Friday Worksheet **Name: …….**
Analytical chemistry AAS worksheet 2

An AAS is used to determine the level of iron in a brand of Cornflakes. A 4.90 gram sample of the breakfast cereal was taken, crushed and dissolved in 20.0 mL of distilled water. The mixture was filtered and the residue washed several times with 30.0 mL of distilled water. The final volume was accurately determined to be 50.0 mL. A 10.00 mL aliquot was then taken and placed in a 200 mL volumetric flask and made up to the mark with distilled water. A 2.00 mL sample was taken from the volumetric flask and analysed for its iron - concentration using AAS.

The absorption of several standard solutions of iron was measured using AAS. The results are shown in the table below.

Concentration of Fe (ppm)	**Absorbance**
0.00	0.005
20.00	0.155
40.00	0.304
60.00	0.459
80.00	0.610
Sample	0.370

a Plot a graph of absorption against concentration of iron.

b What is the concentration of iron, in ppm, in the 2.00 mL sample tested?

c Calculate the concentration of iron, in ppm, in the volumetric flask.

d Calculate the amount of iron in grams in the 2.00 mL sample of Cornflakes tested.

e Calculate the mass of iron in the volumetric flask.

f Calculate the mass of iron in the 4.90 g sample.

g Calculate the concentration of iron in the breakfast cereal in % (w/w)

h What mass of iron is consumed if a person consumes 200.0 grams of the breakfast cereal?

i Suggest why the sample of Cornflakes was diluted using a volumetric flask before its iron concentration was measured.