Supervisor only	
Skill A/10	Skill B/15
N/A	

C1f

Internal Assessment Task:
GCSE Science
GCSE Chemistry

Task Code & Title: **How does the rate of reaction between sodium thiosulphate solution and hydrochloric acid depend on the temperature?**

Candidate Name ……..

Centre Name ……. **Centre Number** ……

Declaration by candidate

The attached work is my own unaided work, with the exception of any assistance given to me by the supervisor. I carried out all the work in class under the supervision of a teacher.

Signature: …… *Date*: ……

Declaration by teacher or lecturer

I confirm that the candidate's work was conducted under the conditions laid out by the specification. I have authenticated the candidate's work and am satisfied that to the best of my knowledge the work produced is solely that of the candidate.

Signature: …… *Date*: ……...

Notes for Supervisors:

1. Internal Assessment Tasks for the GCSE sciences must be carried out entirely in the laboratory / classroom [or field, in the case of fieldwork]. It must not be taken away by the candidate. If it is carried out over two lessons, it must be collected at the end of the first lesson and kept under secure conditions until being given out in the second lesson. At the end of the task, it should be collected in for marking and stored under secure conditions. It must not be subject to subsequent amendment.
2. Marks should only be awarded for work which is the candidate's own. Supervisors are free to give candidates assistance to enable them to make progress, but such assistance should not attract credit. The extent of any assistance should be clearly noted, e.g., by annotation or by additional information attached to the worksheet.
3. Group work is not permitted for this Internal Assessment Task.

Approved for 2007 – 2008

Assessed Practical – How does the rate of reaction between sodium thiosulphate solution and hydrochloric acid depend on the temperature?

Information: Sodium thiosulphate solution (thio) reacts with hydrochloric acid to form a precipitate of solid sulphur. This can be used to measure the rate of the reaction.

Method

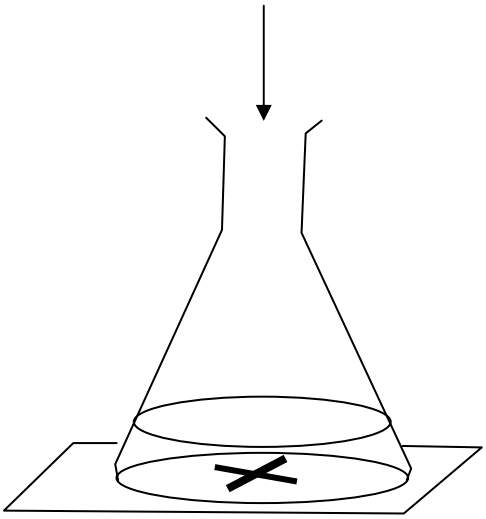
(a) Draw a cross on the square of white paper.

(b) Measure 50 cm^3 of the thio solution into the conical flask.

(c) Place 5 cm^3 of hydrochloric acid into the small measuring cylinder.

(d) Pour the acid into the conical flask and swirl the flask to thoroughly mix the reactants - at the **same time**, start the stopwatch and place the flask on the cross.

(e) Look down at the cross from above (through the mixture).



(f) Stop the stopwatch as soon as the cross disappears.

