

SMALL STEPS TOWARDS GUIDED INQUIRY IN SCH3U

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Classroom Catalyst – Philip Snider

Reflection:

I wanted to allow students to follow a more real life type of inquiry in chem labs that would allow them to experiment, make mistakes, revise their approach and retest. I would hope that this would allow them to build a deeper understanding of the concepts being covered as well as the idea of science inquiry itself. This is often difficult in chemistry classes due to time restraints, safety concerns, costs of materials, and the student's lack of knowledge and experience regarding lab procedures.

Douglas Llewellyn's workshop discussed the different types of inquiry from Demonstrated Inquiry all the way to Self-Directed Inquiry. I decided to adapt some common activities in Sch3U and hopefully move them from Structured Inquiry to Guided Inquiry. In most of the following activities I have provided the students with the goal or purpose of the activity but tried to leave it up to them how they would solve this – in other words – the procedure. In many cases, the procedure would seem “obvious”, but it is interesting to see how students react when they are not told exactly what to do.

Title: Small Steps Towards Guided Inquiry in Sch3U

Course: Sch3U

Strand/Curriculum Connections: Various – See table below.

Activities:

Activity	Strand	Connections to Curriculum
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1	Aluminum Foil Lab	Matter and Chemical Bonding	I do this on the first day of school. Develops group cooperation and brainstorming skills.
2	Reviewing Types of Reactions	Chemical Reactions	Sorting and Identifying patterns. Group cooperation.
3	Why Balance a Chemical Reaction	Chemical Reactions	Linking real life results to theory - Balancing Equations
4	Determining the Products of a Reaction	Chemical Reactions	Lab Design Observation Data Table Design
5	Percentage Yield of a Double Displacement Reaction	Solutions and Solubility	% Yield Organization Data Table Design

Description of Activity:

See the attached documents in resources.

Student Exemplar Submissions:

See the attached documents in resources.

Evaluation of Product:

I have the students submit reports into a Google folder they have shared with me. I can then have a look at this product and provide descriptive feedback. I have taken this approach from Tim Regan, who has been a leader in descriptive feedback at our school. He is also a part of this year's Project Innovation - so have a look for his project.

Post-Activity Reflection:

I have been very fortunate to work in an environment that promotes collaboration and through collaboration, innovation. I believe there are three main reasons for this:

The first is the physical layout of our science department. We were lucky enough to have input into a recent science lab renovation. We were able to get one large prep room that all the science labs back onto. This naturally had us literally bumping into each other throughout the day, allowing us to share our experiences and ideas very informally.

The second was our science staff. Everyone treated each other with respect and supported each other. This made for a non-threatening environment to try new and innovative ideas.

The third was administration support. Our admin allowed us time during PD days to meet as a department to throw around ideas and compare successes and failures. They also provided us with funding in various ways that allowed us to secure supplies and technology that allowed this innovation to move forward. This support included sending two of us to **STAO Project Innovation**.

Project Innovation I think provided two things for us at John McGregor. First, it confirmed that what we were already doing was heading in the right direction. Secondly, it provided us with a focus for future efforts. I found the workshops and guest speakers very informative and inspiring. As always I found the face to face interactions with fellow science teachers very interesting providing us with a variety of great ideas. I did not find the STAO Connects website as useful. Although this is a great way to share resources I did not find myself accessing it unless it was to complete some aspect of our assignment. Perhaps as it becomes more developed this will become a more “go to” site. I found that as the school year got busy, as it always does, there were just too many other things that got in the way to use the site to its potential. How do we correct this?? Provide more time to focus on innovation – but how do you do this?

As for my students, I hope that my classroom catalyst has provided them with an opportunity to:

- Gain more confidence in their lab and problem solving skills.
- Gained a deeper understanding of the concepts covered.
- Had fun doing while do it.










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RESOURCES

-  Activity 1: Determine the Thickness of Al Foil (https://connex.stao.ca/sites/default/files/group_files/activity_1_-_al_foil_lab.pdf)
-  Activity 2: Types of Reactions - grouping (https://connex.stao.ca/sites/default/files/group_files/activity_2_-_reviewing_types_of_reactions.pdf)
-  Activity 3: Why Balance a Chemical Reaction? (https://connex.stao.ca/sites/default/files/group_files/activity_3_-_why_balance_a_chemical_reaction.pdf)
-  Activity 4: Determining the Products of a Chemical Reaction (https://connex.stao.ca/sites/default/files/group_files/activity_4_-_determining_the_products_of_a_reaction.pdf)
-  Activity 5: Experimentally Determine Percentage Yield (https://connex.stao.ca/sites/default/files/group_files/activity_5_-_percentage_yield.pdf)
-  Student Exemplar - Activity 1 (https://connex.stao.ca/sites/default/files/student_exemplar_-_activity_1.pdf)
-  Student Exemplar Activity 5 (https://connex.stao.ca/sites/default/files/student_exemplar_-_activity_5.pdf)

ELEMENT


 Inquiry (/expert-elements/inquiry)




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