

Home Chemistry as a Tool for Understanding Environmental Chemistry

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What is environmental chemistry?

- The chemistry of the environment
- Everyday chemistry
 - Water quality
 - Hardness
 - Alkalinity
 - pH
 - Oxidation
 - Air/ gases
 - Combustion



Common Laboratory Practices

- “Cookbooks”
 - Students are told exactly what to do
 - Students are given quantities and concentrations
 - Students are not required to design the practice
 - In many cases students cannot find a link between theory and practice



Home Experiments

- Students are required to design the experimental procedure based on
 - Theory studied during the lecture
 - Summary guidebooks they obtain on the first day of class that include:
 - Some “ingredients” they need (everything can be purchased at the local supermarket)
 - General procedure



Home Experiments

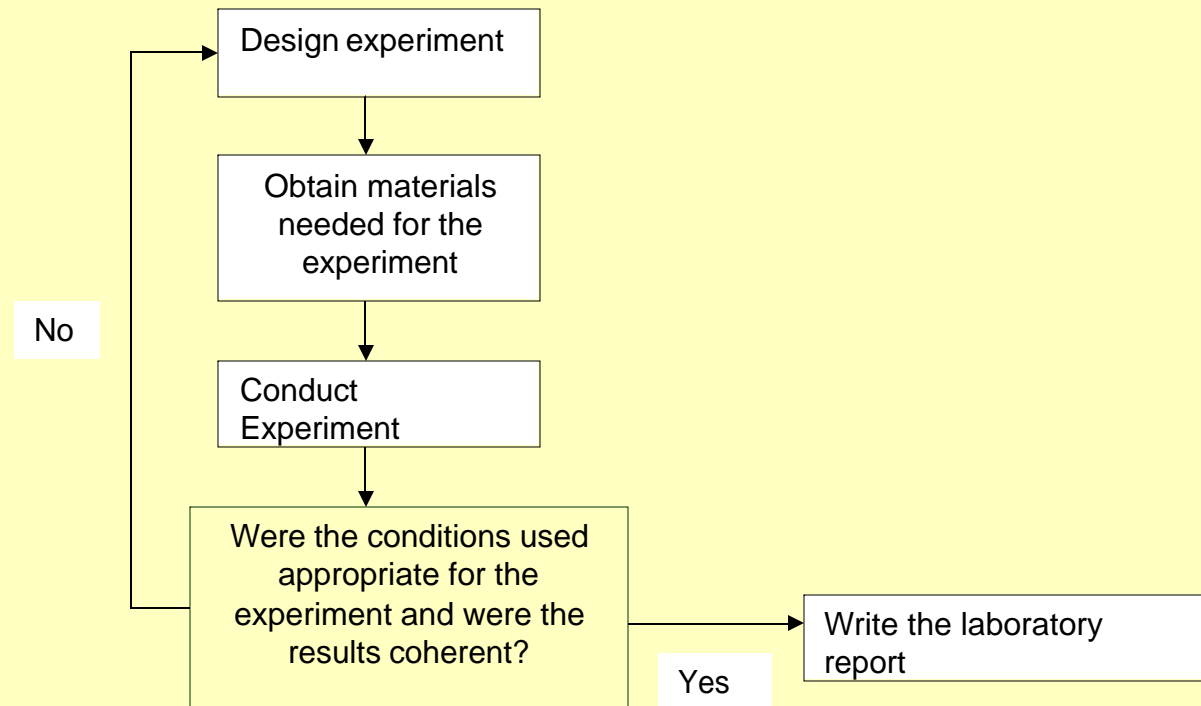
- Alkalinity
- pH
- Water hardness
- Combustion
- Oxidation
 - Some of this practices are conducted at the schools laboratory to compare results
 - Some practices are only conducted at home
 - Some practices are only conducted in the laboratory







Procedure



Advantages

- Students are required to prepare for the practice
- Students have to find a link between theory and practice
- Provides students with the ability to design and to conduct experiments
- Encourages students to do more than what they are asked to
- Helps students understand the studied topic



Disadvantages

- Professors have no control on the teams
 - Some students participated more actively than others
 - Some "teams" did not work in teams
- Safety issues



Evaluation

- Laboratory reports
- Exams
- Survey



Conclusions

- Experimental practices can help give students a deeper knowledge on environmental chemistry
- Practices may encourage them to design and discuss experimental procedures and work in teams
- Students enjoy home practices
- Students that actively participated during the practices showed a deep understanding on the studied topics



Thank you

Any questions?



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