanding of the relationship between each column in the number system including decimal places. Checks the understanding of the value of the column being ten times that of the column to its right.

a) Has found the answer with a 1 in it with no understanding of how to round to the nearest 1. Has also not found a pattern between the example and the problem.

b) Doesn't understand the insignificance of the zero in this instance.

c) Correct answer.

d) Has some understanding of the relationship between columns when moving between them, but lacks knowledge of the value of each side of the decimal point (whole and parts of a whole).
