Diagnostic Quiz

Number: Number and Place Value
Pre-topic Test 1

Year 3

THIRD SPACE LEARNING

Y3 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. How is 305 written as words?

a) ☐ three hundred and fifty

b) ☐ three hundred and five

c) ☐ thirty-five

d) ☐ three-zero-five

2. What number has five hundreds in it?

a) ☐ 5002

b) ☐ 150

c) ☐ 592

d) ☐ 5

---

3. Alexander picked 64 raspberries. How many more would he need to make 100?

a) ☐ 164

b) ☐ 36

c) ☐ 46

d) ☐ 54

---

4. Which bag of pebbles is the heaviest?

a) ☐ 92 kg

b) ☐ 902 kg

c) ☐ 99 kg

d) ☐ 900kg

---

5. Adam and Abe were playing a board game. Adam was on space 67, Abe was 20 spaces behind Adam. What number was Abe's space?

a) ☐ 87

b) ☐ 40

c) ☐ 65

d) ☐ 47

---

6. Which number is closest to 100?

a) ☐ 120

b) ☐ 89

c) ☐ 1000

d) ☐ 10

---

7. What is the missing number?

0 40 ____ 120 160

a) ☐ 80

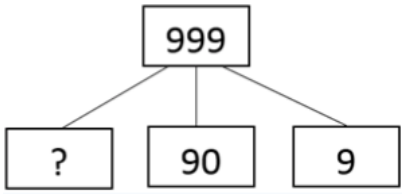
b) ☐ 100

c) ☐ 160

d) ☐ 40

---

8. What is the missing number?



a) ☐ 9

b) ☐ 900

c) ☐ 90

d) ☐ 100

---

9. 75 = ? + 25

a) ☐ 75

b) ☐ 100

c) ☐ 55

d) ☐ 50

---

10. Which school has fewer than 550 children in it?

Tulip School	555 children
Forest School	505 children
Primrose School	600 children
Daisy School	550 children

a) ☐ Tulip School

b) ☐ Forest School

c) ☐ Primrose School

d) ☐ Daisy School

---

11. How many tens are in 904?

a) ☐ Zero

b) ☐ Nine

c) ☐ Four

d) ☐ Nine hundred and four

---

12. Meg charges two hundred and seventy pounds a week to rent her holiday home. How much is this in numerals?

a) ☐ £27

b) ☐ £207

c) ☐ £270

d) ☐ £20070

---

13. Order the money from greatest to smallest.

80p 46p 92p

a) ☐ 46p 92p 80p

b) ☐ 92p 80p 46p

c) ☐ 46p 80p 92p

d) ☐ 92p 46p 80p

---

14. There are 100 marbles in each jar. What is the total amount of marbles in 7 jars?

a) ☐ 107

b) ☐ 700

c) ☐ 100

d) ☐ 70

---

15. 725 is 205 more than _____

a) ☐ 500

b) ☐ 520

c) ☐ 930

d) ☐ 750

---

16. What are 32 tens the same as?

a) ☐ 302 ones

b) ☐ 3 hundreds

c) ☐ 320 ones

d) ☐ 5 hundreds

---

17. There are 22 people and 4 dogs playing on the field. How many legs are there altogether?

a) ☐ 510

b) ☐ 26

c) ☐ 60

d) ☐ 52

---

18. Each table pot in Mrs West's class requires the following stationery:

2 sharpeners

4 rubbers

5 pencils

Mrs West has 8 tables in her class. How many pieces of stationery does she need altogether?

a) ☐ 11

b) ☐ 88

c) ☐ 19

d) ☐ 80

---

19. There were three bags of sweets on the shelf. In one bag there were 150 sweets. There were 50 more sweets in each of the other two bags. How many sweets were there altogether?

a) ☐ 250 sweets

b) ☐ 500 sweets

c) ☐ 200 sweets

d) ☐ 550 sweets

---

20. Kelly and Dean went go-karting at the weekend. The distance around the first course was 80 metres. The second course had a distance of 160 metres and the third course was 320 metres.

