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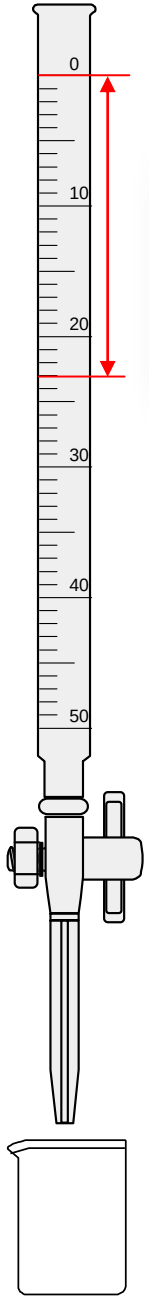
Can you equal the 800 m world record ?

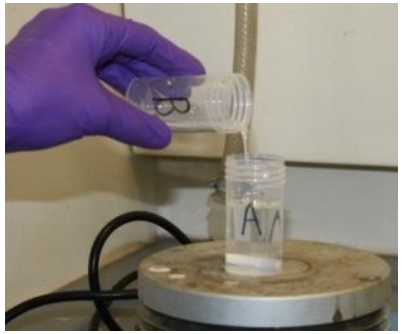
University of Reading
Chemistry Outreach



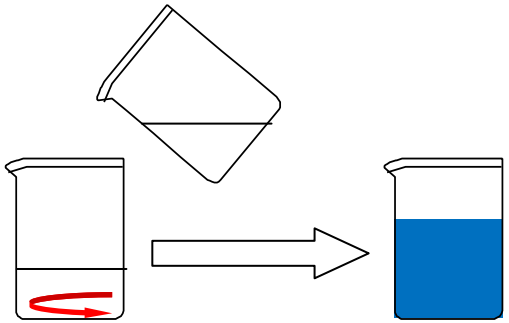
A Trial Run

Add 15 ml of A and 15ml of B into 2 separate plastic containers. Measure the solutions with a burette.

Always read from the bottom of a meniscus. This picture shows a burette reading of 23.0 cm^3



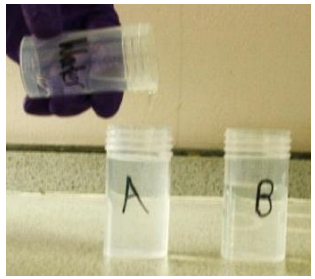
Pour solution B into solution A, whilst A is stirred magnetically.



Testing the reaction time

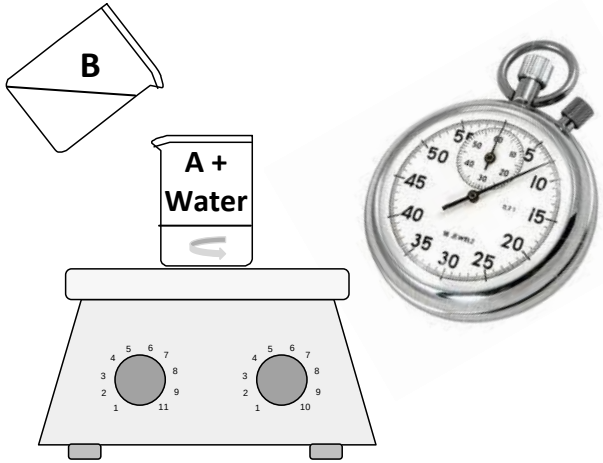
Measure out the volumes of A, B and water given on the results sheet and see how long the reaction takes to turn blue.

The Test Method



1st add the water to A and place on the magnetic stirrer

Then add B into the stirred solution of A and water, starting the stop clock as you pour it in.



Stop the clock as soon as it starts to turn blue and record the time in the results table.

Repeat the test in the same manner for all the volumes given in the table.. When all the tests have been done plot the data points on the graph. From this graph you can estimate the volume of A required, to give a reaction time of 1′ 41″ (101 seconds) the world record for 800 m.

Produced by Daisy Gresswell and Kabir Dhillon Shiplake College 21/06/2012

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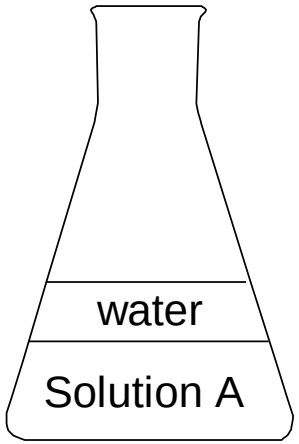
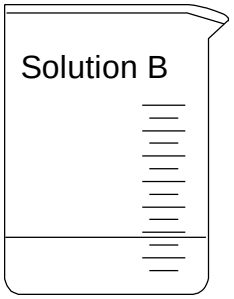
Prepare The 100 ml Race Solution

Using your results from the trial runs prepare your race solutions. The volume that you have obtained for the 30mL trial run will have to be multiplied by a by a suitable factor to give a total race volume of 100 ml.



