

# Varied Fluency

## Step 8: Counting in Powers of 10

### National Curriculum Objectives:

Mathematics Year 5: (5N1) [Count forwards or backwards in steps of powers of 10 for any given number up to 1,000,000](#)

Mathematics Year 5: (5N5) [Interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers, including through zero](#)

Mathematics Year 5: (5N6) [Solve number problems and practical problems that involve 5N1 - 5N5](#)

### Differentiation:

**Developing** Questions to support completing sequences counting forwards and backwards in powers of 10 up to 1,000,000, when the rule has been given. No negative numbers.

**Expected** Questions to support completing sequences counting forwards and backwards in powers of 10 up to 1,000,000, when the rule is not always given. Including negative numbers up to -100.

**Greater Depth** Questions to support completing sequences counting forwards and backwards in powers of 10 up to 1,000,000, when the rule has not been given. Including negative numbers up to -1,000.

More [Year 5 Place Value](#) resources.

Did you like this resource? Don't forget to [review](#) it on our website.

## Counting in Powers of 10

1a. Starting at 1,334, count forwards in 100s to reach 2,134.

1,435	4,356	1,567	5,432	8,345
7,345	2,456	2,531	4,432	1,536
1,334	1,345	3,521	3,621	1,543
1,434	1,743	2,734	2,834	2,564
1,534	1,634	1,734	1,834	2,134
4,623	1,643	1,844	1,934	2,034



VF

## Counting in Powers of 10

1b. Starting at 1,085, count forwards in 10s to reach 1,235.

1,125	1,195	1,185	1,155	1,335
1,105	1,205	1,175	185	1,235
1,085	990	1,165	225	1,225
1,095	1,145	1,155	1,165	1,215
1,105	1,135	1,165	1,175	1,205
1,115	1,125	1,175	1,185	1,195



VF

2a. Kevin is counting forwards in 1,000s.



16,400  
17,400  
18,400  
20,400  
21,400  
21,400



Find and correct any mistakes.

VF

2b. Alycia is counting backwards in 10,000s.



500,000  
490,000  
480,00  
470,000  
480,000  
490,000



Find and correct any mistakes.

VF

3a. Put the numbers in ascending order so they have increased by 100 each time.

6,808

7,108

7,008

6,908



VF

3b. Put the numbers in descending order so they have decreased by 10 each time.

256,000

255,990

256,020

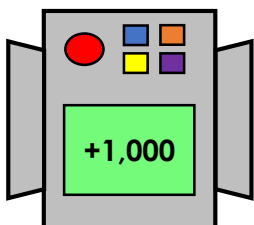
256,010



VF

4a. This function machine follows the rule  $+ 1,000$ .

34,678



35,678

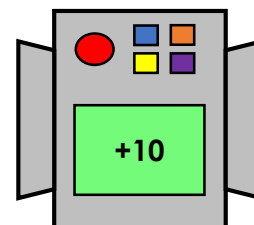
Find the next 3 terms in this sequence.



VF

4b. This function machine follows the rule  $+ 10$ .

143,004



143,014

Find the next 3 terms in this sequence.



VF

## Counting in Powers of 10

5a. Starting at 39,080, count backwards in a power of 10 through the maze to reach 28,080.

39,080	38,080	30,080	29,080	30,080
38,080	28,080	27,080	29,080	28,080
37,080	36,080	26,080	30,080	20,080
38,080	35,080	25,080	31,080	30,080
39,080	34,080	33,080	32,080	31,080
40,080	30,080	31,080	31,080	32,080



What did you count in?

VF

## Counting in Powers of 10

5b. Starting at 5,476, count forwards in a power of 10 through the maze to reach 26,476.

14,476	15,476	16,476	15,476	14,476
15,476	14,476	17,476	18,476	13,476
16,476	19,476	18,476	19,476	26,476
26,476	20,476	21,476	13,476	25,476
27,476	17,476	22,476	23,476	24,476
28,476	18,476	19,476	20,476	30,476



What did you count in?

VF

6a. Tyrone is counting backwards.



