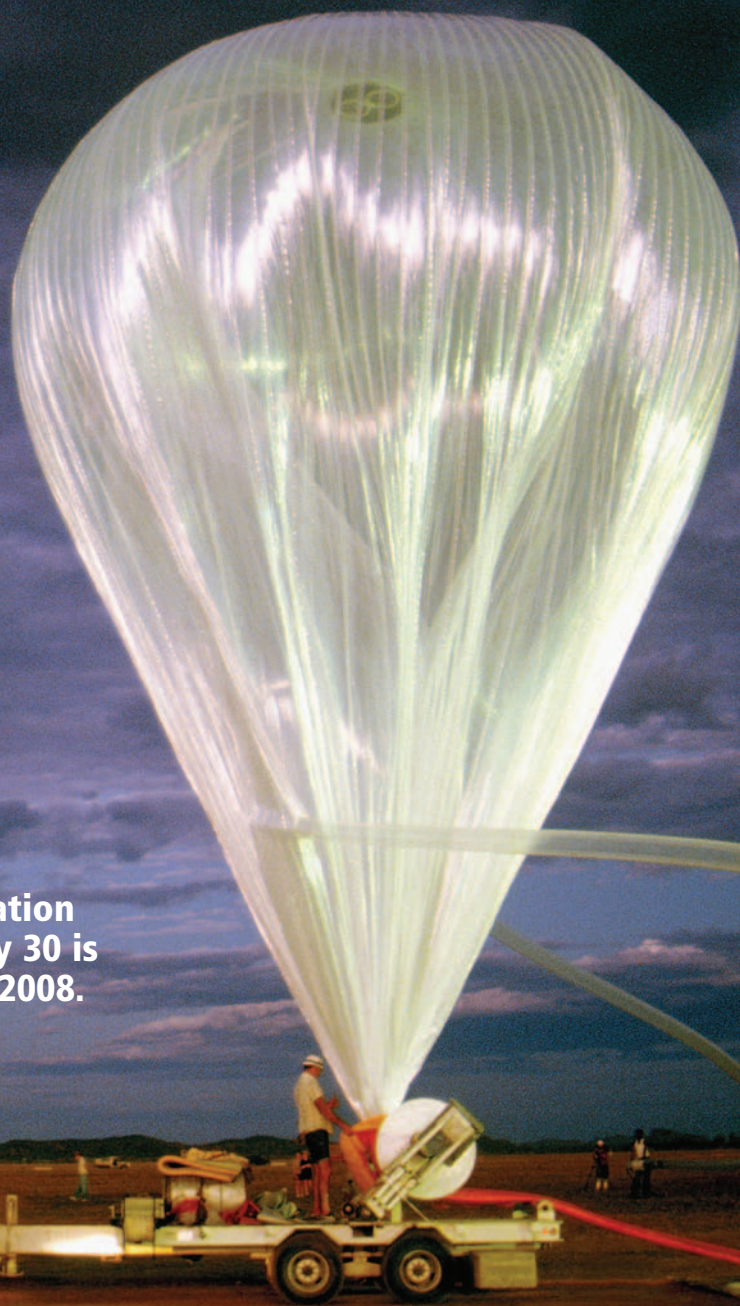


Alberta Chemistry Curriculum Change Highlights

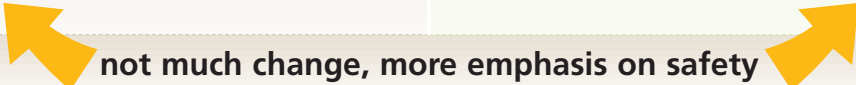
Chemistry 20-30

Implementation
for Chemistry 20 is
September, 2007.

Implementation
for Chemistry 30 is
September, 2008.



Comparison of topics in the current and proposed Chemistry 30 curriculum

Current Curriculum (1998)	NEW Curriculum (2006)
Unit 1 – Thermochemical Changes	Unit A – Thermochemical Changes
<ul style="list-style-type: none"> • enthalpy of reaction • ΔH notation • heat of reaction • activation energy • fuels and energy efficiency • molar enthalpy • Hess' law • energy diagrams • catalysts • heat of formation • calorimetry 	<ul style="list-style-type: none"> • enthalpy of reaction • ΔH notation • heat of reaction • activation energy • fuels and energy efficiency • molar enthalpy • Hess' law • energy diagrams • catalysts • heat of formation • calorimetry
 <p>not much change, more emphasis on safety</p>	

Note: This unit will require approximately 30% of the time allotted for Chemistry 30.