Put the required volumes of water and solution A into the 250ml conical flask and solution B into a 100ml beaker

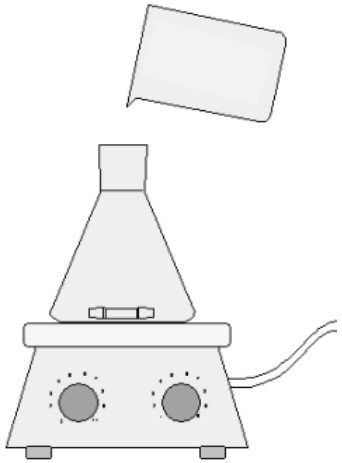


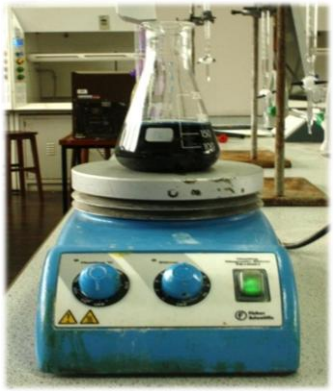
Ready … Set … GO

All the race solutions will be run at the same time, the judge will count down and you pour solution B into the stirred water + solution A at the start of the race.

Start Clock

On addition of B to the reaction mixture





Stop Clock

When solution turns Blue

How close are you to David Rudisha's 800m world record?

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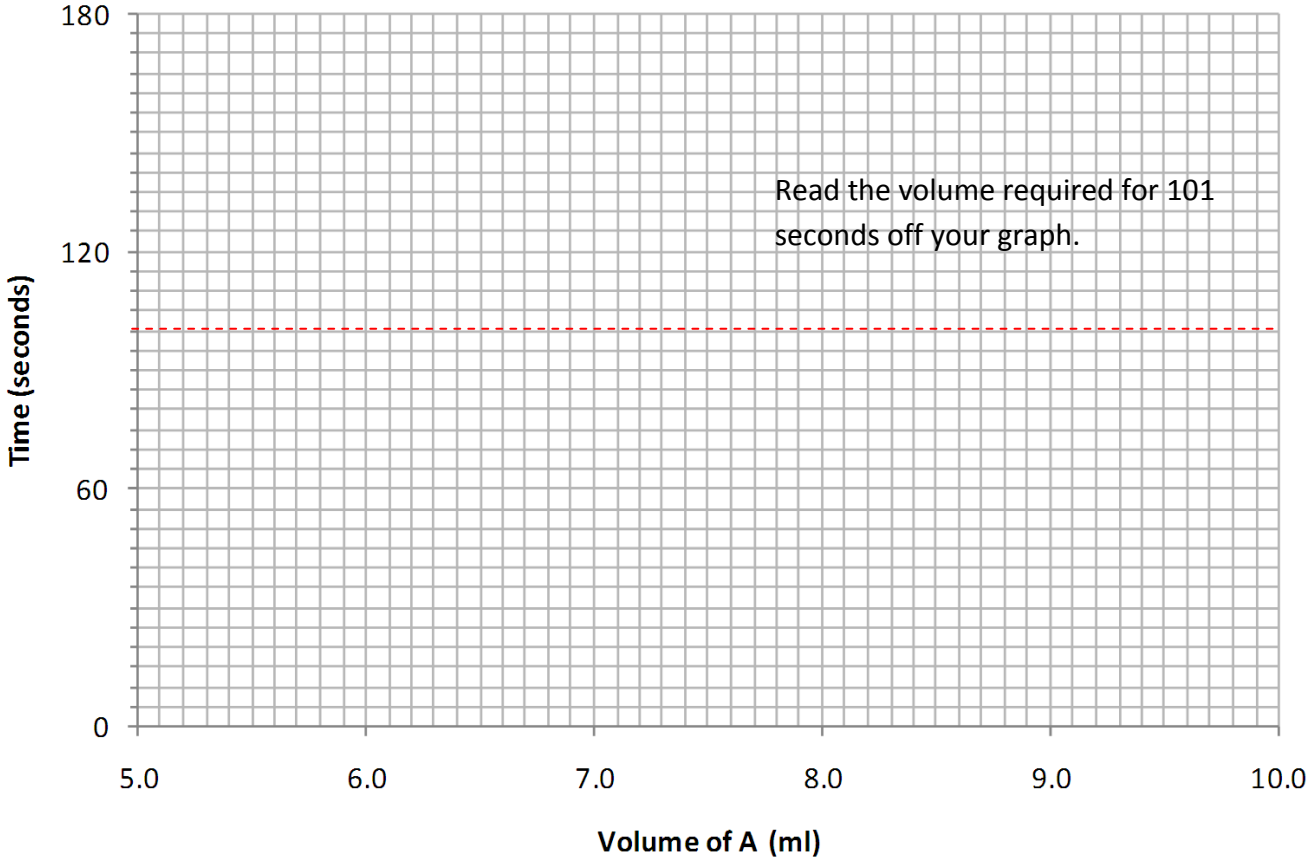
Volume of A (ml)	Volume of B (ml)	Volume of WATER (ml)	TIME for reaction to turn blue (mins)	Reaction TIME (secs)
9	10	11		
7	10	13		
5	10	15		



Volumes of reagents required for a 1'41" (101 s) reaction time and a total volume of 30 ml.

Reagent A		ml
Reagent B	10.0	ml
Water		ml

Reaction times obtained for the 1'41" reaction test.

Test 1	Test 2			

Prepare a test reaction and see how close you get to the target time, repeat this if time is available to tweak the volumes if necessary.

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