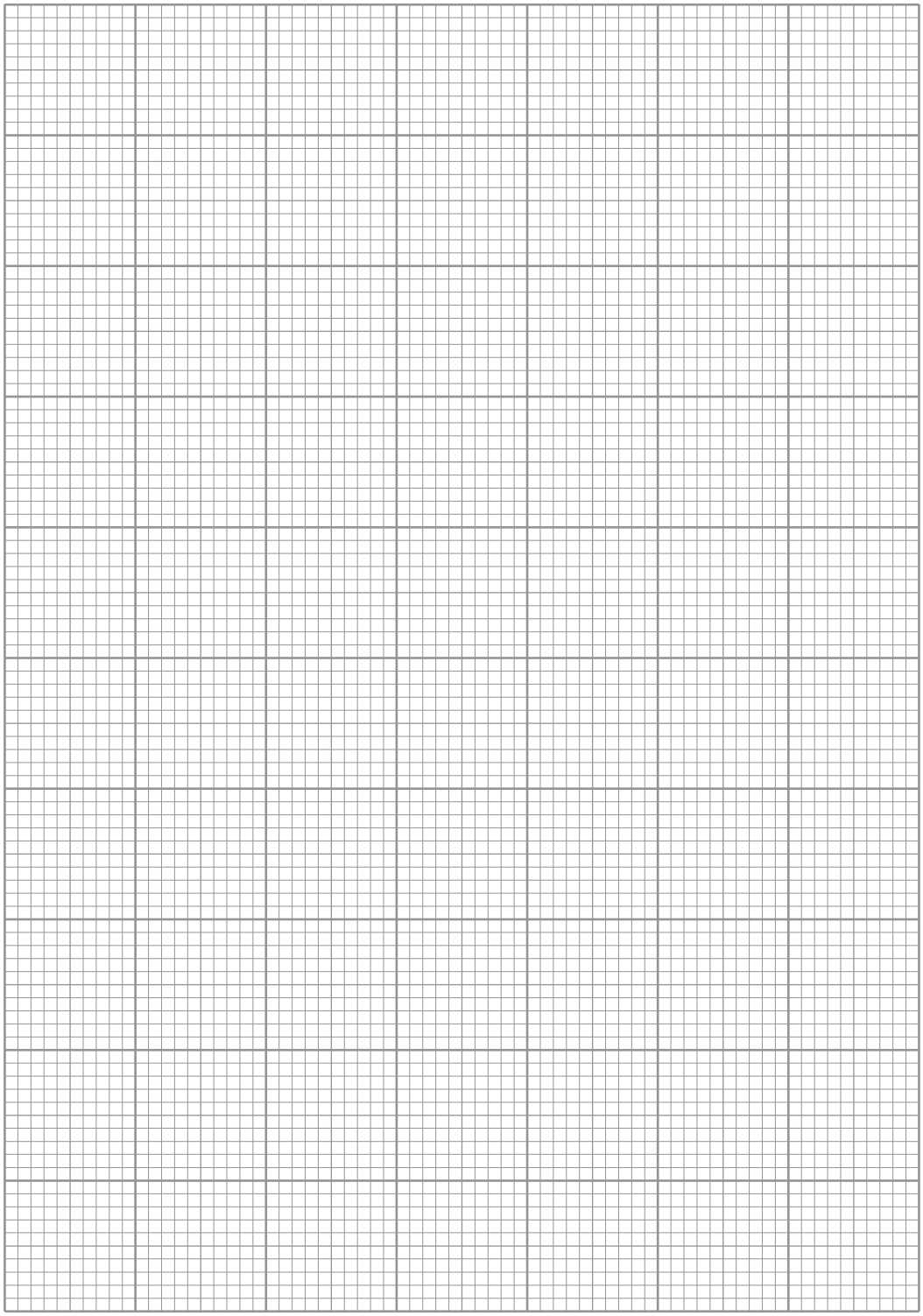
(g) Record the time taken to the nearest second.

(h) Repeat (b) - (g) at different temperatures (30, 40 , 50 , 60 ^oC) by standing the flask of thio in a waterbath.

Results

Temperature / ^{o}C	Reaction Time /seconds			Average Time /seconds
	1	2	3	
20	38	40	39	39
30	19	19	20	19
40	8	12	9	10
50	4	2	6	4
60	2	2	1	2

1. Draw a graph of the results on the grid below. [4]



2. (a) What does your graph tell you about how the reaction time changes with the temperature? [2]

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(b) What does this tell you about how the rate of reaction changes with the temperature? [1]

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3. State three ways the experiment was made a fair test. [3]

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4. What was done in the method to try to make the results more reliable? [2]

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5. (a) State why the results for 50 and 60 ^{o}C might be unreliable. [1]

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(b) State what changes you would make to the experiment (apart from changing the temperatures used) so that results at these high temperatures are more reliable. [1]

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(c) Explain why you would make these changes. [1]

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