Reasoning and Problem Solving
Partition Numbers to 10,000

National Curriculum Objectives:

Mathematics Year 4: (4N3a) Recognise the place value of each digit in a four-digit number (thousands, hundreds, tens, and ones)
Mathematics Year 4: (4N4a) Identify, represent and estimate numbers using different representations
Mathematics 4: (4N6) Solve number and practical problems that involve 4N1 - 4N5 and with increasingly large positive numbers

Differentiation:

Questions 1, 4 and 7 (Problem Solving)
Developing Create the largest and smallest number from 4 given digits using understanding of place value in numbers up to 9,999 without zero as a place holder and adhering to a set limitation.
Expected Create the largest and smallest number from 4 given digits using understanding of place value in numbers up to 9,999 with zero as a place holder and adhering to a set limitation.
Greater Depth Create four 4-digit numbers from given digit cards using understanding of place value in numbers up to 9,999 with zero as a place holder and adhering to a set limitation.

Questions 2, 5 and 8 (Problem Solving)
Developing Identify and explain who is correct using understanding of place value in numbers up to 9,999 without zero as a place holder.
Expected Identify and explain who is correct using understanding of place value in numbers up to 9.999 with some use of zero as a place holder.
Greater Depth Identify and explain who is correct using understanding of place value in numbers up to 9,999 with some use of zero as a place holder and unconventional partitioning.

Questions 3, 6 and 9 (Reasoning)
Developing Recognise and explain which out of three 4-digit numbers matches the Base 10 using understanding of place value in numbers up to 9,999 without zero as a place holder.
Expected Recognise and explain which out of three 4-digit numbers matches the place value counters, using understanding of place value in numbers up to 9,999 with some use of zero as a place holder.
Greater Depth Recognise and explain which out of three 4-digit numbers matches the place value counters, using understanding of place value in numbers up to 9,999 with some use of zero as a place holder and unconventional partitioning.

Partition Numbers to 10,000

1a. Find the smallest and largest 4-digit number you can make using these digits. The 8 must be in the ones column.

2	9	8	4

D PS

1b. Find the smallest and largest 4-digit number you can make using these digits. The 1 must be in the tens column.

4	3	1	5

D PS

2a. Pippa and Hans are discussing place value.

Pippa: The number shown is 4,297.

Hans: No, the number shown is 4,197.

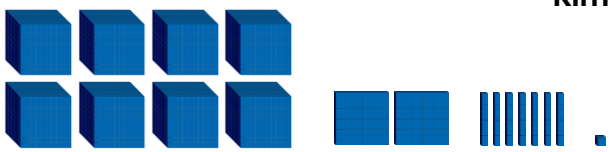
Who is correct? Explain your answer.

D PS

2b. Chen and Kim are discussing place value.

Chen: The number shown is 8,217.

Kim: No, the number shown is 8,271.

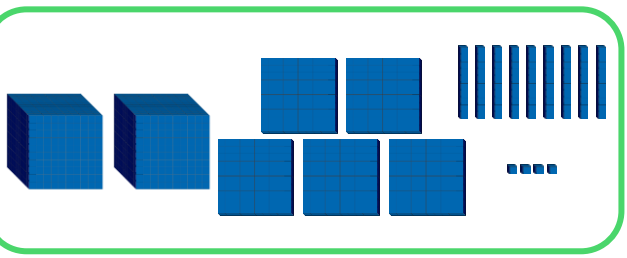


Who is correct? Explain your answer.

D PS

3a. Which number matches the Base 10?

a	b	c
2,594	2,954	2,459

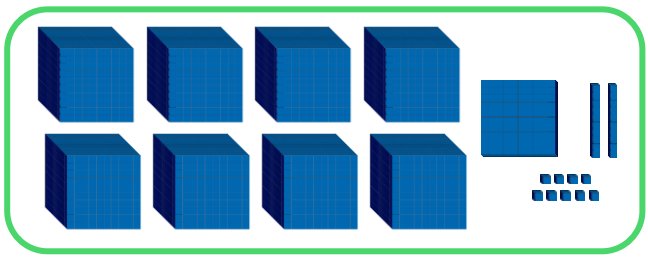


Explain your answer.

