*Institute for Research in Schools*Worksheet KS5.1 - Answers

The graphs below show the daily cases and death rates from Covid-19 in the US from March – July 2020.



1. Why is the seven-day average marked on the graphs? What are the reasons for the variations in the figures?

The seven-day average is marked on the graphs to smooth out the day-to-day variations in numbers so that trend can be seen. It is possible to see on both graphs that the cases and deaths reported dip each weekend.

1. What was the death rate per 1000 Covid-19 cases in the US on 1st April? What assumptions have you made?
2. Can you make a prediction about the number of deaths at the end of July? Give a reason for your answer.
3. What problems could there be with this data? What would be useful for you to know to have a clearer picture of the impact of this disease?
4. Most people who contract COVID-19 do not need to go to hospital. Hospitalisation rate is the proportion of people who need to be admitted for hospital treatment for a disease.

If the hospitalisation rate for COVID-19 was 5:100, how many people would be admitted to hospital if:

1. 1000 people were infected?
2. 20, 000 people were infected?
3. Assuming an average hospital stay for COVID-19 is 21 days, approximately how many hospital beds were needed in the US during the first three weeks of April 2020? (Assume everyone admitted on day 1 is still in hospital on day 21)
4. There are approximately 140,000 hospital beds in the UK. Assuming approximately one quarter can be repurposed to accommodate COVID-19 patients:
5. How many hospital beds are Available to COVID-19 patients in the UK?
6. How many of the population could be infected with COVID-19 before these beds were full? Assume the same hospitalisation rate as the US.
7. How could information about hospitalisation rates be useful for an organisation such as Public Health England?
8. What would be the impact if more people were infected with COVID-19 than the health service could treat using the staff and beds available? What would happen to other essential NHS services?