Name ……

Applied Science Summer work - The impact of science

Your course will contain a module where we look at the impact of a STEM technology on society. Here is an example of the information on AI.

Task - Read sources A and B carefully – then answer the questions below. This will help us understand your scientific literacy and maths skills

Questions relating to Source A - What is AI, is it dangerous and what Jobs are at risk?

1. Define what generative AI means.

_____

_____ (1 mark)

2. Give 3 dangers of AI that are discussed in Source A.
   1)_____
   2)_____
   3) _____ (3 marks)

3. Give 2 malicious purposes that source A believes AI could be used for.
   1)_____
   2)_____
   (2 marks)

4. In 2024 the Global GDP was estimated to be $110 Trillion, using the figures quoted in source A what would that GDP become after the introduction of AI?

_____ (2 mark)

5. List two benefits of AI according to Source A
   1)_____
   2)_____
   (2 marks)

Questions relating to Source B – £21 Million AI roll out to the NHS

1. State one source of bias in this article.

_____ (1 mark)

2. What does ring fenced funding mean?

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_____
_____ (1 mark)

3. Currently 20% of stroke victims survive and live independently. Using the data in Source B, assuming that there are 100,000 strokes in the UK each year. How many **more** patients will live independently if AI is used to analyse their results instead.

_____
_____
_____
_____(3 marks)

4. According to source B what percentage of the current NHS spend on medical technologies will this new funding represent?

_____
_____
_____
_____(3 marks)

Applied Science Unit 2 coursework summer work

Year 12 Chemistry Graph skills -

In the coursework you will need to draw graphs and read data this task will help you practice these skills. Read the information and complete the questions

A titration can be used to calculate the concentration of an acid or alkali by gradually adding an alkali or acid of known concentration to it and finding the exact volume needed to neutralise the unknown.

These results show the change in pH of an acid as a base (alkali) is added.

Volume Of Base (mL)	pH
1.00	3.15
2.00	3.24
3.00	3.39
4.00	3.54
5.00	3.63

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6.00	3.78
7.00	3.85
8.00	3.98
9.00	4.11
10.00	4.20
11.00	4.31
12.00	4.47
13.00	4.60
14.00	4.75
15.00	4.90
16.00	5.20
17.00	5.60
18.00	6.60
19.00	9.92
20.00	10.60
21.00	11.80
22.00	12.25
23.00	12.32
24.00	12.45

Here are two graphs of these results.

