Reasoning and Problem Solving
Step 2: Partitioning Numbers

National Curriculum Objectives:

Mathematics Year 1: (1N4) Identify and represent numbers using objects and pictorial representations including the number line, and use the language of: equal to, more than, less than (fewer), most and least

Differentiation:

Questions 1, 4 and 7 (Problem Solving)
Developing Arrange 3 or 4 place value counters to make all possible totals using visual representations of numbers less than 50 (all frames drawn for children to complete.)
Expected Arrange between 5 and 7 place value counters to make all possible totals using visual representations of numbers up to 100.
Greater Depth Arrange place value counters using unconventional partitioning to make a given total up to 100.

Questions 2, 5 and 8 (Reasoning)
Developing Sorting numbers into 2 groups depending on value using numbers less than 50.
Expected Sorting numbers into 2 groups depending on value using numbers up to 100.
Greater Depth Sorting numbers into 2 groups depending on value using numbers up to 100 with some examples of unconventional partitioning. (for example 4 tens and 11 ones is 51)

Questions 3, 6 and 9 (Problem Solving)
Developing Use place value counters to create numbers which have more or less than a given number of tens or ones using visual representations of numbers less than 50. Find three possibilities.
Expected Use place value counters to create numbers which have more or less than a given number of tens or ones using visual representations of numbers up to 100. Find five possibilities.
Greater Depth Use place value counters to create numbers which are between two given numbers of tens and ones using visual representations of numbers up to 100 with some examples of unconventional partitioning. (for example 4 tens and 11 ones is 51).
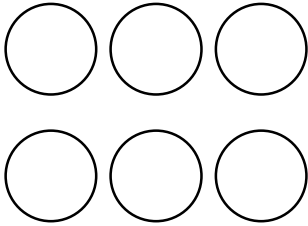
More Year 1 Place Value resources.

Did you like this resource? Don't forget to review it on our website.

classroomsecrets.co.uk

Partitioning Numbers

1a. Susie has 3 place value counters.

10   **1**

Find the different total amounts she could have.

○ ○ ○

○ ○ ○

D

PS

1b. Sulyman has 4 place value counters.

10   **1**

Find the different total amounts she could have.
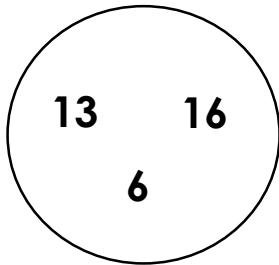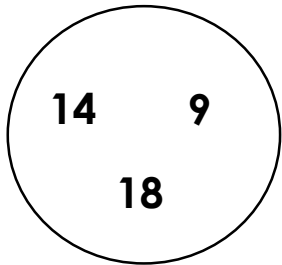
○ ○ ○ ○

○ ○ ○ ○

○ ○ ○ ○

D
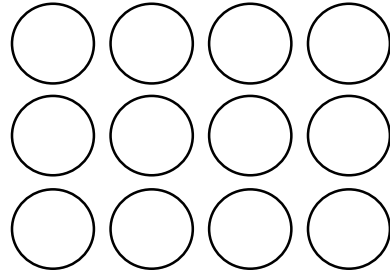
PS

2a. Harrison has completed the diagram. Do you think he has done it correctly? Explain how you know.

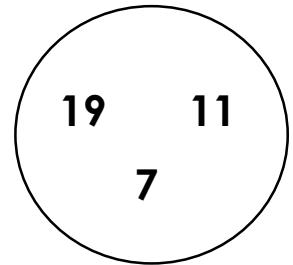| Greater than 15 | Less than 15 |

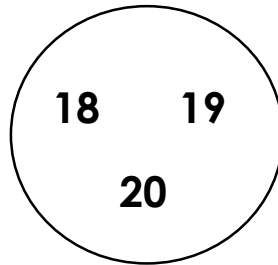14   9
18

13   16
6

D

R

2b. Freddie has completed the diagram. Do you think he has done it correctly? Explain how you know.

| Greater than 18 | Less than 18 |

18   19
20

19   11
7

D

R

3a. Use place value counters to make a number which has less than 5 tens and more than 7 ones.

