Name:

Transition work: Preparing a practical

Objective: To plan a method that can be used to determine the rate of reaction using a continuous monitoring method.

Aim: You are tasked with planning how to measure the rate of reaction for the reaction between hydrochloric acid and magnesium metal. You will need to investigate changing the concentration of the hydrochloric acid and looking at the impact that it has on the rate of reaction. You will need to write a full method for the procedure on the sheet provided below.

Preparation:

1. Write out a fully balanced symbol equation for the reaction described above including state symbols. **(3)**

2. Describe, in simple terms, how to calculate rate? **(1)**

   ……..

   ……..

You will be provided with the following equipment and chemicals.

Equipment	**Chemicals**
Beakers (Various sizes)	Magnesium ribbon
Conical flasks	0.8 mol dm^{-3} Hydrochloric acid
Delivery tube	
Bung	
Gas syringe	
Measuring cylinders (Various sizes)	
Clamps and stands	
Chemical balance to 2dp	
Weighing boats	

Key considerations – You should aim to answer each of the following in your method

1. Decide on a method
   - Mass of Mg used?
   - Volume of acid?
   - Different concentrations to use?
   - Measurements to take?
   - Frequency of measurements?
   - Why would you choose the equipment you have chosen?
2. What variables would you control and why?
3. What safety precautions need to be taken?
   - What hazards are associated with the chemicals?
   - What precautions could be taken
   - What would you do if something had happened?
4. Write references for any sources you have used

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Diagram: - Draw a fully labelled diagram of your apparatus

Method:

2c	R	A	G	2d	R	A	G

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References: .....

5b	R	A	G

Risk assessment:

3a	R	A	G

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Results table: - Draw a suitable results table for your experiment

4b	R	A	G