Stage 3 ★
Mixed Selection 1

1. **Minutes in between**
   How many minutes are there between 11:41 and 14:02?

2. **Stair climb**
   Boris, Spike and Percival are going to race up the 99 steps that lead from the beach to the car park at the top of the cliff. Boris can run up five steps in the same time as Spike can run up four steps, which is the same time as Percival can run up three steps. It is agreed that Boris starts from the bottom, Spike starts 21 steps up and Percival 38 steps up.

   If they all start at the same time, in what order will they reach the top?

3. **Race time**
   Frank and Gabriel competed in a 200m race. Gabriel finished in half a minute and Frank finished in one hundredth of an hour.

   Who won the race and by how many seconds?

4. **Millennium leap**
   Leap years normally occur every four years. However, years at the turn of a century are leap years only if they are multiples of 400. Therefore, 2000 was a leap year but the year 1900 was not.

   How many leap years will there be between 2001 and 3001?

5. **Flying down under**
   Fred flew to Melbourne, Australia. The flying time to Melbourne, which is 11 hours ahead of Britain, was 21 hours. Fred's flight left London at 11.30am on Tuesday.

   What time was it in Melbourne when Fred's flight arrived?

These problems are adapted from UKMT Mathematical Challenge problems (ukmt.org.uk)