

Our Lady of Lourdes High School

COURSE TITLE: Foundations for Success in Chemistry

Syllabus: Summer 2020

Teacher: Miss Christine Brooks

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COURSE TEXTS: N/A

COURSE DESCRIPTION:

This course is based on the New York State Science Learning Standards (NYSSLYS) standards for chemistry. The course is designed to prepare students to explain accurately, with appropriate depth, general chemistry and algebraic concepts.

COURSE OBJECTIVES:

This course is designed to provide students with a comprehensive exploration of the scientific principles and mathematical principles that are fundamental to students' success in chemistry. The topics covered include metric system units, metric conversions, using scientific notation, an introduction to significant figures, laboratory safety, identifying matter, chemical vs. physical properties, atomic structure, and the basics of reading the Periodic Table. These topics are chosen to develop and reinforce the fundamental concepts and skills needed to be successful in Regents chemistry.

PRIMARY LEARNING OUTCOMES:

Upon successful completion of this course students will:

- make measurements using the metric system
- use metric prefixes to define different sized metric units
- define accuracy and precision
- review lab safety procedures
- determine the number of significant figures in a measurement
- classify materials as elements, compounds, or mixtures, stating the evidence for the classification
- define and calculate density
- draw a diagram representing difference phases of matter
- distinguish between physical and chemical properties
- describe several techniques for the separation of mixtures
- describe the structure of an atom in terms of protons, neutrons, and electrons
- list the relative charge, mass and location of protons, neutrons, and electrons
- use the periodic table as a reference tool
- describe how elements are organized in the periodic table leading to periods and groups
- describe the location of metals, nonmetals, and metalloids

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A contract outlining summer course policies and procedures will be provided to the students and parents. All parties must agree to and sign this contract before the course begins

COURSE OUTLINE AND MAPPING:

Week 1: Fundamentals of the Metric System and Algebraic Manipulation

- *Metric System: base units, prefixes, and conversions*
- *Temperature Scales and Conversions*
- *Scientific Notation*
- *Significant Figures: Accuracy vs. Precision*
- *Lab Simulation: Laboratory Safety*

Week 2: Identifying Matter

- *Phase Diagrams*
- *Identifying elements, compounds, and mixtures*
- *Chemical vs. Physical Changes*
- *Separating a Mixture*
- *Lab Simulation: States of Matter or Matter and Phase Changes*

Week 3: Atomic Structure

- *Subatomic Particles*
- *Lab Simulation: Building a Model*
- *Atom Project*

Week 4: Periodic Table Basics

- *Groups vs. Periods*
- *Metals, nonmetals, and metalloids*
 - *Location on the periodic table*
 - *Properties*
- *Create an illustrated Periodic Table*
- *Elements Driver's License Project*