**Age 14+  Level ★★★**
**Worksheet 1**

1. **Medal Ceremony**
   6 pupils have, between them, won three gold medals, two silver medals and a bronze medal in a painting competition.

   Unfortunately, their teacher has lost all record of which medals should go to which pupils, so he allocates them by drawing names out of a hat. The first 3 names drawn receive the gold medals, the next two drawn have the silver medals, and the bronze medal goes to the remaining pupil.

   How many different ways can the medals be allocated by this method?
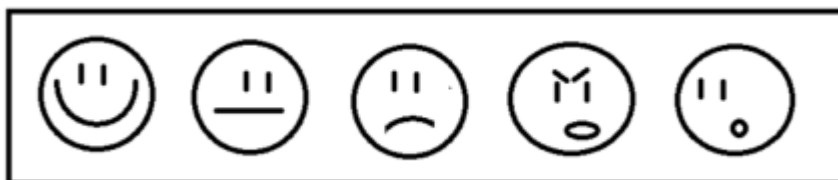
2. **Domino Match**
   A standard set of dominoes has numbers from 1 to 6, and blanks, arranged so that every number appears once with each other number, and once with itself (the doubles).

   Two dominoes are chosen from the set at random.
   What is the probability that they 'match' - that is, that one end of one matches at least one end of the other?

3. **Face Order**
   How many ways can the five faces below be ordered if the smiling face cannot be on either end?



4. **Vegtown Elections**
   Elections in Vegtown were held recently.

   Everyone who voted for the Broccoli Party had already eaten broccoli. Of those who voted for other parties, 90% had never eaten broccoli. 46% of voters had eaten broccoli.

   What percentage of voters voted for the Broccoli Party?

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