Anoka-Hennepin Secondary Curriculum Unit Plan

Department:	Science	Course:	IB Chemistry 12 (H)	Unit Title:	Measurement & Analysis	Grade Level(s):	12
Assessed Trimester:	Trimester B	Pacing:	Trimester B	Date Created:	6/24/2014	Last Revision Date:	

Course Understandings: *Students will understand that:*

- Problems can be solved and knowledge gained in a systematic way: solutions to one problem can create new questions and problems.
- Chemistry is recognized as significant in its application to other disciplines and the world.
- Ideas are expressed symbolically, numerically, and graphically.
- Behavior and properties of materials are organized, classified, and predicted utilizing periodic trends.
- Mathematical relationships are interpreted and manipulated to model the real world.
- The basic building blocks combine and recombine in a variety of ways to make all matter from the simple to the complex.
- The laws of chemistry predict outcomes that impact and apply to daily life.

DESIRED RESULTS (Stage 1) - WHAT WE WANT STUDENT TO KNOW AND BE ABLE TO DO?

Established Goals					
Students will know that spectroscopic characterization techniques form the backbone of structural iden (IB 21.1)	ification of compounds and typically no one technique resu				
Tr	Transfer				
How is the technology employed by chemists improving the quality of your life?					
Μ	Meaning				
Unit Understanding(s): Students will understand that: • Structural identification of compounds involves several different analytical techniques including IR, ¹ H NMR and MS.	Essential Q Students will keep considering: • The intensity ratio of the lines in the high resolutio triangle, a mathematical pattern known independent cultures. Why is mathematics such an effective to				
Acq	uisition				
 Knowledge - Students will: Know that in a high resolution ¹H NMR spectrum, single peaks present in low resolution can split into further clusters of peaks. Know the structural technique of single crystal X-ray crystallography can be used to identify the bond lengths and bond angles of crystalline compounds Reasoning - Students will: Explain the use of tetramethylsilane (TMS) as the reference standard. Deduce the structure of a compound given information from a range of analytical characterization techniques (X-ray crystallography, IR, ¹H NMR and MS). 	 Skills - Students will: Be able to interpret the following from ¹H NMR sp chemical shift and splitting patterns. Treatment of students should be familiar with singlets, doublets 				

Its in a full structural identification of a molecule.

uestion(s):

on NMR spectrum is given by the numbers in Pascal's ently over a thousand years ago by a number of different ol in science? Is mathematics the science of patterns?

bectra: number of peaks, area under each peak, f spin-spin coupling constants will not be assessed but s, triplets and quartets.

Common Misunderstandings	Essential new vocabularv
 Technology quickly provides the identity of chemical compounds without human analysis of data produced by that technology. 	 ¹H NMR IR MS Spectrometry peak
	clustercrystallography