A Note From Jim Hebden

The accompanying files are being donated to the Chemistry teachers of British Columbia as a "thank you" for the support they have given me during my teaching career. I have scoured the available literature for several years to find good, reliable and USABLE demonstrations that illustrate Chemistry concepts in a clear manner and have used most of the demonstrations for several years to help maintain a high level of interest in students. I hope the material in the files proves useful. They are provided in Microsoft Word? format so individual teachers can customize them as they choose.

DISCLAIMER: Demonstrations should always be tested ahead of time to make sure you can make them work properly. Some chemicals should only be used by properly trained teachers because of the potential hazard involved when improperly used by untrained individuals. I have tried to include only demonstrations that are safe according to the available literature and cannot be responsible for an unanticipated and hurtful outcome. Teachers using the demonstrations should read over the preparation and procedure thoroughly and must assume any risks resulting from their decision to attempt the demonstration. If possible, the original books quoted should be consulted.

The files included are in Microsoft Word? format and should be readable by either Word for Windows or Mac. One file requires Microsoft Excel? and again should be readable in either Windows or Mac format.

Description of Files

Read Me First.doc

The document you are currently reading.

Index of Demos.doc

This document lists all the Chem 11, Chem 12 and General demonstrations by course, topic and title.

Fit of Demos to Curriculum.doc

This document shows exactly where in Chem 11 and Chem 12 each demonstration fits. The individual topics follow the subheadings in Hebden: Chemistry 11 (and 12), A Workbook for Students.

Chem 11 Demos.doc

This document gives 85 demonstrations that fit into the Chemistry 11 curriculum and illustrate specific concepts.

Chem 11 Demos.Appendix.doc

This document can be printed out on $8^1/_2$ x 14" paper to give a special periodic table for use with Chem 11 demonstration number 11.VIII.5.

Chem 12 Demos.doc

This document gives 66 demonstrations that fit into the Chemistry 12 curriculum and illustrate specific concepts.

Chem AP Demos.doc

This document gives 31 demonstrations suited to the Chemistry AP curriculum and illustrate specific topics. Some of the demonstrations may find use in other Chemistry courses.

General Demos.doc

This document gives 40 demonstrations that can be used "when the mood hits" to enliven a Chem or general science class. Many of the demonstrations make wonderful contributions to a Chemistry Magic Show.

Chem Resource Books.doc

This document gives a listing of general print resources that should probably be available to every Chemistry teacher, two outstanding sources of specialized equipment and 25 books of demonstrations. The books of demonstrations have been given my evaluation of their usefulness, the price and where they can be ordered.

Chem Teaching Strategies.doc

Teaching tips and strategies for Chem 11 and 12, including a few tips for labs, demonstrations and equipment purchase and usage.

Typical Magic Show.doc

This document gives instructions for putting on a Chemistry Magic Show, including equipment needed, how to prepare the required solutions, how to

perform each demonstration and an explanation of what is happening with each demonstration.

Lab Aide Training.doc

For those teachers fortunate enough to have a lab assistant, this is a training document for new lab assistants. Teachers who have less-than-optimal training in chemical handling may also find this document useful. (Let's face it, not every Chemistry teacher has a degree in Chemistry.)

Cation Disposal.doc

This document gives a procedure for removal of toxic cations from solutions destined for disposal.

Testing for Peroxides.doc

Several organic liquids can form hazardous peroxides that can detonate with staggering impact. This document gives a simple procedure for quickly testing whether an organic liquid contains sufficient concentrations of peroxides to warrant immediate disposal. This procedure should be done once a year unless you want to risk a highly hazardous situation!

Chemical Inventory.xls

This Excel? spreadsheet lists most chemicals that are likely to be encountered in high school science labs, the formula of the chemicals, the storage codes (gray, red, blue, etc.) and disposal codes. Space is included to list the amounts of each chemical on hand in various locations. The disposal codes are those used in the Flinn Scientific catalog, probably the most comprehensive description of disposal procedures commonly available and a must for every high school lab.

Elementary Science.doc

This document was presented at an inservice day to encourage elementary school teachers to do more "hands on" chemistry and includes 12 simple but engaging experiments which can be done with commonly available materials. Each experiment's description includes how to perform the experiment, an explanation of what is happening and some suggested extensions for further investigation.

Many elementary school teachers are not comfortable with chemistry experiments and hence the explanations are complete enough to let elementary teachers feel confident in explaining what is happening. This document was co-written with Keith Chambers, an elementary teacher of vast experience.

Study Notes.doc

This document is intended for student use and describes how to make up an outstanding set of Chemistry study notes.

Detailed Study Points.doc

This document is intended for student use and lists every point that a student in Chemistry 11 and Chemistry 12 should know. This is a most useful checklist of essential required knowledge.

Forensic Analysis.doc

This document is a forensics lab that requires students to undertake a forensic analysis on white powders and test them for pseudo-cocaine, pseudo-heroin, etc. The student is placed in the role of a "forensics technician-in-training" and requires an official report of results when finished. This lab can be used in grades 9-12. Warning: this lab requires a substantial amount of setup and may not be suitable if a lab assistant is not available, although most of the chemicals will last from year-to-year and are used in small amounts.

Forensic Prep.doc

This document gives the preparation instructions for the reagents used, and the unknowns.

Marijuana.doc

If you are like many other Chemistry teachers, you are frequently asked about the effects of many of the illegal drugs available. This document gives hard facts taken from medical journals. I used to give this to senior students after a "drug lecture", with a chilling effect that frequently had students asking to talk confidentially with me at a later time.

Drug Fact Sheet.doc

This is a second document that follows Marijuana.doc.

Making Buffers.doc

This document describes how to prepare buffers in the range pH 3 to 11.

Coin Compositions.doc

This document lists the compositions of Canadian coins. This information is useful for teachers wishing to create a lab based on analyzing Canadian currency.