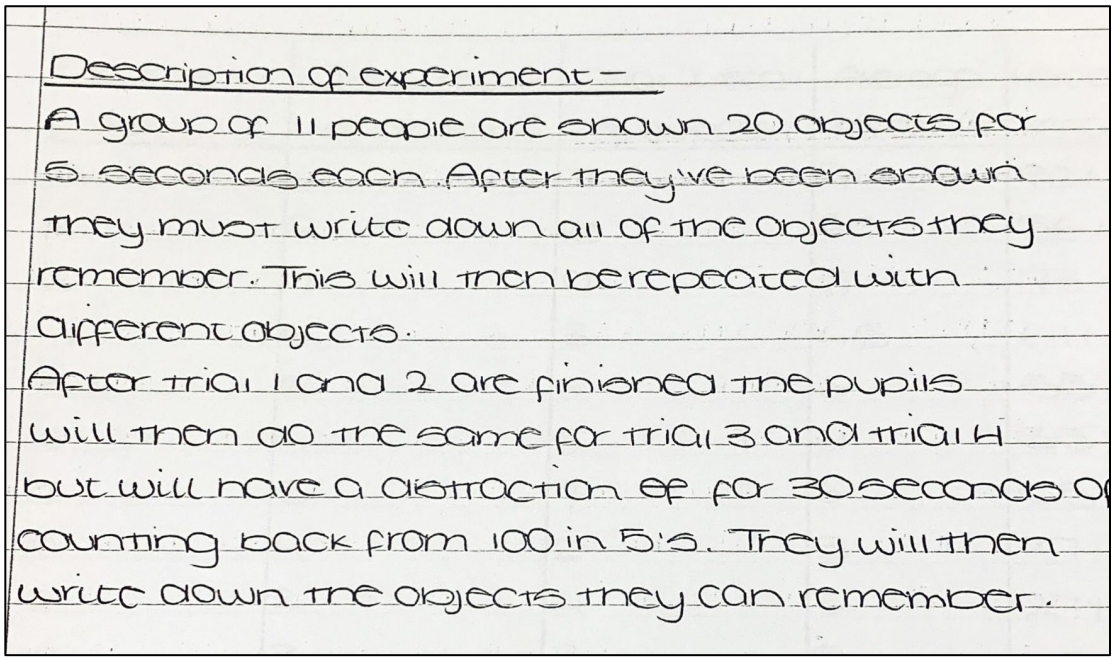
Candidate evidence

3 Data collection and handling

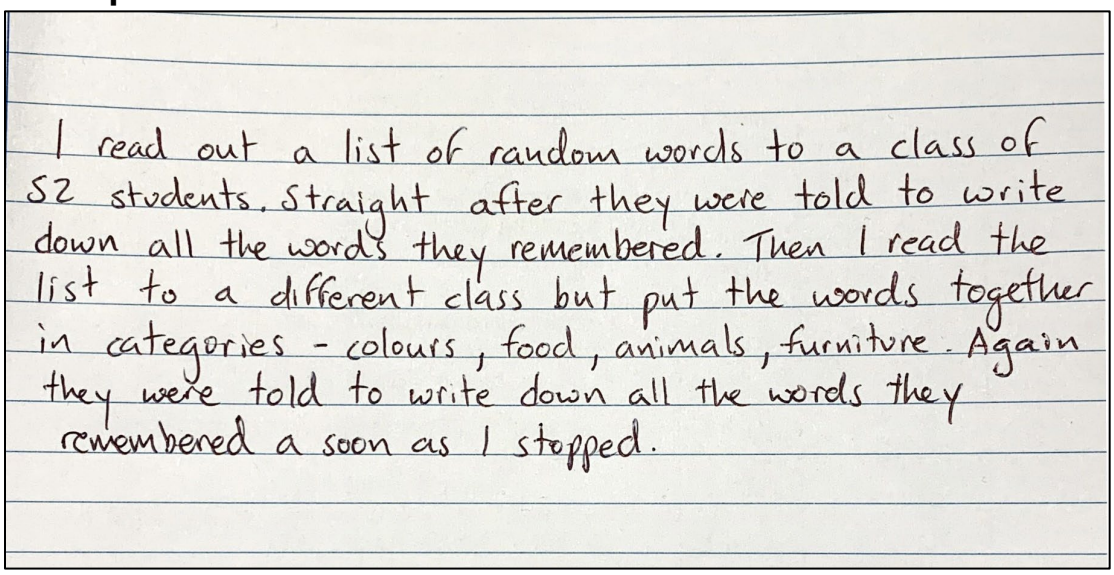
3(a) A brief description of the approach used to collect experimental data.

