

Reasoning and Problem Solving

Step 10: Counting in 3s

National Curriculum Objectives:

Mathematics Year 2: (2N1) [Count in steps of 2, 3 and 5, from 0, and in tens from any number, forward or backward](#)

Differentiation:

Questions 1, 4 and 7 (Problem Solving)

Developing Decide how many numbers with a 1 in them will have been said when counting forwards in 3s from 0.

Expected Decide how many numbers with a 2 in them will have been said when counting forwards or backwards in 3s from any multiple of 3.

Greater Depth Decide how many numbers with a 3 in them will have been said when counting forwards or backwards in 3s from any number.

Questions 2, 5 and 8 (Reasoning)

Developing Find the missing digit card from a five number pattern counting forwards in 3s from multiples of 3.

Expected Find the missing digit card from a five number pattern counting forwards or backwards in 3s from multiples of 3.

Greater Depth Find the missing digit card from a five number pattern counting forwards or backwards in 3s from non-multiples of 3.

Questions 3, 6 and 9 (Reasoning)

Developing Given the initial number of a sequence, determine if the sequence could end with a given number by counting forwards in 3s. All sequences start from 0.

Expected Given the final number of a sequence, determine if the sequence could have started with a given number by counting forwards or backwards in 3s. Multiples of 3 used.

Greater Depth Given the final number of a sequence, determine if the sequence could have started with a given number by counting forwards or backwards in 3s. Non-multiples of 3 used.

More [Year 2 Place Value](#) resources.

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Counting in 3s

1a. Bob is counting forwards in 3s starting from 0.

Every time he says a number with a 1 in it, he touches his toes.

How many times will he touch his toes before he says a number larger than 17?



PS

Counting in 3s

1b. Lucy is counting forwards in 3s starting from 0.

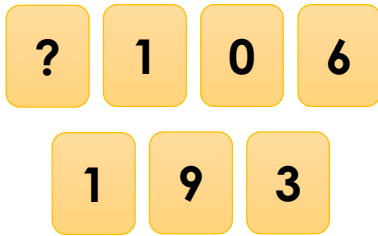
Every time she says a number with a 1 in it, she does a push up.

How many push ups will she do before she says a number larger than 20?



PS

2a. Kim used digit cards to make a five number pattern counting in 3s from 0. The cards have been mixed up and one is missing.

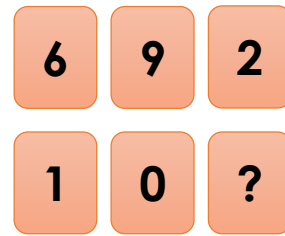


Which card is missing? Explain your answer.



R

2b. Tom used digit cards to make a five number pattern counting in 3s from 0. The cards have been mixed up and one is missing.



Which card is missing? Explain your answer.



R

3a. Matt started counting in 3s from a number and ended on 12.



Could he have started counting at 0? Explain your answer.



R

3b. Yasmin started counting in 3s from a number and ended on 15.



Could she have started counting at 0? Explain your answer.



R

Counting in 3s

Counting in 3s

4a. Ishmael is counting forwards in 3s starting from 6.

Every time he says a number with a 2 in it, he does a star jump.

How many star jumps will he have done before he says a number larger than 36?



PS

4b. Hana is counting backwards in 3s starting from 30.

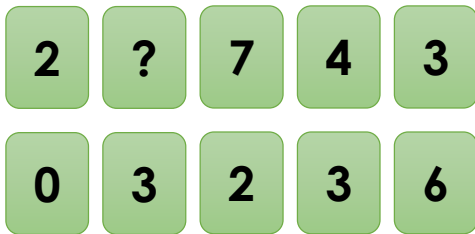
Every time she says a number with a 2 in it, she scores a point.

How points will she have before she says a number smaller than 10?



PS

5a. Penny used digit cards to make a five number pattern counting in 3s from 24. The cards have been mixed up and one is missing.