Tens	Ones
10	1

Can you find three different answers?

D

PS

3b. Use place value counters to make a number which has less than 2 tens and more than 6 ones.

Tens	Ones
10	1

Can you find three different answers?

D

PS

classroomsecrets.co.uk

Reasoning and Problem Solving – Partitioning Numbers – Year 1 Developing

Partitioning Numbers

4a. Ebony has 5 place value counters.

10   **1**

Find the different total amounts she could have.

○ ○ ○ ○ ○
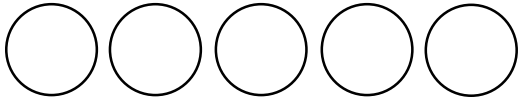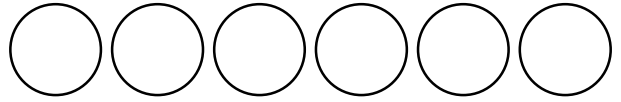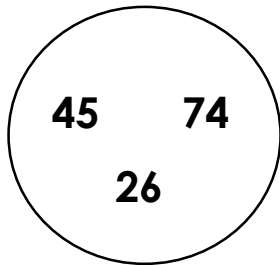
E   PS

4b. Hamza has 6 place value counters.

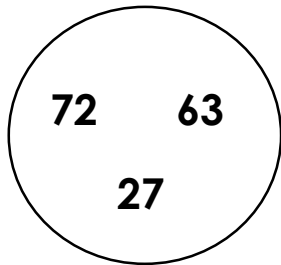**10**   **1**

Find the different total amounts she could have.

○ ○ ○ ○ ○ ○
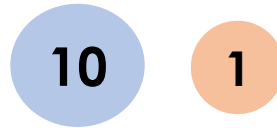
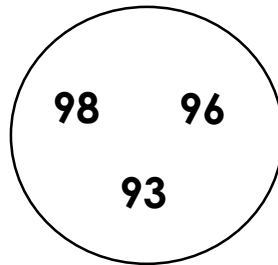E   PS

5a. Jayden has completed the diagram. Do you think he has done it correctly? Explain how you know.

| Greater than 60 | | Less than 47 |

72   63
27

45   74
26

E   R

5b. Priya has completed the diagram. Do you think she has done it correctly? Explain how you know.

| Greater than 95 | | Less than 40 |

98   96
93

55   39
42
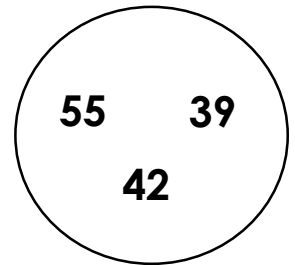
E   R

6a. Use place value counters to make a number which has more than 7 tens and less than 3 ones.

Tens	Ones
10	1

Can you find five different answers?

E   PS

6b. Use place value counters to make a number which has less than 5 tens and more than 6 ones.

Tens	Ones
10	1

Can you find five different answers?

E   PS

classroomsecrets.co.uk

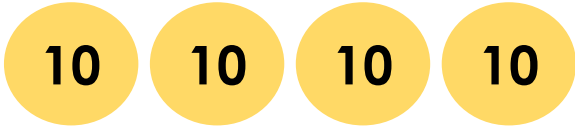**Reasoning and Problem Solving – Partitioning Numbers – Year 1 Expected**

Partitioning Numbers

7a. Saffron has a mixture of place value counters.

10 **1**

She wants to make a number greater than 55, but she only has 4 tens.

10 **10** **10** **10**

How can she do it?

GD   PS

7b. Jerry has a mixture of place value counters.