Example 1



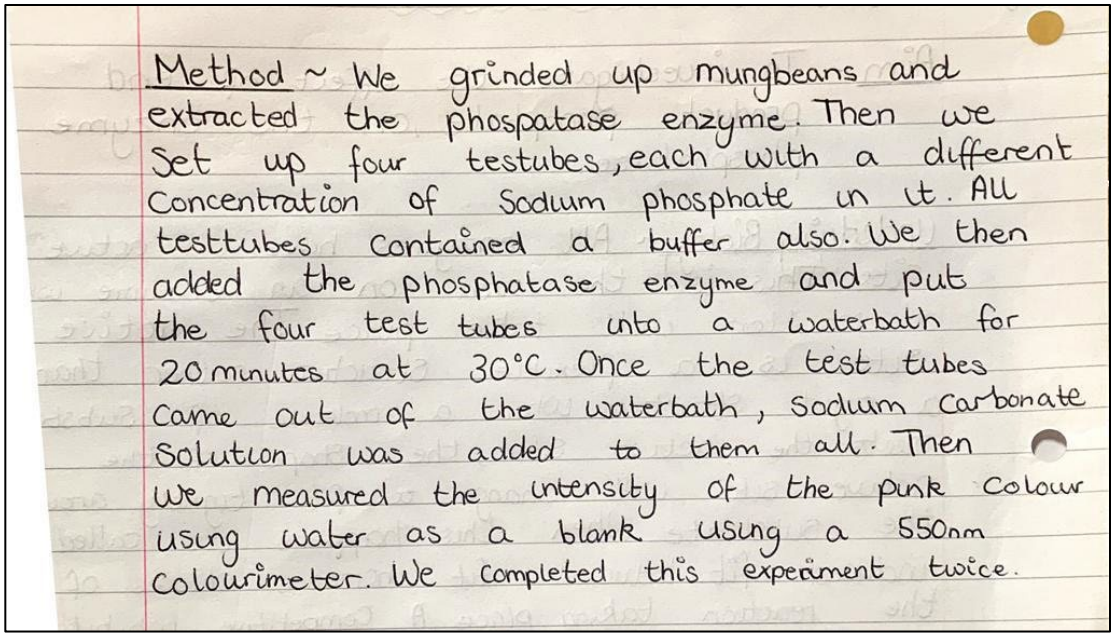
Description of experiment –
A group of 11 people are shown 20 objects for 5 seconds each. After they've been shown they must write down all of the objects they remember. This will then be repeated with different objects.
After trial 1 and 2 are finished the pupils will then do the same for trial 3 and trial 4 but will have a distraction of for 30 seconds of counting back from 100 in 5's. They will then write down the objects they can remember.

