**Year 9 Maintaining Balance**

**Investigation Revision**

‘Pathogenator’ is a company that specialises in producing a variety of products that is designed to kill pathogens.

In designing their product they wanted to experiment on the effectiveness of their products. They asked four (4) groups of 15 individuals each to volunteer to participate in the experiment.

Group 1 were given Dettol to clean up their hands after touching cow manure fertiliser.

Group 2 were given hand sanitiser containing alcohol to clean up their hands after touching cow manure fertiliser.

Group 3 were given soap to clean up their hands after touching cow manure fertiliser.

Group 4 were given water to clean up their hands after touching cow manure fertiliser.

All 4 groups had to swipe their hands on an agar petri dish after touching the fertiliser and then swipe their hands after applying the cleaning agent on another petri dish.

The petri dishes were incubated and allowed the bacteria to grow and after 2 weeks of incubation the bacteria colonies were counted in each petri dish. The results are as follows:

|  |  |
| --- | --- |
|  | Number of bacteria colonies |
| Time (Days) | Group 1- Dettol | Group 2 - sanitiser | Group 3 - soap | Group 4 - water |
| 1 | 0 | 0 | 0 | 2 |
| 3 | 1 | 1 | 1 | 8 |
| 5 | 3 | 5 | 4 | 15 |
| 7 | 6 | 9 | 7 | 28 |
| 9 | 9 | 16 | 11 | 40 |
| 11 | 13 | 22 | 15 | 56 |
| 13 | 18 | 28 | 22 | 86 |

1. Write a possible hypothesis for the clinical trial.
2. Identify the variables involved in the clinical trial. Complete the table below

|  |  |
| --- | --- |
| Independent variable |  |
| Dependent variable |  |
| Controlled Variable |  |
|  |

1. On the grid below, draw a graph of the data represented in the table



1. What two (2) conclusions can be made about the experiment? Refer to your graph to support your answers.
2. Which groups was the control group? Why was it important for the company to use this group in their experiment?
3. Identify a way to make this experiment more reliable.
4. Identify a way to make this experiment more valid.