Number and Place Value Prior Assessment Question 5:

Q5 I can count forwards and backwards in tens, ones and other powers of 10.

I recognise when a digit in another column must change when counting in tens, ones, and other powers of ten.

NPV 2: count forwards or backwards in steps of powers of 10 for any given number up to 1 000 000

Teacher Input Ideas:

- Ensure that children have a good understanding of place value and how the number system is created. If needed the children could use the visual representations and objects created in previous lessons to explore counting by adding one each time and what happens when a new ten is created. This could then be extended to adding hundreds at a time (such as starting from 12, 304). This could then be extended to adding 1000s and tens of thousands at a time.

- Play counting games. In a circle start from a number in the tens of thousands. Children to count around adding one each time. Look out for when children cross boundaries of ten. Repeat with other amounts such as adding tens, hundreds, etc. Repeat with counting backwards.

- Place a 4 or 5 digit number on the board. Give each child a card with either + 1, +10, +100, +1000, +10,000 or -1, -10, -100, -1000, -10,000 on the card. Children to take it in turns around the class to perform what is written on their card. Other children could have whiteboards to keep a track of what the number is and to equally be involved with taking away or adding powers of 10.

- Children to have place value charts (with either 6 or 7 columns see purple support sheet). Place twenty-nine thousand, three hundred and six in words on to the board. Ask the children to write this on to their board. Children to apply skill of reading in words and writing in digits' different amounts. Have a robot or a machine at the front of the classroom (this could be a teddy, a model or a child) The robot to call out different instructions such as add 1, add 10, subtract 1, subtract 10 etc. Discuss with the children what they notice about place value and use the columns in the charts to help the children understand why some other columns need to change when 1, 10, 100, etc is either added or subtracted.

Practice Activities

Purple Practice: Most suited for children that made errors in Question 5 a and b and would further benefit from adding 1 and powers of 10 to 4,5 and 6 digit amounts.

The task provided, requires the children to pick a block with a 4, 5 or 6-digit number on. The block could be cut up so that the children can pick any block, or you may want to give children certain blocks to work on first, dependent on the level of their understanding. The children are to add 1, 10, 100, 1000 and 10,000 to the number on the block. The children could record their answers in mind maps, lists or create a table. The blocks have been designed so that they do not cross boundaries of ten.

If children are finding this difficult, you could provide them with the place value support sheet. Additionally, if you would like the children to secure understanding from previous learning, you could ask the children to pick 5 amounts at the end of the task and write these in words. You may feel that the children only need to select 5 or 6 of the blocks before moving on to the green or yellow activity.

Green Practice: Most suited for children that made errors in Question 5 d would further benefit from counting backwards in ones and other powers of 10.

The task provided, requires the children to pick a block with a 5 or 6- digit number on. The blocks can be cut out so that the children can pick any block, or you may want to give children certain blocks to work on first, dependent on the level of their understanding. The children are to subtract 1, 10, 100, 1000 and 10,000 to the number on the block. The children could record their answers in mind maps, lists or create table. The blocks have been designed so that they do not cross boundaries of ten.

If children are finding this difficult you could provide them with the place value support sheet. Additionally, if you would like the children to secure understanding from previous learning, you could ask the children to pick 5 amounts at the end of the task and write these in words

Yellow Practice Most suited for children who made errors in Question 5 a and c and would further benefit from developing their understanding of how digits in other columns can change when adding and subtracting powers of ten.

For the yellow task, the children are provided with pink and yellow blocks. They are to add 1,10,100,1000 and 10,000 to the amounts on the pink blocks and they are to subtract 1,10,100,1000 and 10,000 from the amounts on the yellow blocks.

Again, the children can choose how to record this. The amounts on the blocks provide the opportunity for the digits in columns to change when adding or subtracting different amounts, for example:

29,648, add 1000= 30,648 and 74,993 add 10 = 75,003.

Mastery The children have been provided with amounts. They must select how many blocks with 1, 10, 100, or 1000 are needed to make the rounded total and write the amounts in the large box. For example, 6984 would have +10, +1, +1, +1 +1, +1, +1 in the box to meet the target of 7000.

Encourage the children to suggest which blocks they add or subtract first. Why? Where did they start? Which ones did they find more challenging and why? Encourage the children to count on mentally and not perform any written calculations to work out the answers.

Answers

Purple

Number	+ 1	+10	+100	+1000	+10000
10453	10454	10463	10553	11453	20453
36784	36785	36794	36884	37784	46784
5207	5208	5217	5307	6207	15207
16320	16321	16330	16420	17320	26320
107287	107288	107297	107387	108287	117287
586156	586157	586166	586256	587156	596156
26357	26358	26367	26457	27357	36357
48281	48282	48291	48381	49281	58281
410626	410627	410636	410726	411626	420626

Green

Number	-1	- 10	-100	-1000	-10000
99364	99363	99354	99264	98364	89364
128541	128540	128531	128441	127541	118541
63217	63216	63207	63117	62217	53217
12496	12495	12486	12396	11496	2496
29642	29641	29632	29542	28642	19642
181624	181623	181614	181524	180524	171624
88465	88464	88455	88365	87465	78465
893681	893680	893671	893581	892681	883681
428593	428592	428583	428493	427593	418593

Yellow

Number	+ 1	+10	+100	+1000	+10000
29648	29649	29658	29748	30648	39648
56974	56975	56984	57074	57974	66974
74993	74994	75003	75093	75993	84993
209489	209490	209499	209589	210489	219489
399953	399954	399963	400053	400953	409953
674999	675000	675009	675099	674999	684999

Number	-1	- 10	-100	-1000	-10000
13201	13200	13191	13101	12201	3201
24053	24052	24043	23953	23053	14053
96000	95999	95990	95900	95000	86000
306480	306479	306470	306380	305480	296480
400911	400910	400901	400811	399911	390911
890010	890009	890000	889910	889010	880010

ones	
tens	
hundreds	
thousands	
tens of thousands	
hundreds of thousands	

Purple Practise

LO: I can count forwards in tens, ones, hundreds and other powers of ten.

Pick one block at a time. Each time explore what happens to the number when you add 1, 10, 100, 1000 and 10,000.
You may want to record your answers in mind maps or in a table

10453	36784	5207
16320	107287	586156
26357	48281	410626

Challenge: Now to your new numbers, add 10, 100, 1000 and 10,000.
Do you notice any changes?

Green Practise

LO: I can count backwards in ones, tens, hundreds and other powers of ten.

Pick one block at a time. Each time explore what happens to the number when you subtract 1, 10, 100, 1000 and 10,000.
You may want to record your answers in mind maps or in a table

99364	128541	63217
12496	29642	181624
88465	893681	428593

Challenge: Now to your new numbers, subtract 10, 100, 1000 and 10,000.
Do you notice any changes?

BRICKWORK
mathematics

Yellow Practise

LO: I recognise when a digit in another column must change when counting in powers of ten.

Pick a block at a time. For the pink blocks add 10, 100, 1000 and 10,000 to the number. For the yellow blocks subtract 10, 100, 1000 and 10,000 from the number.

29,648	56,974	74,993
13,201	24,053	96,000
209,489	399,953	674,999
306,480	400,911	890,010

Select different blocks to make each sum correct. You can select each block as many times as you need to.

+1000	+100	+10	+1	-1000	-100	-10	-1

6984 + ☐ = 7000

12,689 + ☐ = 13,000

28,976 + ☐ = 30,000

54,231 − ☐ = 54,000

91,324 − ☐ = 90,000

61,031 − ☐ = 60,000