Example 2



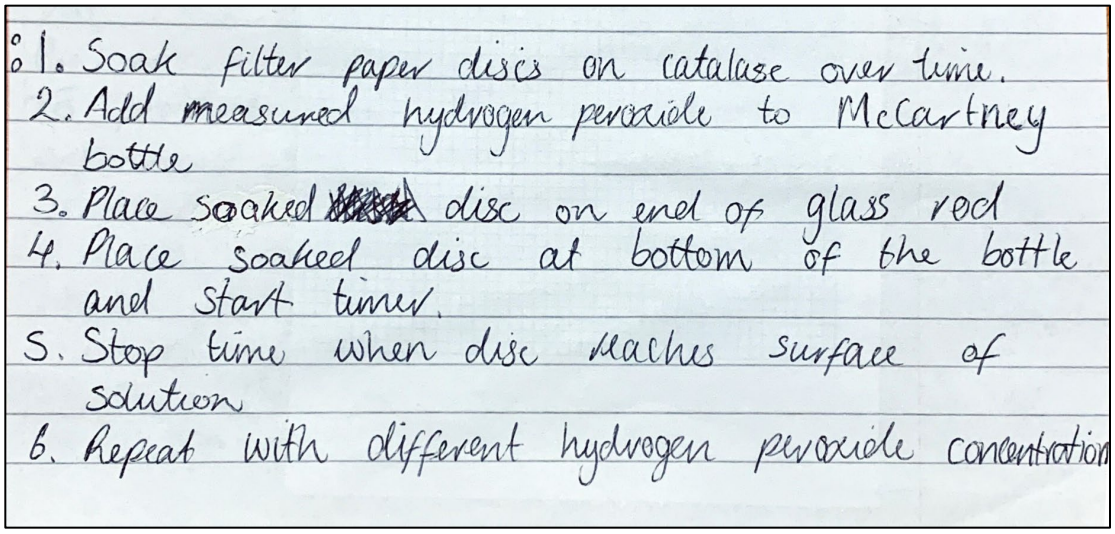
I read out a list of random words to a class of S2 students. Straight after they were told to write down all the words they remembered. Then I read the list to a different class but put the words together in categories - colours, food, animals, furniture. Again they were told to write down all the words they remembered a soon as I stopped.

Example 3



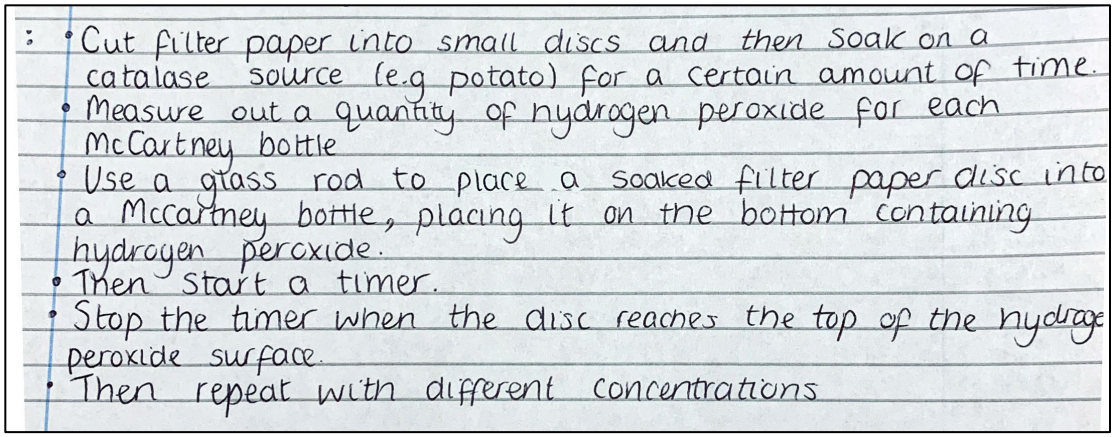
Method ~ We grinded up mungbeans and extracted the phospatase enzyme. Then we set up four testubes, each with a different concentration of sodium phosphate in it. All testtubes contained a buffer also. We then added the phosphatase enzyme and put the four test tubes into a waterbath for 20 minutes at 30°C. Once the test tubes came out of the waterbath, sodium carbonate solution was added to them all. Then we measured the intensity of the pink colour using water as a blank using a 550nm colourimeter. We completed this experiment twice.