What is the difference between the distance around the first lap and the distance around the third lap?

a) ☐ 240 metres

b) ☐ 560 metres

c) ☐ 400 metres

d) ☐ 24 metres

Y3 Number and Place Value 1

Answer Sheet

1. How is 305 written as words?

Checks understanding of numbers in their written form.

a) May lack understanding of the relevance of the zero as a placeholder, or lacks understanding of how to represent it in words.

b) Correct answer.

c) Has disregarded the zero and its value within the number.

d) Lacks basic understanding of numbers in their written form beyond ones. Has simply converted each digit separately.

---

2. What number has five hundreds in it?

Checks understanding of column order.

a) 500 is visible in this number. Lacks knowledge of column order and value.

b) This number has 5 tens. Lacks basic knowledge of place value in the number system.

c) Correct answer.

d) Has connected the digit with the word. Has not acknowledged the value of the digit.

---

3. Alexander picked 64 raspberries. How many more would he need to make 100?

Checks understanding of number bonds to 100.

a) Has found 100 more. Has misunderstood that the question is asking for the the missing amount. May not understand the operation required for finding the difference.

b) Correct answer.

c) Common mistake; has counted on from the tens first and has not understood that the ones equate to another ten resulting in an overcount.

d) May lack knowledge of 100. Has found how much more 64 is than 10.

---

4. Which bag of pebbles is the heaviest?

Checks ability to compare number up to 1000 using a different representation.

a) This is the lightest. Has misread the question or does not understand the term 'heaviest'.

b) Correct answer.

c) May interpret more nines for a higher value. Has not recognised the smaller amount of columns used.

d) Can visibly see that this amount is a multiple of a hundred so is bigger than some of the other answers. Has not noticed the extra two ones in b) making it slightly heavier.

---

5. Adam and Abe were playing a board game. Adam was on space 67, Abe was 20 spaces behind Adam. What number was Abe's space?

Checks ability to count back in multiples of 10.

a) Has added 20. Has not connected the fact the Abe was behind Adam. May lack knowledge or the ability to subtract.

b) Has noticed the change in the tens column but has disregarded the ones.

c) Has counted 2 spaces back. Has not understood the value of 20.

d) Correct answer.

---

6. Which number is closest to 100?

Checks understanding of number order and position up to 1000.

a) This has 100 in the number but it is further away than 89.

b) Correct answer.

c) This looks similar to 100 but does not understand the relationship between these two quantities.

d) This is a factor of 100. Lacks understanding of what is meant by 'closest'. May need to consolidate using visual representations.

---

7. What is the missing number?

Checks ability to adapt knowledge of multiples of 4 to count in multiples of 40.

a) Correct answer.

b) Has found a number between 40 and 120 but has not established a pattern.

c) Has added 40 and 120 together with no acknowledgment of the recurring pattern.

d) Has established a pattern but has not found the missing number.

---

8. What is the missing number?

Checks understanding of numbers in their expanded form.

a) Has noticed a missing digit. Has not considered its value.

b) Correct answer.

c) Has added in another 9 tens. Lacks knowledge of hundreds.

d) Has identified the missing column but has not identified the amount.

---

9. 75 = ? + 25

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

a) This is an equivalent of 75. Has not understood that the missing number is part of an equation. May not understand that an equation can be written inversely.

b) Has added both visible numbers together without understanding the relevance of them in this question.

c) Has tried to use the inverse operation to solve this; has subtracted 20 from 70 but has neglected the ones.

d) Correct answer.

---

10. Which school has fewer than 550 children in it?

Checks ability to compare the value of numbers up to 1000.

a) 550 is fewer than 555. Has incorrectly read this question.

b) Correct answer.

c) May assume the amount of zeros makes the number smaller. Lacks understanding of the order in which to compare and that the 6 in the hundreds column makes the number greater.

d) This school has exactly 550 children in it. May lack understanding of the term 'fewer'.

---

11. How many tens are in 904?

Checks understanding of column value.

a) Correct answer.

b) Has recognised there are 90 tens but has not understood that nine tens translates as a completely different value to this. May lack understanding of the hundreds column or that it is possible to have 0 tens.

c) Has chosen the wrong column. Lacks basic knowledge of column value.

d) Has identified the number as words. Has not understood the question.