D R

3b. Which number matches the Base 10?

a	b	c
8,921	8,219	8,129



Explain your answer.

D R

Partition Numbers to 10,000

4a. Find the smallest and largest 4-digit number you can make using these digits. The 0 must be in the hundreds column.

8	0	1	3

E PS

4b. Find the smallest and largest 4-digit number you can make using these digits. The 1 must be in the ones column.

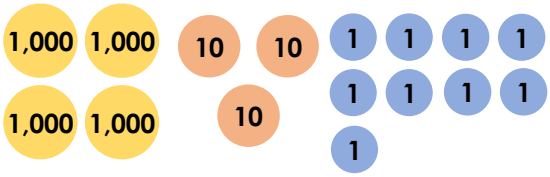
7	0	1	1

E PS

5a. Fatima and Mo are discussing place value.

Fatima: The number shown is 4,039.

Mo: No, the number shown is 4,390.



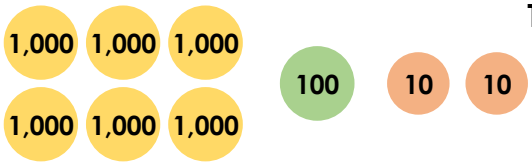
Who is correct? Explain your answer.

E PS

5b. Lucy and Tim are discussing place value.

Lucy: The number shown is 6,210.

Tim: No, the number shown is 6,120.

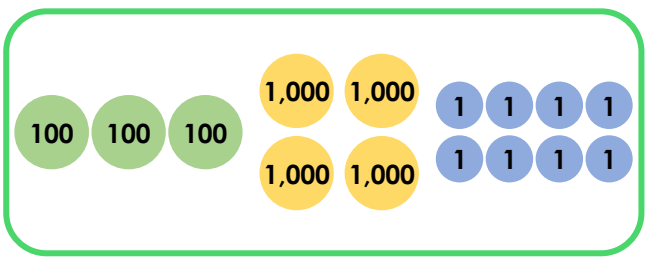


Who is correct? Explain your answer.

E PS

6a. Which number matches the counters?

a	b	c
4,038	4,380	4,308

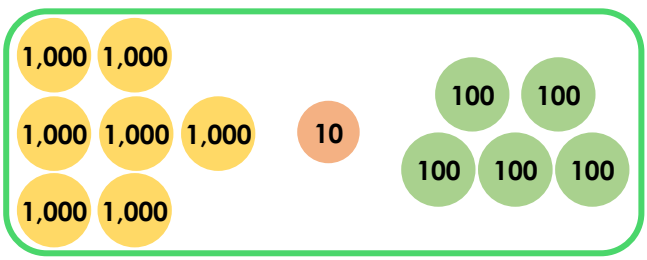


Explain your answer.

E R

6b. Which number matches the counters?

a	b	c
7,501	7,510	7,051



Explain your answer.

E R

Partition Numbers to 10,000

7a. Create four 4-digit numbers using the digit cards below. 2 of the numbers should have a greater value in the tens column than the thousands column.

4	1	0	9

GD PS

7b. Create four 4-digit numbers using the digit cards below. 2 of the numbers should have a greater value in the ones column than the hundreds column.

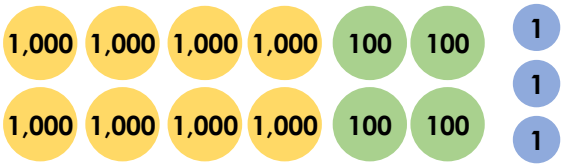
2	9	3	5

GD PS

8a. Erika and Jake are discussing place value.

Erika: The number shown is 8,430.