59,999  
49,999  
29,999  
19,999  
9,999  
-99



Find and correct any mistakes.

VF

6b. Rachel is counting backwards.



876,664  
776,664  
676,664  
676,664  
576,664  
477,664



Find and correct any mistakes.

VF

7a. Put the numbers in ascending order and identify the power of 10 they have increased by.

877,543

879,543

878,543

876,543



VF

7b. Put the numbers in descending order and identify the power of 10 they have decreased by.

996,051

995,951

996,151

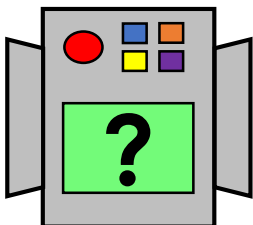
995,851



VF

8a. What rule does this function machine follow?

637,352



627,352

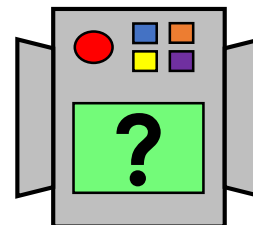
Find the next 3 terms in this sequence.



VF

8b. What rule does this function machine follow?

892,009



891,909

Find the next 3 terms in this sequence.



VF

## Counting in Powers of 10

9a. Starting at -507, count forwards using a power of 10 through the maze 12 terms.

-507	493	1,493	493	-493
507	1,507	2,493	1,493	1,493
1,507	2,507	3,493	2,493	2,493
2,507	5,493	4,493	3,493	12,493
3,507	6,493	5,493	4,493	11,493
4,507	7,493	8,493	9,493	10,493



What number did you reach?

VF

## Counting in Powers of 10

9b. Starting at 896,065, count forwards using a power of 10 through the maze 12 terms.

896,065	895,065	894,065	994,065	908,065
897,065	898,065	899,065	984,065	907,065
887,065	878,065	900,065	901,065	906,065
877,065	888,065	901,065	904,065	905,065
977,065	967,065	902,065	903,065	904,065
867,065	857,065	903,065	904,065	903,065



What number did you reach?

VF

10a. Robert is counting forwards.



-224  
-124  
-24  
24  
124  
224



Find and correct any mistakes.

VF

10b. Gill is counting backwards.



499,624  
399,624  
399,624  
199,624  
99,624  
624



Find and correct any mistakes.

VF

11a. Put the numbers in ascending order and identify the power of 10 they have increased by.

-789

29,211

9,211

19,211



VF

11b. Put the numbers in descending order and identify the power of 10 they have decreased by.

299,706

-294

99,706

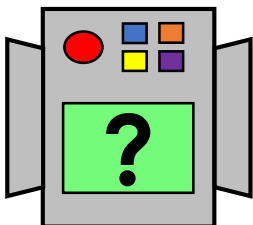
199,706



VF

12a. What rule does this function machine follow?

589,062



599,062

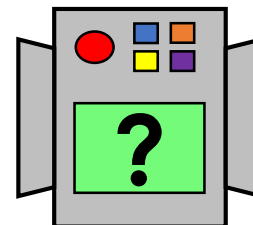
Find the 8<sup>th</sup>, 9<sup>th</sup> and 10<sup>th</sup> terms in this sequence.



VF

12b. What rule does this function machine follow?

12,456



11,456

Find the 10<sup>th</sup>, 11<sup>th</sup> and 12<sup>th</sup> terms in this sequence.



VF

## Varied Fluency Counting in Powers of 10

### Developing

1a.

1,435	4,356	1,567	5,432	8,345
7,345	2,456	2,531	4,432	1,536
<b>1,334</b>	1,345	3,521	3,621	1,543
<b>1,434</b>	1,743	2,734	2,834	2,564
<b>1,534</b>	<b>1,634</b>	<b>1,734</b>	<b>1,834</b>	<b>2,134</b>
4,623	1,643	1,844	<b>1,934</b>	<b>2,034</b>

2a. **16,400; 17,400; 18,400; 19,400; 20,400; 21,400; 21,400**

3a. **6,808; 6,908; 7,008; 7,108**

4a. **36,678; 37,678; 38,678**

### Expected

5a.