10 **1**

He wants to make a number greater than 62 but he only has 4 tens.

10 **10** **10** **10**

How can he do it?

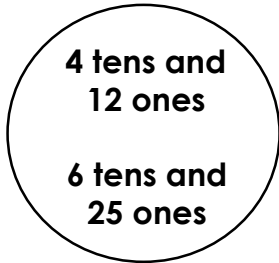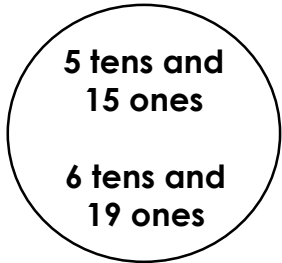GD   PS

8a. Josie has completed the diagram. Do you think she has done it correctly? Explain how you know.
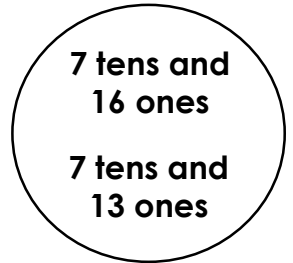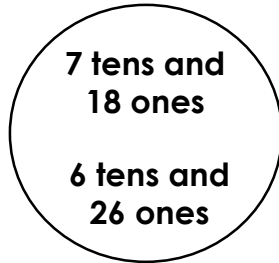
| Greater than 75 | Less than 75 |

5 tens and 15 ones

6 tens and 19 ones

4 tens and 12 ones

6 tens and 25 ones

GD   R

8b. Peter has completed the diagram. Do you think he has done it correctly? Explain how you know.

| Greater than 85 | Less than 85 |

7 tens and 18 ones

6 tens and 26 ones

7 tens and 16 ones

7 tens and 13 ones

GD   R

9a. Use place value counters to make a number which has between 5 and 7 tens and 14 ones.

Tens	Ones
10	1

Can you find all the possible answers?

GD   PS

9b. Use place value counters to make a number which has less than 4 tens and 17 ones.

Tens	Ones
10	1

Can you find all the possible answers?

GD   PS

classroomsecrets.co.uk

Reasoning and Problem Solving – Partitioning Numbers – Year 1 Greater Depth

Reasoning and Problem Solving
Partitioning Numbers

Developing

1a. **The possible answers are 12 and 21.**

2a. **Harrison is incorrect. 9 is not greater than 15 and 16 is not less than 15.**

3a. **Three numbers from the following: 48, 49, 38, 39, 28, 29, 18, 19.**

Expected

4a. **The possible answers are 41, 32, 23 and 14.**

5a. **Jayden is incorrect. 27 is not greater than 60 and 74 is not less than 47.**

6a. **The possible answers are: 82, 81, 80, 92, 91 and 90.**

Greater Depth

7a. **Saffron needs to use 4 tens and at least 16 ones to make a number greater than 55.**

8a. **Josie is not correct because she has made an error. 6 tens and 25 ones = 85 which is not less than 75.**

9a. **The possible answers are 64, 74, 84**

Reasoning and Problem Solving
Partitioning Numbers

Developing

1b. **The possible answers are 13, 22 and 31.**

2b. **Freddie is incorrect. 18 is not greater than 18 and 19 is not less than 18.**

3b. **The three possible numbers are 17, 18 and 19.**

Expected

4b. **The possible answers are 51, 42, 33, 24 and 15.**

5b. **Priya is incorrect. 93 is not greater than 95 and 55 and 42 are not less than 40.**

6b. **The possible answers are: 47, 48, 49, 37, 38, 39, 27, 28, 29, 17, 18, 19, 7, 8, and 9.**

Greater Depth

7b. **Jerry needs to use 4 tens and at least 23 ones to make a number greater than 62.**

8b. **Peter is not correct because he has made an error. 7 tens and 16 ones = 86 which is not less than 85.**

9b. **The possible answers are 17, 27, 37 and 47.**

classroomsecrets.co.uk