

# Discussion Problems

## Step 6: Partitioning

### National Curriculum Objectives:

Mathematics Year 4: (4N4a) [Identify, represent and estimate numbers using different representations](#)

Mathematics Year 4: (4N6) [Solve number and practical problems that involve 4N1 - 4N5 and with increasingly large positive numbers](#)

### 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.

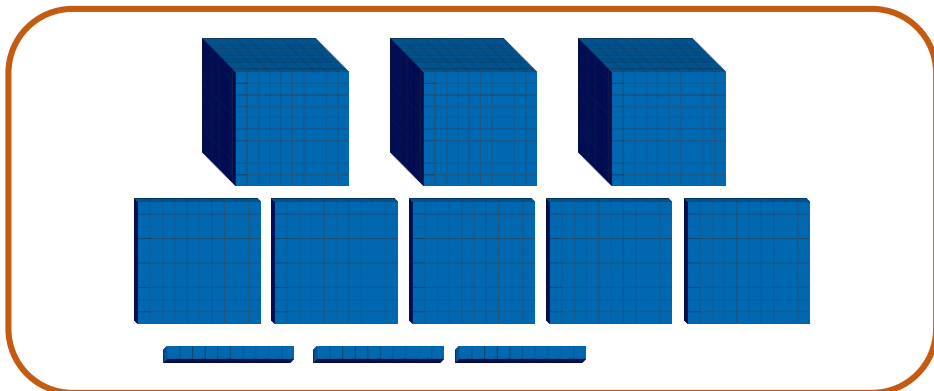
More [Year 4 Place Value](#) resources.

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

# Partitioning

1. Mrs Williams has dropped some Base 10 under her bookshelf. She knows that she has 5,675 in total when all the pieces are together.

The pieces below are left in Mrs Williams' box after she has dropped the rest.



If Mrs Williams knows that fewer than 50 pieces are missing, investigate the different pieces of Base 10 that could be under the bookshelf.

DP

2. The police have recovered three bags containing stolen jewels. They are trying to work out which bag is the most valuable.

Below are the types of jewels that could be in the bags.



£1



£10



£100



£1,000

If each bag holds at least 3 jewels but no more than 8, investigate which bag could be the most valuable.



In Bag A, there are no more than two of the same shape of jewel.



In Bag B, there is only one square jewel.



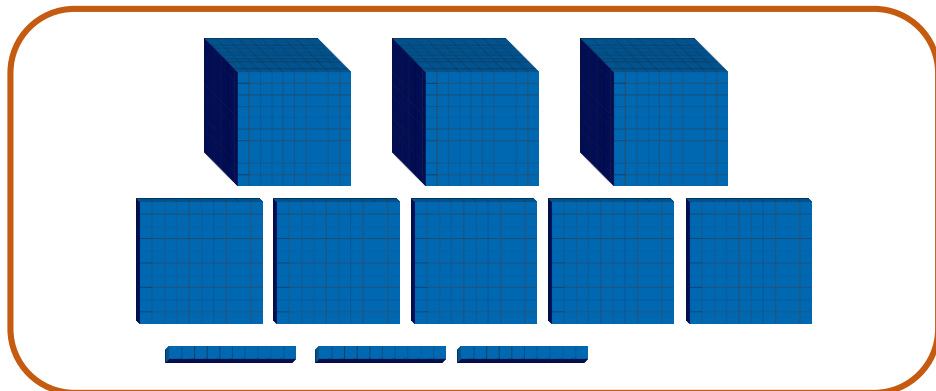
In Bag C, at least half of the jewels are the £1 jewels.

DP

# Partitioning

1. Mrs Williams has dropped some Base 10 under her bookshelf. She knows that she has 5,675 in total when all the pieces are together.

The pieces below are left in Mrs Williams' box after she has dropped the rest.



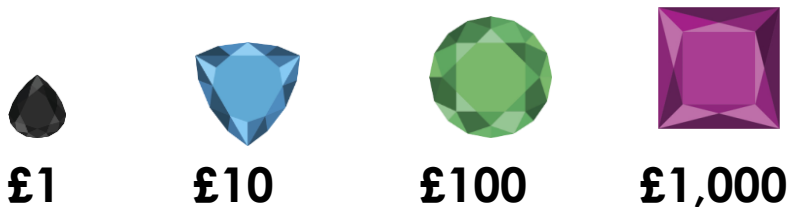
If Mrs Williams knows that fewer than 50 pieces are missing, investigate the different pieces of Base 10 that could be under the bookshelf.

**Various answers, for example: 2 lots of 1,000; 1 lot of 100; 4 lots of 10; 5 lots of 1**

DP

2. The police have recovered three bags containing stolen jewels. They are trying to work out which bag is the most valuable.

Below are the types of jewels that could be in the bags.



If each bag holds at least 3 jewels but no more than 8, investigate which bag could be the most valuable.



In Bag A, there are no more than two of the same shape of jewel.



In Bag B, there is only one square jewel.



In Bag C, at least half of the jewels are the £1 jewels.

**Various answers, for example: Bag A could be the most valuable if Bag A holds £2,210 (£1,000, £1,000, £100, £100, £10); Bag B holds £1,400 (£1,000, £100, £100, £100, £100); Bag C holds £2,003 (£1,000, £1,000, £1, £1, £1).**

DP