

**Age 11+ Level ★★★**
Worksheet 1**1. Committees**

In a club, there are four committees.
Every member of the club is a member of exactly two committees.
Each pair of committees has exactly one member in common.

How many members are there in the club?

2. Number of Arms

How likely is it that the next person you meet has an above average number of arms, where...

- a) average means 'mean'?
- b) average means 'mode'?
- c) average means 'median'?

3. Any Means Possible

Imagine two gold rods.
One is 70cm long, and the other is 20cm long.

Is it possible to break one of the gold rods into two pieces, so that the length of one of the resulting three pieces is exactly the average of the lengths of the other two pieces?

4. Grandpa's Rock Cakes

Grandpa has made one of his special giant rock cakes.
At his party, five of the guests tried to guess the weight of the cake.
Their guesses were 5040g, 5060g, 5110g, 5120g and 5150g.

Actually, none of them was right. Only two were more than 30 grams out, and those guesses were out by 70g and 90g.

What was the weight of the cake?

5. Growing Families

The table shows some information about family sizes.

Number of Children	1	2	3	4	5
Number of Families	6	13	9	4	1

- Find:
- a) the mean number of children in a family
 - b) the mean number of siblings that each child has

These problems are adapted from UKMT (ukmt.org.uk) and WMC (competition.ac) problems.