

## Core Maths Prep work

Please attempt all the questions and submit all your working out with your answers.

The following questions are based on GCSE topics and give you an idea of some of the topics that we will be covering in the Core Maths qualification.

1) The risk of being killed by being struck by lightning is about  $\frac{1}{300000}$ .

- What is this fraction as a decimal?
- What is this as a percentage?
- What is the total population of the planet?
- Write this number in standard form.
- Roughly how many people will be killed by being struck by lightning each year?

2) Identify a savings account that pays interest.

- What is the interest rate?
- If I invest £20 000, how much will I have at the end of a year?
- If I invest £7 000, how much will I have at the end of 5 years?
- I ended up with £12915 after investing money for a year. How much did I start with?
- How long will it take an investment of £4000 to double in value?

3) The temperatures (measured in Celsius) in Edinburgh and London on 8th -15th June 2017 were:

Edinburgh	13	15	16	16	14	13	12	13
London	18	20	21	20	17	14	12	14

Compare the temperatures.

4) Estimate how many times your heart has beaten so far this year. Show clearly how you reached your answer.

5) Find the exchange rate between Pounds and Euros.

- What is the current exchange rate between Pounds and Euros?
- What was it this time last year?
- A meal costs €12. Does this cost more or less Pounds than last year?

6) A car costs £17 per day to hire, plus a £52 arranging fee.

- How much does it cost to hire for 12 days?
- How many days can I hire it for if I have £215 to spend?
- How much does it cost to hire for  $n$  days?

7) Sketch a graph to show how the price of buying a second hand car will change as the car gets older. Label the axes and explain any important features of your graph.