<b>39,080</b>	38,080	30,080	29,080	30,080
<b>38,080</b>	28,080	27,080	<b>29,080</b>	<b>28,080</b>
<b>37,080</b>	<b>36,080</b>	26,080	<b>30,080</b>	20,080
38,080	<b>35,080</b>	25,080	<b>31,080</b>	30,080
39,080	<b>34,080</b>	<b>33,080</b>	<b>32,080</b>	31,080
40,080	30,080	31,080	31,080	32,080

Count backwards in 10,000s.

6a. **59,999; 49,999; 39,999; 29,999; 19,999; 9,999; -99 -1**

7a. **876,543; 877,543; 878,543; 879,543**

They have increased by 1,000.

8a. Rule = -10,000: **617,352; 607,352; 597,352**

### Greater Depth

9a.

<b>-507</b>	<b>493</b>	<b>1,493</b>	493	-493
507	1,507	<b>2,493</b>	1,493	1,493
1,507	2,507	<b>3,493</b>	2,493	2,493
2,507	<b>5,493</b>	<b>4,493</b>	3,493	<b>12,493</b>
3,507	<b>6,493</b>	5,493	4,493	<b>11,493</b>
4,507	<b>7,493</b>	<b>8,493</b>	<b>9,493</b>	<b>10,493</b>

Count forwards in 1,000s. Reach 12,493.

10a. **-224; -124; -24; 24 76; 124 176; 224 276**

11a. **-789; 9,211; 19,211; 29,211**

They have increased by 10,000.

12a. **+10,000: 679,062; 689,062; 699,062**

## Varied Fluency Counting in Powers of 10

### Developing

1b.

1,125	1,195	1,185	1,155	1,335
1,105	1,205	1,175	185	1,235
<b>1,085</b>	990	1,165	225	1,225
<b>1,095</b>	<b>1,145</b>	<b>1,155</b>	<b>1,165</b>	1,215
<b>1,105</b>	<b>1,135</b>	1,165	<b>1,175</b>	1,205
<b>1,115</b>	<b>1,125</b>	1,175	<b>1,185</b>	<b>1,195</b>

2b. **500,000; 490,000; 480,000 480,000; 470,000; 480,000 460,000; 490,000 450,000**

3b. **256,020; 256,010; 256,000; 259,990**

4b. **143,024; 143,034; 143,044**

### Expected

5b.

<b>14,476</b>	<b>15,476</b>	<b>16,476</b>	15,476	14,476
15,476	14,476	<b>17,476</b>	18,476	13,476
16,476	<b>19,476</b>	<b>18,476</b>	19,476	<b>26,476</b>
26,476	<b>20,476</b>	<b>21,476</b>	13,476	<b>25,476</b>
27,476	17,476	<b>22,476</b>	<b>23,476</b>	<b>24,476</b>
28,476	18,476	19,476	20,476	30,476

Count forwards in 10,000s.

6b. **876,664; 776,664; 676,664; 676,664 576,664; 477,664 476,664**

7b. **996,151; 996,051; 995,951; 995,851**

They have decreased by 100.

8b. Rule = -100: **891,809; 891,709; 891,609**

### Greater Depth

9b.

<b>896,065</b>	895,065	894,065	994,065	<b>908,065</b>
<b>897,065</b>	<b>898,065</b>	<b>899,065</b>	<b>984,065</b>	<b>907,065</b>
<b>887,065</b>	878,065	<b>900,065</b>	901,065	<b>906,065</b>
<b>877,065</b>	888,065	<b>901,065</b>	904,065	<b>905,065</b>
977,065	967,065	<b>902,065</b>	<b>903,065</b>	<b>904,065</b>
867,065	857,065	903,065	904,065	903,065

Count forwards in 1,000s. Reach 908,065.

10b. **499,624; 399,624; 399,624 299,624; 199,624; 99,624; 624 -376**

11b. **299,706; 199,706; 99; 706; -294**

They have decreased by 100,000.

12b. **-1,000: 1,456; 456; -544**