---

12. Meg charges two hundred and seventy pounds a week to rent her holiday home. How much is this in numerals?

Checks ability to convert words to numerals.

a) Has not included a zero as a placeholder, therefore has changed the value of the entire number.

b) May have misread the question or lacks knowledge of tens as words.

c) Correct answer.

d) Has converted each part of the number separately and placed them side-by-side. Lacks understanding of the value of each column in which the digits are placed.

---

13. Order the money from greatest to smallest.

Checks ability to order numbers using different representations.

a) Has compared starting from the right column. This may be due to solving column method addition from the smallest value first.

b) Correct answer.

c) Has ordered the wrong way round from smallest to greatest.

d) Has added the digits together and ordered based on the totals.

---

14. There are 100 marbles in each jar. What is the total amount of marbles in 7 jars?

Checks ability to count in multiples of 100.

a) Has simply added 100 and 7 without understanding the multiplicative aspect of the question.

b) Correct answer.

c) There are 100 marbles in one jar. Has not understood the question that is asking for 7 jars' worth of marbles.

d) Has recognised the multiplicative aspect of the question. May not have knowledge of hundreds. Has instead multiplied by 10.

15. 725 is 205 more than _____

Checks ability to count in powers of 10.

a) Has concentrated on the hundreds with no regard for the other digits.

b) Correct answer.

c) Has added and found 205 more than 725. Has not understood the order of the question.

d) Has added 25 more to 725. Has not acknowledged the 0 in 205 as a placeholder.

---

16. What are 32 tens the same as?

Checks understanding of equivalent values.

a) Has made space for the tens column. Does not understand the value of 32 tens or how to represent it in its equivalent form.

b) Has understood some aspects of the question as has found 30 tens, but has neglected to acknowledge 2 tens.

c) Correct answer.

d) Has multiplied each digit by 10 and added them together - lacks understanding of the question and has manipulated numbers randomly.

---

17. There are 22 people and 4 dogs playing on the field. How many legs are there altogether?

Checks ability to unitise.

a) Has established the amount of legs for the group of people and the dogs (44 and 16). Can add digits that do not require an exchange (4 and 1). Has struggled to represent 4 + 6 as lacks knowledge of exchanging across columns.

b) Has added both numbers together. Has not understood that one person represents 2 legs and one dog represents 4 legs.

c) Correct answer.

d) Has counted 2 legs per body (mistake - dogs have 4).

18. Each table pot in Mrs West's class requires stationery. Mrs West has 8 tables in her class. How many pieces of stationery does she need altogether?

Checks ability to solve a multi-step problem including adding and counting in multiples of 8.

a) Has counted all the items for one table. Has not understood the multiplicative aspect of the question requiring 8 lots of stationery.

b) Correct answer.

c) Has added all the stationery for one table and added on 8. Has simply added all visible numbers in the question with no understanding of their relevance.

d) Has miscounted the amount of stationery for one table before multiplying by 8. May not be secure with number bonds beyond ten.

---

19. There were three bags of sweets on the shelf. In one bag there were 150 sweets. There were 50 more sweets in each of the other two bags. How many sweets were there altogether?

Checks ability to count in multiples of 50.

a) Has added two lots of 50 to 150. Has not understood that there are 50 more than the first bag.

b) Has split the 50 extra sweets between two bags. Has misunderstood that each of the bags had 50 more.

c) Has added all visible numbers with no real understanding of their relevance within the question.

d) Correct answer.

---

20. Kelly and Dean went go-karting at the weekend. The distance around the first course was 80 metres. The second course had a distance of 160 metres and the third course was 320 metres. What is the difference between the distance around the first lap and the distance around the third lap?

Checks ability to solve a complex problem including adapting knowledge of multiples of 8.

a) Correct answer.

b) Has added all visible numbers together to find the total distances. Has not recognised that the question is only asking for consideration of the first and third laps. May also lack understanding of the term 'difference'.

c) Has added the distance around the first lap and the third lap. May not understand the term 'difference' or which operation to use to find it.

d) Has adapted knowledge of multiples of 8. Has not multiplied this answer by 10 to regain the true value of this distance.
