

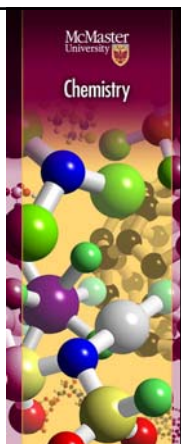
Engaging Students and Enhancing Learning with Lecture Skit Demonstrations

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Overview

- What could a lecture skit demonstration be?
- **Illustrations and examples**
- Student feedback
- **Create an exercise**
- Demonstrations
- **Best practices?**
- Wrap-up

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Goal

You should leave with a partially to completely formed idea for a lecture skit demonstration you could use in your own course(s).

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Why try?

***Interactive activities
promote student engagement
and facilitate learning.***

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The start...

- Lecture skit demonstration:
 - A dramatic visualization of a concept

"When the student is ready the teacher will appear."

- STLHE conference presentation – Dr. Ron Berk
(Biostatistics & Measurement, The Johns Hopkins University)

- *Act out an equation?!*

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The Courses

- Non-streamed (enrolment)
 - Chem 1A03 (1600), 1AA3 (1450); 4 sections
 - iSci 1A24 (40)
- Teaching Specialist: Explore possibilities for in-class interactive engagement activities
 - Discussion
 - Concept checks (iClicker)
 - Problem solving
 - Chemical demonstrations
 - **Skit demonstrations**

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Using skits in class...

- “KISS”
 - = Keep it Simple & Spontaneous
- When difficulty with a concept arose
 - created a demonstration to help
- Examples:
 - Strong acids vs. weak acids
 - Bond strength (single vs. double); isomers (*E/Z*)

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What does it look like? (1)

- Hybridization aerobics



sp



sp^3

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What skits have we used in class?

- VSEPR Aerobics / Hybridization Aerobics
- The S_N2 Mechanism & Inversion
- Aromaticity and Benzene
- State vs. Path Functions*
- Other, simpler models (restricted rotation, etc.)

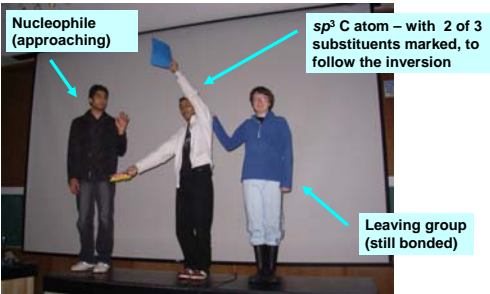
*http://cfl.mcmaster.ca/resources/teaching_tips.php?id=40

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What does it look like? (2)

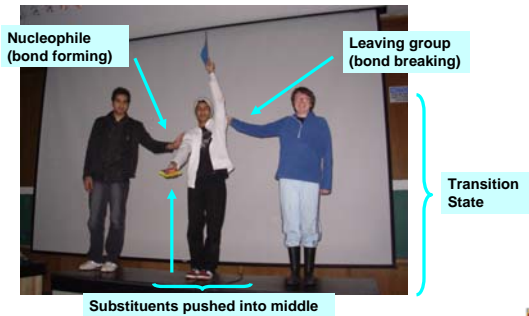
- The S_N2 Mechanism and Inversion



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What does it look like? (2)

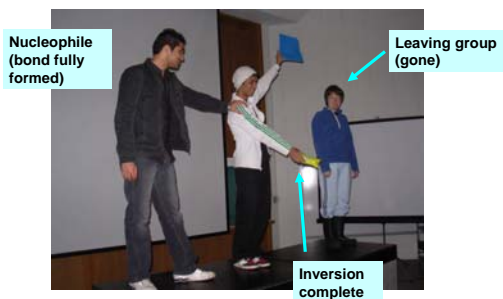
- The S_N2 Mechanism and Inversion



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What does it look like? (2)

- The S_N2 Mechanism and Inversion



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Beyond spontaneity – where to take it next?

- Strategically planning to develop / use exercises
 - And gather feedback on use
- Making the exercise “portable” for others
 - McMaster Chem Model: Instructional Team Approach
- Yet...maintain a highly spontaneous component
 - Create impromptu visual scenarios if the class struggles with a concept.

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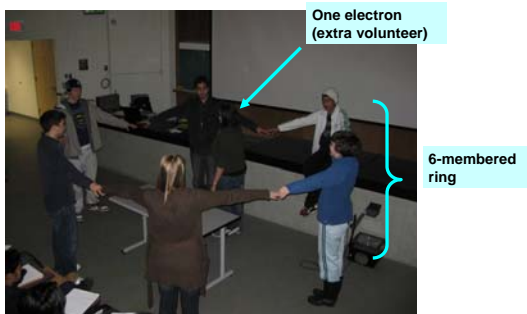
How to do this?

- Have a plan for a given concept
 - Approx. number of students needed
 - What actions students will take; props?
 - Ask for volunteers
 - Be prepared to adjust the plan based on # of volunteers!*
- It helps to have a talk-through
 - Explain the concept and physical mechanics to volunteers, along with the use of any props

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What does it look like? (3)

- Aromaticity & Benzene



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What does it look like? (3)

- Aromaticity & Benzene – Delocalization



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What does it look like? (3)

- Aromaticity & Benzene – Ions too!



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What types of in-class activities were most helpful for your learning in this course?

“The **volunteer and other visual aspects** were great.”

“**Interaction with classmates**, etc. was a **helpful way to learn** selected topics.”

“Instructor...provides **fun** demos. I have **never missed a class**.”

- Anecdote: During exam study period

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Individual Exercise: Create an Activity

- What could work for you?
(Something new? Something adapted?)
- What concept could readily be accessed through this approach?

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Supporting ideas for demonstrations and student involvement...

- Fun
- Memory “hook”
- Peer-peer connection
- Action for the kinesthetic learner
- Creative break in lecture (attention span)
- Greater # of people allows more elegant scenarios

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What is needed?

Instructor:

- Comfort level with course material
- Willingness to
 - think beyond traditional methods & use creativity
 - try it and modify it so it works for you
 - set boundaries as needed (e.g., time limit!)

Students:

- Safe atmosphere in the classroom
 - Necessary for participation
 - Variations: instructor demos; students participate from their seats
- “Culture” and status with the class
 - “The Chemistry Players” (of the day)

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Best Practices

- Working at your comfort level
- Designed interactive activities
- Feedback mechanisms
- Involve students in design

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Research Opportunities

- A study to compare 2 populations
- Surveys
 - Qualitative
 - Quantitative
- Focus groups
- Interviews

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A serious request!

- If you decide to try this in your class, please drop me a line....
lockpe@mcmaster.ca
- I would be interested to know
 - (a) How it goes
 - (b) How you use it
- I would be happy to discuss any questions

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Acknowledgements

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