Age 11+ Level ★
Worksheet 2

1. **Suit Sequence**
   A pattern that repeats every six symbols starts as shown below:
   
   ♠ ♠ ♠ ♠ ♠ ♠ ♠ ♠ ♠ ♠ ♠ ♠ ...  
   
   What are the 100th and 101st symbols in the pattern?

2. **What a Coincidence!**
   Consider the arithmetic sequences:
   1998, 2005, 2012, ... and
   1996, 2005, 2014, ...
   
   Which is the next number after 2005 that appears in both sequences?

3. **Triangular Clock**
   Trinni is fascinated by triangular numbers (1, 3, 6, 10, 15, 21...)
   
   She found that she could rearrange the twelve numbers on a clock face 1, 2, 3, ..., 12 so that each adjacent pair added up to a triangular number.
   
   She left the 12 in its usual place; what number did she put where the 6 would usually be?

4. **Fibonacci Deduction**
   Leonard writes down a sequence of numbers. After the first two numbers, each number is the sum of the previous two numbers in the sequence.
   
   The fourth number is 6 and the sixth number is 15.
   What is the seventh number in the sequence?

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