Note: This unit will require approximately 25% of the time allotted for Chemistry 30.

Modifications

Deletion

- Heats of fusion, vapourization, and phase change moved to Science 10 (calorimetry of physical changes)

Note

- Calorimetry of chemical changes only required in Chemistry 30

Current Curriculum (1998)	NEW Curriculum (2006)
Unit 2 – Electrochemical Changes	Unit B – Electrochemical Changes
<ul style="list-style-type: none"> • oxidation/reduction • oxidizing agent/reducing agent • oxidation number • half reaction • batteries • disproportionation • spontaneity • standard reduction potential • Voltaic cell • electrolysis/electrolytic cell • standard net cell potential • Faraday's law • corrosion 	<ul style="list-style-type: none"> • oxidation/reduction • oxidizing agent/reducing agent • oxidation number • half reaction • batteries including fuel cells • disproportionation • spontaneity • standard reduction potential • Voltaic cell • electrolysis/electrolytic cell • standard net cell potential • Faraday's law • corrosion

Note: This unit will require approximately 30% of the time allotted for Chemistry 30.

Note: This unit will require approximately 30% of the time allotted for Chemistry 30.

Key modifications to Chemistry 30:

- Increased from three units to four
- Organic Chemistry moved from Chemistry 20

Current Curriculum (1998)

Chemistry 20 Unit 4 – Organic Chemistry

- oxidation/reduction
- organic compounds
- naming conventions
- structural formulas
- structural isomers
- monomers
- polymers
- saturated, unsaturated hydrocarbons
- functional groups including: hydrocarbons, halogenated hydrocarbons, aromatics, aliphatics, alcohols, amines, amides, carboxylic acids, esters, ethers
- esterification
- combustion reactions
- polymerization
- addition, substitution, elimination

NEW Curriculum (2006)

Unit C – Chemical Changes of Organic Compounds

- organic compounds
- naming conventions
- structural formulas
- structural isomers
- monomers
- polymers
- saturated, unsaturated hydrocarbons
- functional groups identifying alcohols, carboxylic acids, esters and halogenated hydrocarbons
- esterification
- combustion reactions
- polymerization
- addition, substitution, elimination

much more organic

Note: This unit will require approximately 22% of the time allotted for Chemistry 30.

Note: This unit will require approximately 20% of the time allotted for Chemistry 20.

Modifications

Deletions (from Chemistry 20 Unit 4)

- Amines, amides, ethers, ketones

Current Curriculum (1998)

Unit 3 – Equilibrium, Acids and Bases in Chemical Changes

- chemical equilibrium systems
- reversibility of reactions
- equilibrium law expression
- equilibrium constants K, Kw, Ka, Kb
- LeChatelier's principle
- Bronsted-Lowry acids and bases
- conjugate pairs of acids and bases
- acid-base equilibrium
- amphiprotic substances
- buffers
- indicators
- hydronium ion/pH
- hydroxide ion/pOH
- weak acids, weak bases
- Arrhenius modified theory

NEW Curriculum (2006)

Unit D – Chemical Equilibrium Focusing on Acid-Base Systems

- chemical equilibrium systems
- reversibility of reactions
- equilibrium law expression
- equilibrium constants K, Kw, Ka, Kb
- LeChatelier's principle
- Bronsted-Lowry acids and bases
- conjugate pairs of acids and bases
- acid-base equilibrium
- amphiprotic substances
- buffers
- indicators

Some acid/base now in Chemistry 20 curriculum

Note: This unit will require approximately 40% of the time allotted for Chemistry 30.

Note: This unit will require approximately 25% of the time allotted for Chemistry 30.

Modifications

Moved

- Hydronium ion/pH, hydroxide ion/pOH, weak acids, weak bases, Arrhenius modified theory to Chemistry 20 Unit C