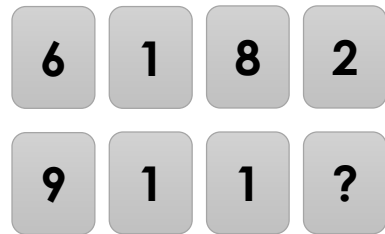


Which card is missing? Explain your answer.



R

5b. Morgan used digit cards to make a five number pattern counting in 3s from 6. The cards have been mixed up and one is missing.



Which card is missing? Explain your answer.



R

6a. Luka started counting in 3s from a number and ended on 24.



Could he have started counting at 36? Explain your answer.



R

6b. Sienna started counting in 3s from a number and ended on 18.



Could she have started counting at 12? Explain your answer.



R

Counting in 3s

Counting in 3s

7a. Franco is counting backwards in 3s starting from thirty-eight.

Every time he says a number with a 3 in it, he spins around.

How many times will he spin around before he says a number smaller than 15?



PS

7b. Molly is counting forwards in 3s starting from nineteen.

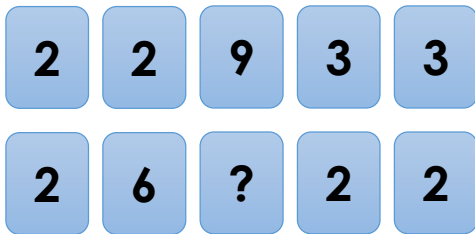
Every time she says a number with a 3 in it, she takes a counter.

How many counters will she have before she says a number larger than 40?



PS

8a. Maria used digit cards to make a five number pattern counting in 3s from 20. The cards have been mixed up and one is missing.

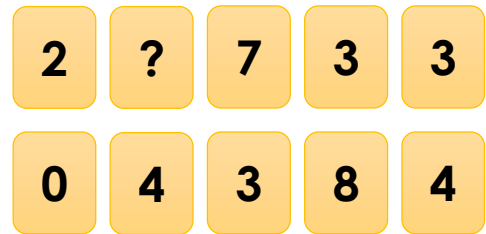


Which card is missing? Explain your answer.



R

8b. Rowan used digit cards to make a five number pattern counting in 3s from 28. The cards have been mixed up and one is missing.



Which card is missing? Explain your answer.



R

9a. Eric started counting in 3s from a number and ended on 32.



Could he have started counting at nineteen? Explain your answer.



R

9b. Danielle started counting in 3s from a number and ended on 14.



Could she have started counting at twenty-six? Explain your answer.



R

Reasoning and Problem Solving Counting in 3s

Developing

- 1a. 2 (12, 15)
2a. 2 because the number pattern is 0, 3, 6, 9, 12.
3a. Yes because if he started counting at 0 he would say 0, 3, 6, 9, 12.

Expected

- 4a. 4 (12, 21, 24, 27)
5a. 3 because the number pattern is 24, 27, 30, 33, 36.
6a. Yes because if he was counting backwards from 36 he would say 36, 33, 30, 27, 24.

Greater Depth

- 7a. 4 (38, 35, 32, 23)
8a. 0 because the number pattern is 20, 23, 26, 29, 32.
9a. No because if he counted forwards from 19 he would say 19, 22, 25, 28, 31, 34.

Reasoning and Problem Solving Counting in 3s

Developing

- 1b. 3 (12, 15, 18)
2b. 3 because the number pattern is 0, 3, 6, 9, 12.
3b. Yes because if she started counting at 0 she would say 0, 3, 6, 9, 12, 15.

Expected

- 4b. 4 (27, 24, 21, 12)
5b. 5 because the number pattern is 6, 9, 12, 15, 18.
6b. Yes because if she counted forwards from 12 she would say 12, 15, 18, 21.

Greater Depth

- 7b. 3 (31, 34, 37)
8b. 1 because the number pattern is 28, 31, 34, 37, 40.
9b. Yes because if she was counting backwards from 26 she would say 26, 23, 20, 17, 14.