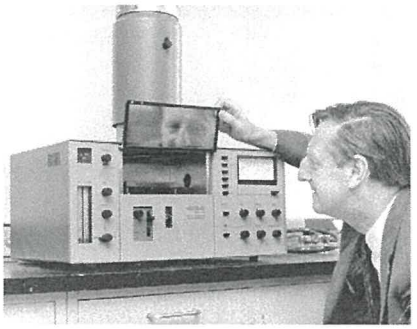
Name: _____

Class: _____

ACTIVITY SHEET

1.5 Constructing and using calibration curves

In the 1950s, atomic absorption spectroscopy was developed by CSIRO scientist Dr Alan Walsh. It is an analytical technique used to determine the unknown concentration of an element based on the amount of light it absorbs compared to samples of known concentration.



CSIRO/Scienceimage

Instructions

1 Use the data below to construct a calibration curve on the grid for known concentrations of lead.

Lead concentration (ppm)	Absorbance
0.00	0.00
1.00	0.17
2.00	0.34
3.00	0.48
4.00	0.65
5.00	0.83
6.00	1.01

(Source: http://www.ausetute.com.au/aas.html)

2 Use the curve to determine the concentration of lead in a sample with an absorbance of 0.53.

3 Use the data below to construct a calibration curve on the grid for known concentrations of cadmium.

Cadmium concentration ($mg\ L^{-1}$)	Absorbance
0.00	0.000
1.00	0.038
2.00	0.082
3.00	0.120
4.00	0.160
5.00	0.200
6.00	0.240

4 Use the curve to determine the concentration of cadmium in a sample with an absorbance of 0.190.

Name: Soln

Class:

ACTIVITY SHEET

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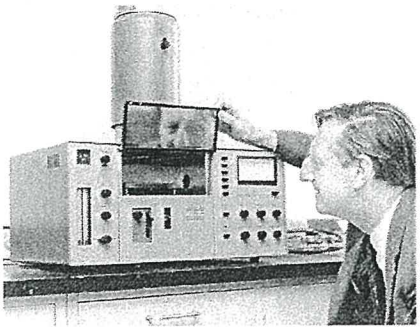

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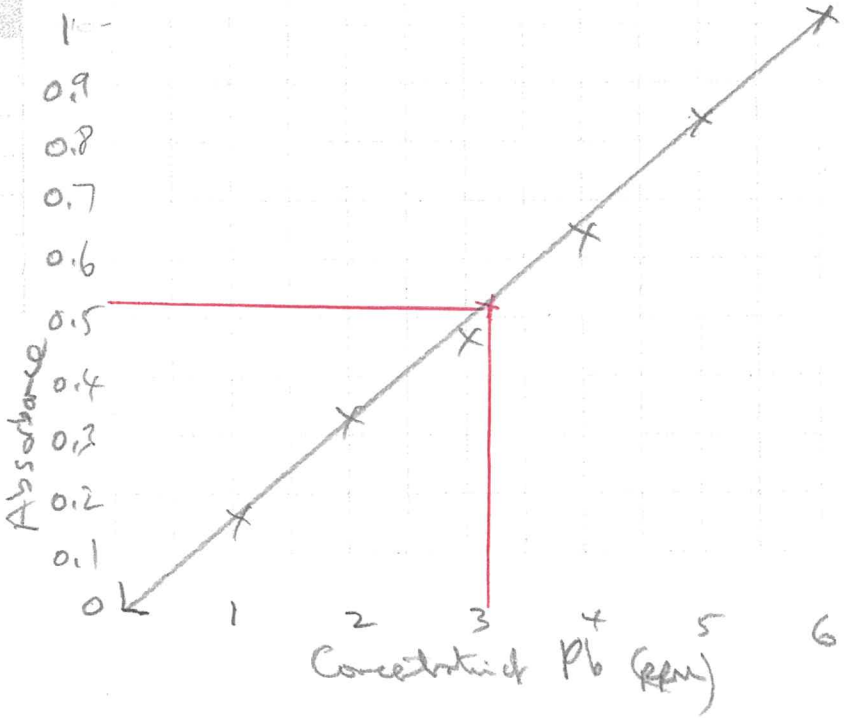

2 Use the curve to determine the concentration of lead in a sample with an absorbance of 0.53.

3.1 ppm.

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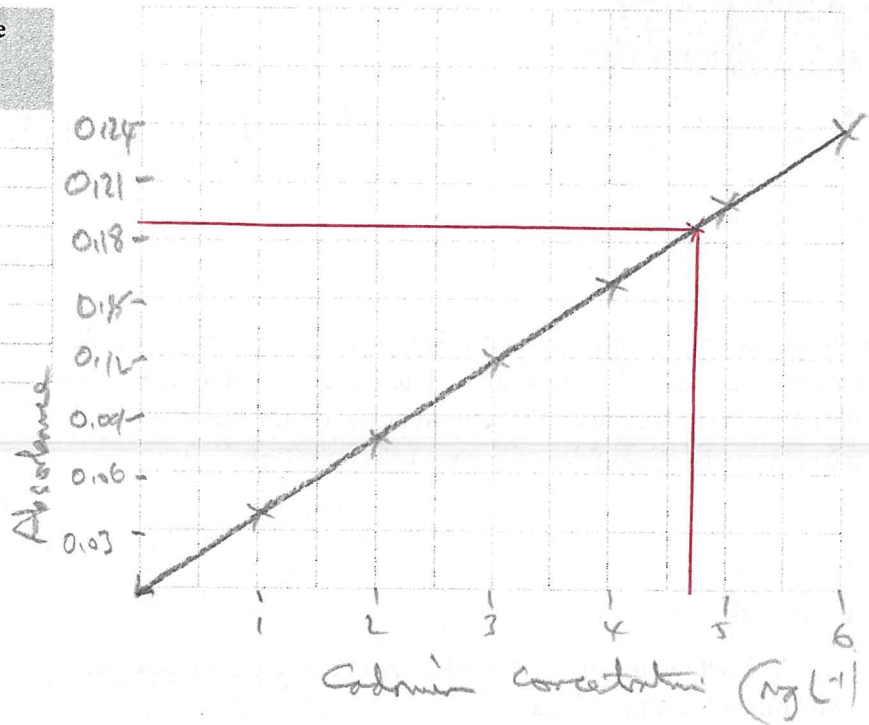
3.00	0.120
4.00	0.160
5.00	0.200
6.00	0.240



4 Use the curve to determine the concentration of cadmium in a sample with an absorbance of 0.190.

4.75 mg L^{-1}