Pointing you in the right direction

Y4 Place Value PTG

Unit Information

Having worked with 3-digit numbers and developed an understanding of finding 1, 10 and 100 more than a number during Year 3 place value work, this unit moves on to numbers up to 10,000. The learner will again encounter ordering and comparing numbers, and will further consolidate their understanding of partitioning. They will also be introduced to rounding numbers and negative numbers, as well meeting Roman numerals up to a value of 100.

Supporting the Learner

Place Value 1

PV1 builds on the learner's understanding of the value of each digit in a number, extending this to 4-digit numbers. They will become familiar with 1,000s, 100s, 10s and 1s.

As they develop their understanding and confidence, learners move on to partitioning numbers in different ways. They will already be familiar with breaking numbers apart using, for example, hundreds, tens and ones.

It is important to keep using place value grids, part-whole models , base 10 and place value counters, ideally physically and with drawn representations, as this will help secure the learner's understanding.

During the above learning it is also useful to continue reinforcing number names and number words.

Place Value 2

Understanding of place value is now further developed through rounding numbers to the nearest 10, 100 and 1,000. This requires the learner to not only know the value of a given digit but to also understand the impact this has on neighbouring digits.

Throughout this rounding work it is vital that the learner knows the importance of 5, whether it be representing 5, 50 or 500. Although the 5 (or 50, or 500) is in the middle of two numbers the learner needs to know that it always rounds up. It is also important to make sure that the learner is looking at the correct column when rounding a number: rounding to the nearest 10 requires looking at the 1s; rounding to the nearest 100 requires looking at the 10s; rounding to the nearest 1,000 requires looking at the 100s.

Place Value 3

This Learning Guide builds on Y3 (and earlier) work developing counting in 10s, 100s and 1,000s, as well as 25s.

Initial counting should focus on the multiples of 100 and 1,000 (i.e. 100, 200, 300 etc; 1,000, 2,000, 3,000 etc) but many learners will be able to move on to counting on in 100s and 1,000s from a given number by applying their understanding of place value, and knowledge that only the 100s or 1,000s change. When counting in 25s, explore this within 100 before moving on.

Place Value 4

When comparing numbers it is vital that the learner compares the numbers digit -by-digit, and that they make sure that they are comparing digits with the same place value (it is no use comparing the 100s and the 1s). Ensure that the learner starts comparing with the digits on the left of each number (i.e. compare the 1,000s, then 100s, then 10s, then 1s).

The learner needs to use the language of comparison (e.g. 'more than', 'less than') and the symbols < (less than), > (greater than) and = (equal to).

Place Value 5

When using number lines the learner usually needs to know (or find out) the numbers at each end of the number line. Working out the number halfway along the number line is usually also a big help. Support the learner with developing an understanding that the number line can be divided into different parts (e.g. halves or quarters) which will then help them to find the exact or approximate position of numbers along the line.

Place Value 6

As the learner starts to use negative numbers, it is important that they are first comfortable counting backwards to zero. Once they start counting back through zero, provide the opportunity to do this verbally and in writing. Drawing steps backwards on a number line will help this. Looking at temperature data and the scale on a thermometer will support their understanding of negative numbers.

Place Value 7

Ensure the learner is confident in reading Roman numerals (counting) around a clockface. They will then look at how Roman numerals are put together, developing an understanding of symbols for different numbers up to 100. Many learners will need help using the Roman numerals, particularly when converting to and from the 'conventional' Arabic number system we use today.

Answers

Place Value 1 **Developing** **(1a)** 3,293 **(1b)** 1,001 **(1c)** 8,018 **(2a)** four thousand, nine hundred and eight **(2b)** nine thousand and three **(2c)** seven thousand, seven hundred and seven **(3)** Largest: 4000, smallest: 4 **Secure** **(1a)** twenty or twenty **(1b)** seven hundred or 700 **(1c)** five thousand or 5,000 **(2a)** four hundred or 400 **(2b)** six thousand or 6,000 **(2c)** ninety or 90 **(3)** 3,000 + 800 + 20 + 4 **(4a)** There are 4 counters in the 10s (representing 40) rather than in the 1s, representing 4. The 10s should be empty. **Advancing** **(1)** 1,309 , 1,376 , 1,872 , 1,968 **(2)** 8,101 , 8,009 , 6,726 , 1,235 **(3a)** 9,875 **(3b)** 2,345 **(4a)** 2,175 **(4b)** 2,990 **(4c)** 8,246

Place Value 2 **Developing** **(1)** 37=40, 12=10, 8=10, 45=50 **(2)** 88 is his number. It is the closest number to 90. **(3)** 20 and 17, 90 and 86, 40 and 44, 80 and 83 **(4)** 400 and 364, 300 and 346, 500 and 481, 200 and 235 **Secure** **(1)** 139=100, 242=200, 781=800, 435=400 **(2)** 472 is her number. It is the nearest number to 500. **(3)** 1,000 and 951, 600 and 587, 500 and 473, 900 and 897 **(4)** 8,000 and 8,495, 9,000 and 8,543, 5,000 and 5,462, 4,000 and 4,471 **Advancing** **(1)** 7,000 and 6,501, 8,000 and 7,971, 9,000 and 8,560, 6,000 and 6,459 **(2)** 9,609 should round up to 10,000 as the hundreds are greater than 4. 5,549 should round up to 6,000 for the same reason. **(3)** 7,643-7,640-7,600-8,000, 5,555-5,560-5,600-6,000, 8,027-8,030-8,000-8,000

