

West Linn–Wilsonville School District

Science Department – Course Statement

<u>Course Title: Chemistry</u>	
Length of Course:	Year
Number of Credits:	2
Grade Level:	10, 11, 12
Prerequisites:	1 year Algebra; Advanced Algebra highly recommended
CIM Work Samples	
Offered in Course:	At least one technical writing, information speech, or math problem solving work sample
Date of Description/Revision: 2002	
Course Overview	
<p>Basic chemistry concepts are studied with emphasis on theory, the use of mathematics, and practical chemistry. Among the concepts studied are: atomic theory, principles of chemical reactions, periodicity, radioactivity, atomic structure, chemical bonding, solutions, and mole concepts. This course is designed for the college-bound student. Students should expect a demanding daily homework load as well as projects, tests, and laboratory write-ups. A high level of understanding in Algebra and in scientific methods is necessary for success in this course.</p>	
Essential Questions	Concepts providing focus for student learning
<ul style="list-style-type: none"> • How is matter constructed? • What are the similarities and differences in matter? • Why does matter interact? • How is the chemical concept of “mole” important to mathematical relationships? • How is it possible to predict the outcomes of chemical reactions? • How does experimentation improve the understanding of matter? 	
Proficiency Statements	
<p>Upon completion of course, students will be able to:</p> <ul style="list-style-type: none"> • Use the metric system appropriately. • Demonstrate and apply knowledge of elements, compounds, mixture, physical and chemical changes, formulas, equations, and the periodic table. • Describe basic concepts of chemistry including atomic theory, periodic properties, electron energy levels, bonding, mole concept, solutions, and reactions. • Read, record, and analyze data in mathematical calculations and construct and use numerous types of graphs. • Describe the relationship of chemistry to various career choices and differentiate between careers in chemistry and technology. 	

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- Demonstrate the proper use of common laboratory equipment.
- Draw conclusions and formulate hypothesis from data and observations made in the laboratory.
- Demonstrate through exposure to current scientific literature an awareness of current scientific research and application to our everyday world.

General Course Topics/Units & Timeframes

Semester 1

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| A. Science Methods and Chemistry Introduction | 2 weeks |
| B. Atomic Theory and History | 3 weeks |
| C. Periodic Table | 3 weeks |
| D. Ionic Bonding/Naming Compounds | 3 weeks |
| E. Covalent Bonding | 3 weeks |
| F. Balancing Equations/Reaction Types | 2 weeks |
| G. Stoichiometry | 3 weeks |

Semester 2

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| H. Thermodynamics | 2 weeks |
| I. Kinetic Theory | 2 weeks |
| J. Gas Laws | 3 weeks |
| K. Equilibrium | 2 weeks |
| L. Acid-Base Theory | 4 weeks |
| M. Reduction-Oxidation | 2 weeks |
| N. Solution Chemistry | 3 weeks |

Resources

- Text: *Addison Wesley Chemistry* (w/CD ROM), Prentice Hall/Addison Wesley, 2002
- Other: CD-ROMs; computer/calculator based labs