Example 4



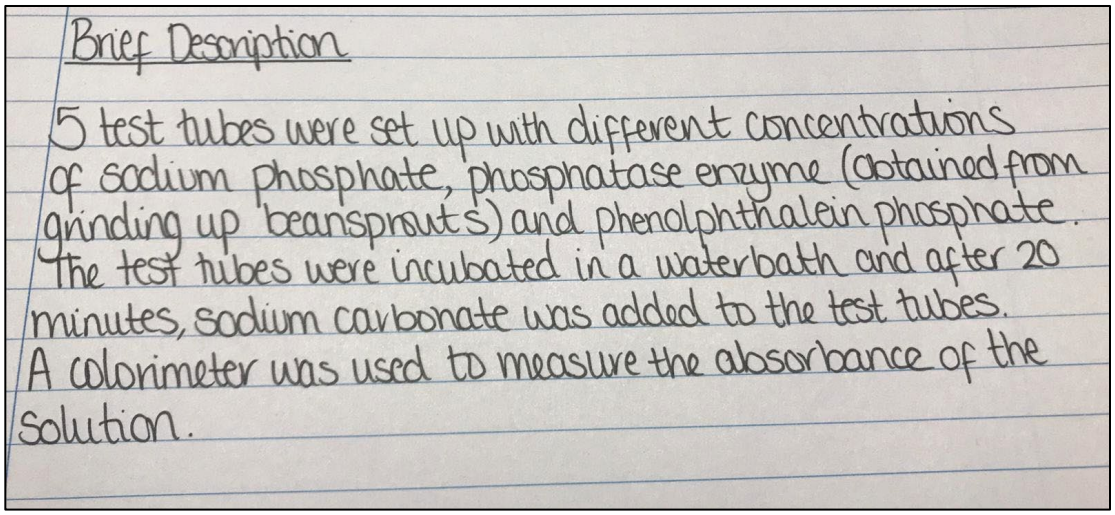
1. Soak filter paper discs on catalase over time.
2. Add measured hydrogen peroxide to McCartney bottle
3. Place soaked disc on end of glass rod
4. Place soaked disc at bottom of the bottle and start timer.
5. Stop time when disc reaches surface of solution
6. Repeat with different hydrogen peroxide concentration

Example 5



- Cut filter paper into small discs and then soak on a catalase source (e.g potato) for a certain amount of time.
- Measure out a quantity of hydrogen peroxide for each McCartney bottle
- Use a glass rod to place a soaked filter paper disc into a McCartney bottle, placing it on the bottom containing hydrogen peroxide.
- Then start a timer.
- Stop the timer when the disc reaches the top of the hydrogen peroxide surface.
- Then repeat with different concentrations

Example 6



Brief Description

5 test tubes were set up with different concentrations of sodium phosphate, phosphatase enzyme (obtained from grinding up beansprouts) and phenolphthalein phosphate. The test tubes were incubated in a waterbath and after 20 minutes, sodium carbonate was added to the test tubes. A colorimeter was used to measure the absorbance of the solution.

3(b) Sufficient raw data from the candidate's experiment.

3(c) Data, including mean/average values, presented in a correctly produced table(s).

Example 1

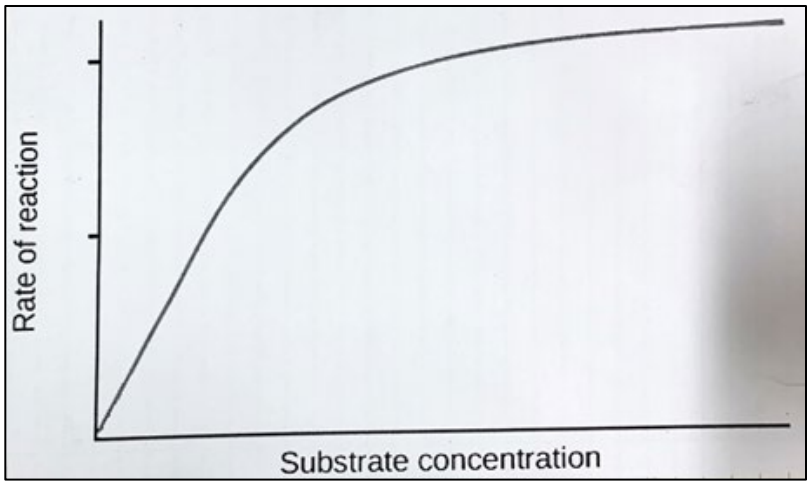
Type of inhibitor	Volume of foam produced (ml) 1	2	Average
Copper nitrate	28	31	29.5
Copper sulfate	37	38	37.5
Lead nitrate	12	9	10.5

