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A Course Outline for One Semester 10th Grade Chemistry

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A Course Outline for One Semester 10th Grade Chemistry

ROBERT JAMES

Cedar Rapids

Unit I Introduction to chemistry and how chemists work. (This unit will consist of the **History of Science**



James

Case, "The Chemistry of Fixed Air". It is hoped that it will serve to introduce the student to chemists and chemistry, present the science in its historical perspective, help students to gain

insight into research problems, and introduce the student to simple laboratory procedures.)

Unit II The Nature of Matter.

1. What are gases like?
 - a. Kinetic molecular theory.
 - b. Reacting ratios — symbols, formulas, and equations.
 - c. Avogadro's hypothesis.
 - d. The mole concept.
 - e. Relative weights of molecules.
2. Phase changes — liquids and solids.
 - a. The role of energy in the phase change.

- b. Heats of vaporization and melting.
- c. Heats of reaction.

Unit III The Periodic Law—a scheme of classification.

1. Historical development of the periodic table. (If available and suitable, use would be made of abstracts of original reports. The goals would be similar to those for the HOSC unit.)
2. Basic atomic structure.
3. The repeating and varying properties in families and periods.
 - a. Inert gases.
 - b. Alkali metals.
 - c. The halogens.
 - d. The second and third period elements.
4. Continued emphasis on the mole, using weight ratios and equations.

Unit IV Equilibrium.

1. Principles of equilibrium.
2. Using the principles of equilibrium to achieve certain ends.
3. Potential energy diagrams.
4. Catalysis.

Unit V Solutions.

1. Solubility.
2. Concentrations.
3. Acids and bases.

Unit VI Chemical bonds.

1. Bond formation.
2. Types of bonds help to predict

Robert James graduated from Northwest Missouri State College in 1959 with a B.S. degree; and State College of Iowa, Cedar Falls in 1962 with a M.A. He has taught science in Odessa High School, Odessa, Missouri, and Washington Senior High in Cedar Rapids, Iowa. He is presently working toward an advanced degree at University of Iowa in Iowa City, Iowa.

properties of compounds. (Electronegativity will be introduced here)

3. The bonding in solids.

Unit VII The chemistry of carbon.

1. Some organic reactions.
2. Nomenclature of organic groups.
3. Chemical properties of groups.
4. Some biochemical applications.

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National Association of Biology Teachers

MIDWESTERN REGIONAL CONVENTION

November 17-18, 1967

Omaha, Nebraska

Thursday Evening Preregistration

Friday Morning, November 17 Field Trips

—Closed Circuit
TV at Omaha
University
—Live Animal
Section at
Westside High
School

Friday Afternoon GENERAL SESSION
Instrumentation Meetings

Field Trip—Eppley Cancer
Research Center
Film Viewing Sessions

Friday Evening BANQUET
"Human Ecosystems"—
Dr. Lamont Cole

Saturday morning, November 18 GENERAL SESSION
"Urban Challenge"—

Dr. Duryea Martin
Teacher Innovation Sections

Saturday Afternoon Teacher Innovation Sections
Field Trip—Fontanelle
Forest