Department of Chemistry - Macquarie University

Student Learning Experiences in the Laboratory

This survey will be used by the Department of Chemistry for the purpose of maintaining or improving the quality of this experiment for teaching purposes. Your cooperation in completing this anonymous form is greatly appreciated. It is not connected in any way to your assessment for this unit. Completion of this survey is voluntary.

Occasionally we would like to release this information into the public domain, for instance through presentations at conferences and publication in articles for journals. Such publication encourages discussion on good teaching practice. We would appreciate receiving your permission to publish your anonymous comment. If you **do not** wish to release your comments, please tick the box below.

☐ I **do not** give permission for my comments to be used beyond the Department of Chemistry, Macquarie University.

Unit: CHEM101

Experiment Name or Number: EXPERIMENT 1

NB. Yellow highlighted responses have indicated they do not wish their comments to be used beyond the Department.

1 Did this experiment help you to understand the concepts of accuracy and precision in measurement? If so, how, or if not, why not?

Yes, outlined unreliability of human measurement. i.e. variations in accuracy and precision.
Yes. Shows different measuring devices bring about different results.
Yes. By going over the questions it helped. The instructions were difficult to interpret at times. The most understanding came after asking the demonstrator directly.
Yes, by using the measurement materials, I understand the difference could make an impact on the outcome (eg the margin of error).
Yes, it shows how even the slightest variations in measurements can vary the results.
Yes, it shows how slight variations can dramatically change your results.
Yes, it was a good revision especially when dealing with significant figures.
Yes because even though our text book is good, when reading it only the information is dry, so this made some of the things we learnt clearer.
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Yes. I could confirm concepts and formulations.
Yes, degree of error makes difference in final accuracy of answer as does the method in which it is done.
Yes – when comparing my results with those in the manual (density or liquid etc) it proves the precision errors made.
Yes it clarified some concepts.
Yes, but I felt like a lot of my answers were incorrect, I feel like I need to go back over the chapter and do more exercises.
No as I already understood the concepts, however it was a good refresher.
Yes – provided a clear and practical example of how it is applied.
Yes, there was a lot of opportunity for one on one with the teacher who was able to explain the ideas of measurements and its application to lab experiments.
Yes, it helped me by forcing me to use the knowledge in real life and understand it better.
Yes, I finally understood the limit of accuracy for various problems. Also, through working in lab desk groups and pairs it was better as we learnt all together.
Yes. It helped me understand that even tiny variances in measurement can totally change the final outcome of the answer. It also showed me the different objects available to assist in an object being more accurately measured.

2 Do you think this experiment will be useful to you in the practical components of your studies? If so, how, if not, why not?

Yes, lab skills gained by handling and using equipment. Indicates human error with experiments.
Yes – I know most accurate measuring devices.
Yes. It helps with a mathematic background and gave me new skills. Such as using the vernier calliper and pipette. This may be helpful in later studies.
Yes, hands-on training is always more practical than just getting second-hand information (via studying).
Yes, because it helps us practice skills in measurement and calculations.
Yes because it gave us practice in doing calculations and taking measurements.
Yes as it is useful in grasping the different measurement concepts and using various equipment and tools.
Yes for the same reason as above (makes things learnt from textbook clearer) and below (seeing difference in peoples measuring and accuracy)
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Yes.
Yes, base knowledge will help in accuracy and precision in further experiments.
Yes – calculations and conversions.
Yes, it covers important info.
Yes, you use measurement all the time in chemistry, therefore it's important to know how to express measurements correctly.
Yes as some practical experience was gained.
Yes, it has ironed out any troubles I may have encountered in future practicals.
Yes I do, as chemistry needs a lot of measurement and calculations, I feel this gave me a firm understanding of what will be required for the practical sessions and also I now know what I need to do to get up to speed.
Yes, feel more confident in measurmenting now.
Yes, as it relates to the beginning chapters of the textbook. It may have been better to do in week 1.
Yes. It will lay a base for me now to fall back on and help understand how to figure problems out in future labs that use measurement as a basis.

3 Did you find this experiment interesting? If so, what aspects of this experiment did you find of interest? If not, why not?

Somewhat, interesting to see the variability of results due to human error.
Yes – as above (understanding most accurate measuring devices).
It was a little bit tedious at times. It was easy to get it all done though.
Yes, I had not got as detail as this before. (I came from art-stream background that I did not have much opportunity to do experiment on my own).
No, because there's too much mathematical calculations involved.
No because it was more mathematically based than it was on chemistry.
Not overly as it was introductory but the techniques shown were important. However testing what the unknown substances were was very interesting.
The most interesting things about this one was the difference in people's measuring (people measure the same thing differently) and the accuracy (pipettes).
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Yes. It is very exciting. No reason.
Yes, pipette and water, degree of error if method isn't carried out properly.
No – too basic. Same thing you always to do in a first lab (every year high school).
It was tedious, but I think necessary.
It wasn't that interesting, but it is very useful.
Not really as it was rather basic stuff.
It wasn't very interesting no. Very useful, but not that exciting.
I found it very interesting, now I'm not lying to you. I didn't realise how important measurements actually is.
No. Nothing really happened.
Neither really, it just allowed me to understand basic concepts about accuracy and precision.
Figuring out what type of metal the object was from measuring and weighing it was interesting and new to me. It has helped me better understand that everything is tied together.

