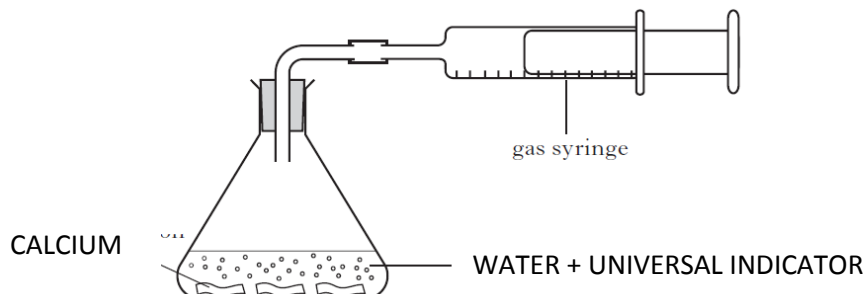


Homework 1 – Reaction of Metals with Water

1. Small pieces of calcium were placed in water and the gas produced was collected using the following apparatus.



- a) Name the gas produced and describe a test you could perform to confirm the identity of this gas (2)
- b) What TYPE of substance does the universal indicator confirm has been made during the reaction? (1)
- c) Write a word equation for the reaction occurring between calcium and water (1)
- d) The table below shows the volume of gas produced over 50 seconds

Time (s)	Volume of gas (cm ³)
0	0
10	20
20	40
30	55
40	65
50	72

- (i) Draw a line graph of these results (3)
- (ii) Use your graph to predict the volume of gas, in cm³, that would be produced after 60 seconds (1)
- (iii) The average rate at which gas is produced can be calculated as shown

Average rate between 10 and 20 seconds = $\frac{\text{change in volume of gas during time period}}{\text{length of time period}}$

$$= \frac{40 - 20}{20 - 10} = \frac{20}{10}$$

$$= 2 \text{ cm}^3/\text{s}$$

Calculate the average rate at which gas is produced between 20 seconds and 30 seconds

(2)