3(d) Data relevant to the aim from an internet/literature source.

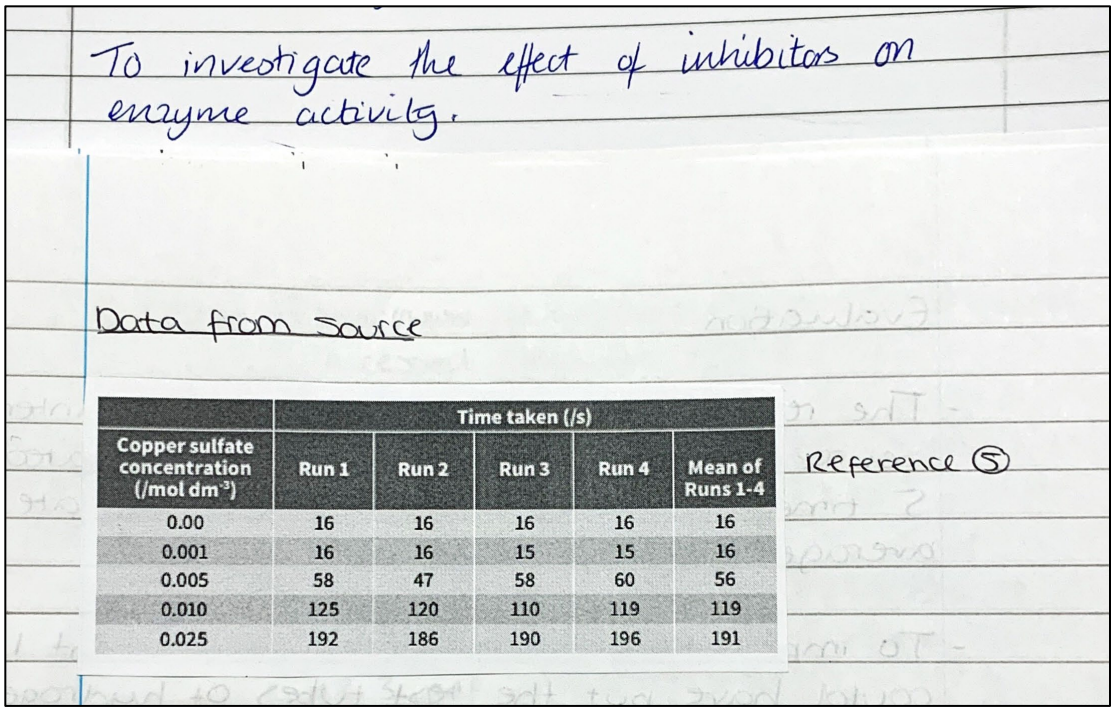
Example 1

Aim

- To investigate the effect of substrate concentration on Enzyme Activity.



Example 2



To investigate the effect of inhibitors on enzyme activity.

Data from source

Copper sulfate concentration (/mol dm^{-3})	Time taken (/s)				
	Run 1	Run 2	Run 3	Run 4	Mean of Runs 1-4
0.00	16	16	16	16	16
0.001	16	16	15	15	16
0.005	58	47	58	60	56
0.010	125	120	110	119	119
0.025	192	186	190	196	191

Reference (5)