Place Value 3 **Developing** **(1a)** 374 (1b) 738 **(2a)** 1,300 and 3,300 **(2b)** 6,000 and 8,000 **(2c)** 575 and 2,575 **(3)** 2,215 or 3,115 or 3,205 or 3,214 **(4)** 5,000 **Secure** **(1a)** 5,500 indicated approximately 3/4 along the line. **(1b)** 2,500 indicated approximately 1/3 along the line. **(2)** 7,300 or 7,201 **(3a)** 4,678, 6,678, 7,678 and 9,678 missing. **(3b)** 7,204, 6,204, 4,204, 3,204, 2,204 missing **(4a)** 200, 250, 275, 325 missing. **(4b)** 400, 425, 475, 525, 550 missing. **Advancing** **(1a)** 4,287, 7,587, 8,687 missing. **(1b)** 8,000, 6,800, 3,200 missing. **(2a)** 950, 900, 875 and 825 missing. **(2b)** 135, 210, 235, 260, 285 missing. **(3)** To find 1,000 more she needs to increase the thousand by 1 (**4**,746). To find 2,000 less she needs to decrease the thousands by 2 (**1**,746). **(4)** 9 times

Place Value 4 **Developing** **(1a)** > **(1b)** > **(1c)** < **(2)** 4 thousands, 1 hundred, 5 tens and 3 ones. **(3)** True because the base 10 has 1 ten but the counters have zero tens. **(4)** 1and 0, 0 and 1, or 0 and any digit from 1-9. **Secure** **(1a)** < **(1b)** < **(1c)** = **(2a)** < **(2b)** < **(2c)** < **(3)** Various possible answers e.g. 1,234 > 1,000 or 1,130 > 1,104 **Advancing** **(1a)** <,= (1b) > **(1c)** > **(1d)** > **(1e)** >, < **(2)** 4,084, 4,264, 4,444, 4,624, 4,804, 5,074, 5,254, 5434, 5,614 **(3)** Highest=9,870, lowest=7,089

Place Value 5 **Developing** **(1)** 500 marked in the middle of the line. **(2)** 5,000 marked in the middle of the line. **(3)** B **(4)** 4,000 because it is half of 8,000. **Secure** **(1)** B **(2)** 5,000 marked approximately 1 fifth along from the left. **(3)** 4,000 marked 1 quarter of the way along from the left. **(4)** 5,500 because it is the same amount (3,000) away from 2,500 and 8,500. **Advancing** **(1a)** 5,000 marked 2 thirds along from left. **(1b)** 5,000 marked half way along the line. **(1c)** 5,000 marked approx. 1 sixth along from the left. **(2)** Because each number line has a different scale/represents a different range of numbers. **(3)** A **(4)** Various possible answers, e.g. 0 and 6,000 or 2,000 and 4,000, The numbers and explanation must reflect an understanding that they are two numbers which 3,000 is halfway between.

Place Value 6 **Developing** **(1a)** Missing: -4, -3 **(1b)** Missing: -5, -2, 0, 3 **(2a)** Missing: -2, -1, 3, 4, 5 **(2b)** Missing: -5, -4, -1, 0, 2, 3 **(3)** a = 3C, b = -2C **(4)** She has missed out zero. **Secure** **(1a)** Missing: -4, -3, -2, 0, 1 **(1b)** Missing: -7, -5, -3, -1, 0, 2 **(2a)** Missing: -4, -3, -2, -1, 0, 1, 2, 3 , 4 **(2b)** Missing: -8, -2, 6, 8 **(3)** a = 4C, b = -6C **(4)** She is incorrect because if she is counting backward she will say, 5, 4, 3, 2, 1, 0, -1, -2 etc. She will say 0 before –1. **Advancing** **(1a)** Missing: -8, -6, -4, 2, 4, 8 **(1b)** Missing: -20, -10, -0, 15, 20 **(2a)** Missing: -20, -15, -10, -5, 0, 5, 10, 15, 20 **(2b)** Missing: -9, 0, 3, 6, 12 **(3)** a = -10C, b = 3C **(4)** 23C

Place Value 7 **Developing** **(1a)** III **(1b)** VI **(1c)** V **(1d)** X **(1e)** IX **(1f)** VIII **(2a)** 4 **(2b)** 15 **(2c)** 20 **(2d)** 7 **(2e)** 16 **(2f)** 50 **(3a)** VI **(3b)** VIII and XI **(4)** XI (11) **Secure** **(1a)** XVII **(1b)** XXVI **(1c)** L **(1d)** LXV **(1e)** XXXIV **(1f)** C **(2a)** 40 **(2b)** 90 **(2c)** 19 **(2d)** 75 **(2e)** 28 **(3a)** XL **(3b)** LXXX **(4)** XL (40) **Advancing** **(1)**

10 less	Start Number	10 more
X	**XX**	XXX
L	**LX**	LXX
XXX	**XL**	L
XC	**C**	CX

(2a) XXXV **(2b)** LX **(2c)** XIX **(2d)** L **(2e)** LXXV **(2f)** XXXI **(2g)** XXVIII **(2h)** LX **(3)** The answer should be 65 (LXV). What has gone wrong is that the letters have all been put together.