4 Can the experiment be completed comfortably in the allocated time? Is there time to reflect on the tasks while performing them?

Yes. For the first prac there is no time to reflect because everything is new and hance takes longer.

Yes.

There is plenty of time.

Yes.

Yes.

Yes.

Yes there is plenty of time to complete it as well as taking the time to understand it.

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Yes, it is reasonable time.

Yes, yes.

Yes.

Yes it was fine.

Yes, I finished comfortably in time.

Yes, yes.

Yes, plenty of time.

Yes, except for the time to fill out this form.

Yes.

Yes, we made it through comfortably.

Yes. The timing was perfect.

5 Does this experiment require teamwork and if so, in what way? Was this aspect of the experiment beneficial?

Yes for comparison of measurements. Further shows variability and human error.

Yes, is good to compare.

Yes. It was helpful to be able to talk to a partner and work together.

Yes, comparing reading with team-mates.

Yes, in some aspects where you need another opinion on the accuracy of your measurement.

Yes, asking questions checking results, getting assistance.

The tasks are simple enough to complete alone, but teamwork makes it more fun.

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Yes. I could make friends.

Yes, only in first 2 questions, rely on them for end accurate answer, yes.

Not really.

It helped being able to compare values.

If I did not understand sometime I could ask those around me and we could work it out together, therefore it was beneficial.

Yes, as multiple readings were needed. Yes.

Yes, in acquiring additional measurements from other sources. Yes, very beneficial, potentially reduces human error.

Yes, because it required multiple measurement taking.

Yes, you needed your neighbours measuring results.

Yes, definitely beneficial because it allowed us to meet new people which we will be working with for the rest of the semester and the experiment was completed much faster.

Working in a team was definitely beneficial as one person could write what was happening while the other could concentrate

on the experiments/tasks and vice versa.

6 Did you have the opportunity to take responsibility for your own learning, and to be active as learners?

Yes.

Yes.

Yes.

Yes, I think chemistry is fun! And I started to like it!

Yes.

Yes.

Yes, whenever I needed help I made sure I asked.

Yes. I learned a lot. I did all of the tasks and asked questions about what I didn't understand.

Not at all.

Yes.

Yes.

Yes.

Yes. I referred to my textbook for more information a lot.

Yes.

Yes – very good.

Yes.

A bit yes. Force yourself to understand and solve exercises by yourself.

Yes.

Yes, you still had to take responsibility in your own learning.

7 Does this experiment provide for the possibility of a range of student abilities and interests? If so, how?

Yes, different students measured different amounts and hence different ability to measure. Interests – no.

Yes.

It does provide for different abilities. However, not interests.

Student will hardly forget what they have learned, especially through experiment.

Yes, as some people are skilful in maths.

Yes as it had mathematical, theoretical as well as practical components.

Yes because it doesn't only focus on one thing, so if someone doesn't understand something they can ask but they might now something else and help others with it.

Little bit short.

Yes, yes, there's always teacher to answer questions and time allocation.

No.

It is very focused on some few concepts.

It is very maths based, which isn't one of my strong points.

Yes, as it was basic.

Yes, some who already know it will find it boring and a waste of time, but it is positive in that it ensures students of all abilities have same basic knowledge.

Yes, calculations which are an important concept in chemistry.

Not really. Not many people are really interested in measuring things.

Chem101, as we have no/little chem background.

Yes, because it caters for everyone's level of knowledge.

8 Did the laboratory notes, demonstrators' guidance and any other resources help you in learning from this experiment? If so, how?

Demonstrator's guidance. Helped step by step through problems either with calipers or calculations.

All were needed to understand work.

Yes. The demonstrator was always good at explaining things where I had difficulties.

Yes, I thank Mrs. Nelson for her patience and guidance.

Yes, because our demonstrator guided us through every question.

Yes as it was verbal, visual and textual.

The lab notes helped because we don't waste our time writing the headlines and details etc so we can concentrate on our measurements and work.

Pretty much. I could see my correct answer.

Yes, if stuck reference in back of lab notes helped without bothering to ask simple questions saved time.

Yes, pipette etc.

Yes demonstrator was helpful.

Yes, I referred to my textbook and the demonstrator was very helpful.

Yes the lab notes as a reference.

Yes absolutely. Very clear and useful.

Yes, the notes were a starting point and any queries were answered by the teacher.

Yes, see answer 1 (use and understand knowledge in real life).

Yes, they helped us use equipment we've never used.

Yes, when I became stuck I was able to ask the demonstrator or re-read the notes to assist me.

9 Are there any other features of this experiment that made it a particularly good or bad learning experience for you?

Small class is good when help is needed. And working as a team also helped.

So far so good.

It was a good experiment over all and helpful.

No.

No.

No.

No.

Not particularly – primarily it was useful to do.

Not knowing how to convert measurements.

It was hands on and involved all different types of tasks which made it always interesting.

10 What improvements could be made to this experiment?

More explanation of how to use vernier callipers.

Not any at this point.

Can't think of anything.

Nothing really, its well balanced.

I hope better facilities.

None.

Introducing a bit more variety into objects being measured.

None.

Maybe a bit longer explanation about limit of reading.

Some examples on harder questions.

11 Any Other Comments

No.

Maree is a good demonstrator and lecturer, she makes our lectures fun and doesn't confuse us!

No.

As I said, tedious but I think necessary.

No.

N/A.