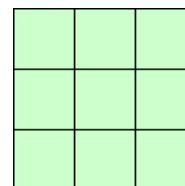
**Age 11+ Level ★★**
Worksheet 1**1. Mean Square**

Can you fill this 3 by 3 grid with the numbers 1 to 9 so that the number in the middle of each line (horizontal, vertical or diagonal) is the mean of the two numbers on either side of it?

**2. Rendezvous**

The table shows the distance (in km) between five towns in southern France. Five friends live in these five towns and want to meet. In which of these towns should they meet to keep the total travelling distance as small as possible?

Bergerac				
87	Bordeaux			
79	47	Langon		
61	31	54	Libourne	
58	84	37	65	Marmande

3. The Mean Problem

There are four unknown numbers.
The mean of the first two numbers is 4.
The mean of the first three numbers is 9.
The mean of all four numbers is 15.



If one of the four numbers is 2, what are the others?

4. Shifting Average

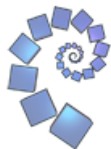
The average of four numbers is 48.
If 8 is subtracted from each number, what is the average of the four new numbers?

5. The Average Age

The sum of the ages of 5 teachers is 190.
The mean age of the teachers is 10 years greater than the median age. The modal age is 5 years less than the median age.
One of the teachers is 56 years old.

How old are the other teachers?

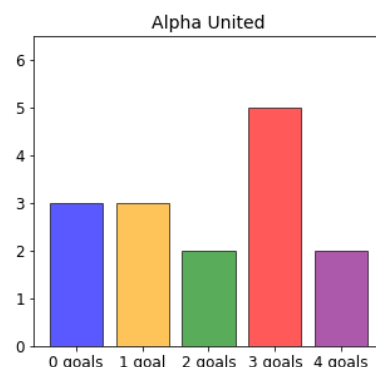
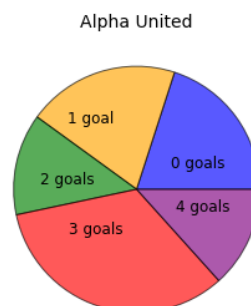
These problems are adapted from UKMT (ukmt.org.uk) and WMC (competition.ac) problems.



Age 11+ Level ★★
Worksheet 2

1. Alpha United

Alpha United have played fifteen games in their league. The bar chart and pie chart show how many goals they scored in each of their matches.



Can you find the mode and median number of goals scored by Alpha United?

2. Average Temperature

The average temperature in 6 European cities is 5° Celsius. What is the new average temperature, if two more cities, with temperatures of 12° Celsius and -6° Celsius, are added to the list?

3. French Test

The first four students to take a test get an average of 4 marks. The next six students to take the test get an average of 6 marks.

What is the average for all 10 students?

4. Sevens

Sophie has to choose seven different positive whole numbers whose mean is 7. What is the largest possible number that she could choose as one of the seven numbers?

5. Bat Wings

Here is a table of information about the wingspan of bats. Unfortunately, two entries are missing from the table.

Student	Data Set (Wingspans in cm)						Mean (cm)
A	13	-	16	12	10	15	13
B	13	16	-	13			

Student A collected 6 measurements and worked out that their mean was 13cm. Student B collected 4 measurements. The overall mean of the combined data was 13.4cm.

Can you work out what the two missing values are?

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