Jake: No, the number shown is 8,403.



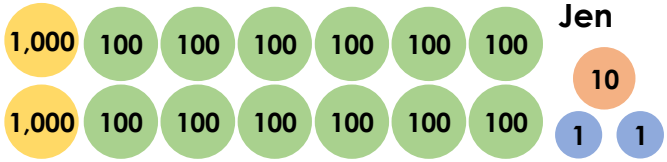
Who is correct? Explain your answer.

GD PS

8b. Amy and Jen are discussing place value.

Amy: The number shown is 3,212.

Jen: No, the number shown is 3,221.

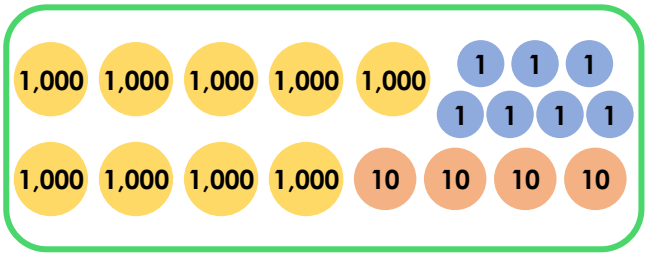


Who is correct? Explain your answer.

GD PS

9a. Which number matches the counters?

a	b	c
9,047	9,470	9,407

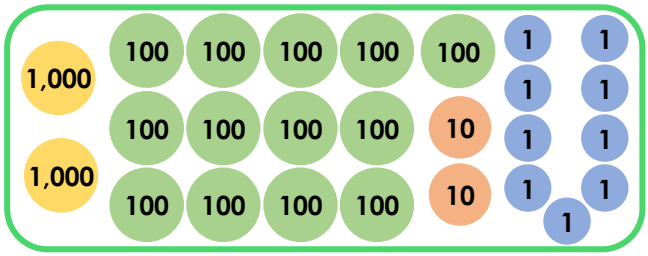


Explain your answer.

GD R

9b. Which number matches the counters?

a	b	c
3,923	3,329	3,239



Explain your answer.

GD R

Partition Numbers to 10,000

Developing

1a. Smallest = 2,498; largest = 9,428

2a. Hans is correct as the Base 10 shows 4 thousands, 1 hundred, 9 tens and 7 ones which makes 4,197.

3a. A matches the Base 10 as there are 2 thousands, 5 hundreds, 9 tens and 4 ones which make 2,594.

Expected

4a. Smallest = 1,038; largest = 8,013

5a. Fatima is correct as the counters show 4 thousands, 3 tens and 9 ones which makes 4,039.

6a. C matches the counters as there are 4 thousands, 3 hundreds and 8 ones which makes 4,308.

Greater Depth

7a. Various answers, for example – 1,490, 1,049, 9,401, 4,109

8a. Jake is correct as the counters show 8 thousands, 4 hundreds and 3 ones which makes 8,403.

9a. A matches the counters as there are 9 thousands, 4 tens and 7 ones which makes 9,047.

Developing

1b. Smallest = 3,415; largest = 5,413

2b. Kim is correct as the Base 10 shows 8 thousands, 2 hundreds, 7 tens and 1 one which makes 8,271.

3b. C matches the Base 10 as there are 8 thousands, 1 hundred, 2 tens and 9 ones which makes 8,129.

Expected

4b. Smallest = 1,071; largest = 7,101

5b. Tim is correct as the counters show 6 thousands, 1 hundred and 2 tens which makes 6,120.

6b. B matches the counters as there are 7 thousands, 5 hundreds and 1 ten which makes 7,510.

Greater Depth

7b. Various answers, for example – 3,259, 9,325, 2,593, 5,932

8b. Amy is correct as the counters show 2 thousands, 12 hundreds, 1 ten and 2 ones which makes 3,212.

9b. B matches the counters as there are 2 thousands, 13 hundreds, 2 tens and 9 ones which makes 3,329.