



Lesson Plan 4

Main focus of activity:

- It's six months since the outbreak of the FHS147 virus in South London. What was the impact of the Virus?

Learning objectives:

- To be able to estimate probabilities
- To be able to work out percentages of amounts
- To be able to plot and interpret pie charts
- To be able round sensibly
- To be able to work with upper and lower bounds

Links to the Maths curriculum:

- Estimating Probabilities
- Percentages of amounts
- Plotting and Interpreting pie charts
- Communicating maths effectively

Activity outline:

Teachers are encouraged to come up with their own ideas, however the ideas and resources included can be used as a framework to develop further linked work.

Introduction

- The students are split into groups and are employed to report back to the emergency government panel about the possible outcomes six months of the viral outbreak.
- This activity builds strong cross-curricular links with other subjects as pupils are working with world population statistics not just local data. Social questions are also raised regarding access to drugs.
- The lesson could be introduced with a starter with 3 people all from different continents contract the same virus but all have hugely different probabilities of survival.

Discussion points:

*Is it right that some people have access to healthcare and some do not?
Can we do anything to make the distribution of medical drugs fairer?*

- Pupils need to communicate the statistics from the three possible scenarios.
- The pupils need to remember that their audience may not understand all of the maths behind the outbreak so the information communicated needs to be as clear and as concise as possible.
- The use of pie charts is required to clearly communicate the differences in the possible scenarios

Main Part of Lesson:

Teaching and Learning:

- The pupils need to work in groups to work through the 3 provided scenarios.
 - The task will require communication of information and for pupils to deliver this information in a graphical way via the use of pie charts.
 - There are auto marking resources in excel to help students calculate the number of deaths using the estimated probabilities.
 - More able groups could be given a range for the probabilities of the death rates. For example rather than 0.5 they may have 0.45 as the lower bound and 0.55 as the upper bound. This will increase the amount of calculations. Pupils could also be encouraged to display these differences graphically.
 - **Differentiation:**
- For a **lower ability group** it would probably be asked to calculate the death statistics for the 3 scenarios with the help of the auto marking spreadsheet. They will also have prepared pie chart sheets to help them plot the pie charts.
-
- For a **middle ability group** they would be expected to calculate the death statistics for the 3 scenarios and plot all three pie charts without the use of any prepared sheets.
- For the **higher ability group** would be expected to complete all of the above and in addition be asked to calculate the statistics using upper and lower bounds.

Plenary:

- Each group must present their three scenarios to their peers. Using presentation software such as PowerPoint or Prezi may help when presenting that the graphics clearly.
- The pupils should be encouraged to discuss the probabilities being higher in poorer countries, which may allow maths linked discussions about inequality and the differing mathematical spread of disease at a local, national and global scale. This also links well with the need to include real life links and to promote pupils sense of social responsibility.