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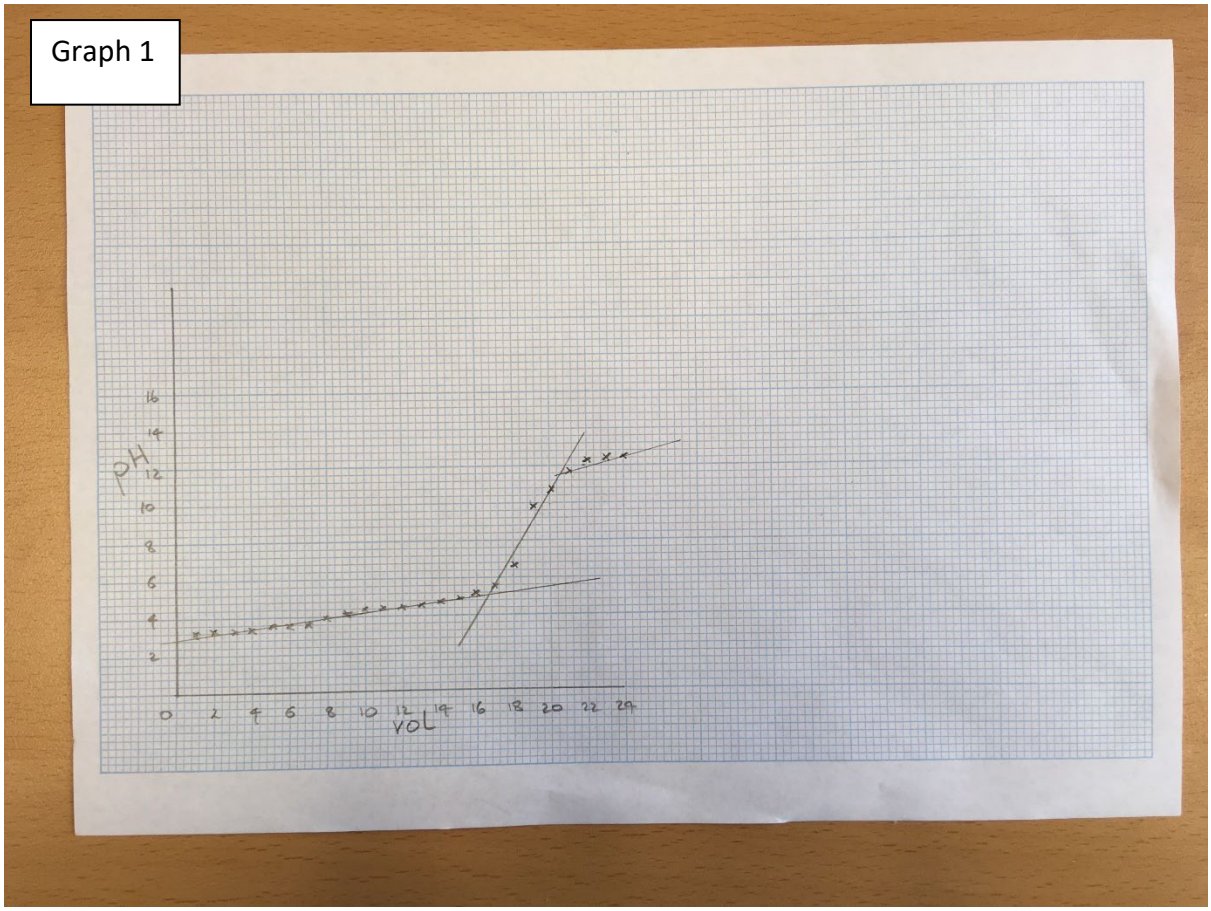
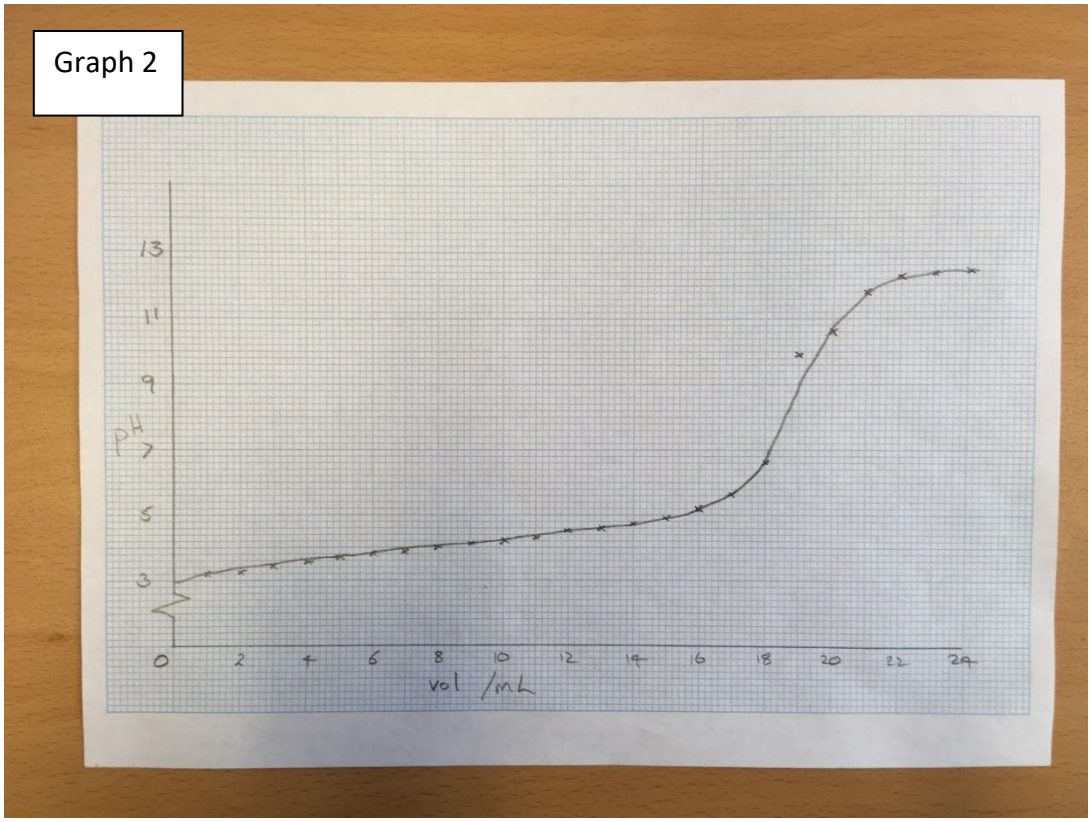
Graph 1



Graph 2



Look at the two graphs and follow and answer the following questions.

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1. List the mistakes in graph 1. Explain what the student should change.

2. List the mistakes in graph 2. Explain what the student should change.

3. Plot your own graph of the results clearly on graph paper. (You can find printable graph paper here. https://www.printablepaper.net/preview/Quarter_Inch_Light_Gray_Graph_Paper_Letter)

4. Mark clearly on your graph any anomalies.

5. Use your graph to find the volume of base needed to neutralise the acid (pH7.00).
6. Use your graph to find the pH of the solution when 19.00ml of base have been added.