

# Discussion Problems

## Step 1: Numbers to Ten Million

### National Curriculum Objectives:

Mathematics Year 6: (6N2) [Read, write, order and compare numbers up to 10,000,000](#)

Mathematics Year 6: (6N3) [Determine the value of each digit in numbers up to 10,000,000](#)

### About this resource:

This resource has been designed for pupils who understand the concepts within [this step](#). It provides pupils with more opportunities to enhance their reasoning and problem solving skills through more challenging problems. Pupils can work in pairs or small groups to discuss with each other about how best to tackle the problem, as there is often more than one answer or more than one way to work through the problem.

There may be various answers for each problem. Where this is the case, we have provided one example answer to guide discussion.







We recommend self or peer marking using the answer page provided to promote discussion and self-correction.

More [Year 6 Place Value](#) resources.

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

# Numbers to Ten Million

1. In a video game, a results screen calculates and displays the actions that Felix has completed during a level.

Action	Point Awarded	Results
Recruited an ally	1,000,000	
Defeated an enemy	50,000	
Discovered a fairy	25,000	
Picked up health	1,000	
Collected a golden coin	10,000	
Achievement unlocked	500,000	



Using the scoreboard above, what is Felix's total score?

Explore other various ways that Felix could have achieved a score between 5,003,000 and 6,555,000. You can only complete an action a maximum of five times.

DP

2. Zack and Jason are partitioning seven-digit numbers in unconventional ways. Jason has partitioned his number below:

Millions	Hundred Thousands	Ten Thousands	Thousands	Hundreds	Tens	Ones
8	0	50	3	0	98	4



What was Jason's original number?

Zack says,



**Zack**







Jason's solution isn't the only one! I can think of another three ways to partition his number!

Explore the possible solutions that Zack has come up with. What do you notice about the way that you can and cannot unconventionally partition numbers?

DP

# Numbers to Ten Million

1. In a video game, a results screen calculates and displays the actions that Felix has completed during a level.

Action	Point Awarded	Results
Recruited an ally	1,000,000	
Defeated an enemy	50,000	
Discovered a fairy	25,000	
Picked up health	1,000	
Collected a golden coin	10,000	
Achievement unlocked	500,000	



Using the scoreboard above, what is Felix's total score?

**5,211,000**

Explore other various ways that Felix could have achieved a score between 5,003,000 and 6,555,000. You can only complete an action a maximum of five times.

**Various answers, for example (above): 5,214,000**

DP

2. Zack and Jason are partitioning seven-digit numbers in unconventional ways. Jason has partitioned his number below:

Millions	Hundred Thousands	Ten Thousands	Thousands	Hundreds	Tens	Ones
<b>8</b>	<b>5</b>	<b>0</b>	<b>0</b>	<b>30</b>	<b>90</b>	<b>84</b>



What was Jason's original number?

**8,503,984**

Zack says,



**Zack**

Jason's solution isn't the only one! I can think of another three ways to partition his number!

Explore the possible solutions that Zack has come up with. What do you notice about the way that you can and cannot unconventionally partition numbers?

**Various answers, for example (above):**

**You can unconventionally partition numbers by substituting a larger number by placing it into a smaller column and multiplying it by 10. Placing a number from a smaller column into a larger column will not work as the value of the number will change.**

DP