

WARREN COUNTY SCHOOL DISTRICT

PLANNED INSTRUCTION

COURSE DESCRIPTION

Course Title: Chemistry CP
Course Number: 00331
Course Prerequisites: Successful completion of Algebra I CP or Algebra 1B

Course Description: The science of chemistry deals with the structure of matter, its properties and the changes it undergoes. Chemistry College Preparatory describes matter using both words and numbers. Students will be required to utilize higher math skills frequently. Current enrollment in or completion of Algebra II College Preparatory is strongly recommended for success in CP chemistry. The course will meet 6 periods per week with one of those periods designated for laboratory exploration.

Suggested Grade Level: Grades 10-12
Length of Course: Two Semesters
Units of Credit: 1

PDE Certification and Staffing Policies and Guidelines (CSPG) Required Teacher Certifications:

CSPG 34 Chemistry

To find the CSPG information, go to <https://www.education.pa.gov/Educators/Certification/Staffing%20Guidelines/Pages/default.aspx>

Certification verified by the WCSD Human Resources Department: Yes No

WCSD STUDENT DATA SYSTEM INFORMATION

Course Level: Academic
Mark Types: Check all that apply.
 F – Final Average MP – Marking Period EXM – Final Exam

GPA Type: GPAEL-GPA Elementary GPAML-GPA for Middle Level NHS-National Honor Society
 UGPA-Non-Weighted Grade Point Average GPA-Weighted Grade Point Average

State Course Code: 03101

To find the State Course Code, go to <https://nces.ed.gov/forum/sced.asp>, download the Excel file for SCED, click on SCED 6.0 tab, and choose the correct code that corresponds with the course.

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TEXTBOOKS AND SUPPLEMENTAL MATERIALS

Board Approved Textbooks, Software, and Materials:

Title: Chemistry Matter and Change
Publisher: McGraw Hill Education
ISBN #: 978-0-07-677460-9
Copyright Date: 2017
WCSD Board Approval Date: 5/14/2018

Supplemental Materials: [Click or tap here to enter text.](#)

Curriculum Document

WCSD Board Approval:

Date Finalized: 2/28/2018
Date Approved: 5/14/2018
Implementation Year: 2018-2019

SPECIAL EDUCATION, 504, and GIFTED REQUIREMENTS

The teacher shall make appropriate modifications to instruction and assessment based on a student's Individual Education Plan (IEP), Chapter 15 Section 504 Plan (504), and/or Gifted Individual Education Plan (GIEP).

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SCOPE AND SEQUENCE OF CONTENT, CONCEPTS, AND SKILLS

Performance Indicator	PA Core Standard and/or Eligible Content	Month Taught and Assessed for Mastery
Use instruments to measure mass and volume and use appropriate metric units to record data.	CHEM B.1.2.2	Choose an item. September
Differentiate between volume and mass.	CHEM A.1.1.2	September Choose an item.
Describe the relationship between mass, volume, and density.	CHEM A.1.1.2	September Choose an item.
Differentiate between pure substances and mixtures.	CHEM B.1.2.2	September Choose an item.
Recognize homogenous and heterogeneous mixtures on a visible and molecular level.	CHEM A.1.2.2	September Choose an item.
Differentiate between an element and a compound.	CHEM B.1.2.2	September Choose an item.
Describe specific physical properties.	CHEM A.1.1.4	September Choose an item.
Determine the mixture category into which a given material falls, based on laboratory experience.	CHEM A.1.2.2	September Choose an item.
Learn how John Dalton, J.J. Thomson, Ernest Rutherford, Niels Bohr were responsible for the evolution of atomic theory leading to the current model of the atom.	CHEM A.1.2.2	October Choose an item.
Predict the identity of an atom based on its number of protons by using the periodic table with the atomic numbers given for each element.	CHEM A.2.1.2	October Choose an item.
Understand how instruments such as the mass spectrometer help scientists to make observations that are both qualitative and quantitative in nature.	CHEM A.2.1.1	October Choose an item.
Identify different isotopes of atoms, differentiating between the mass number of the isotope and the average atomic mass of an element	CHEM A.2.1.2	October Choose an item.
Predict the ground state electronic configuration for a given atom or ion.	CHEM A.2.2.1	November Choose an item.

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Explain the relationship between the electron configuration and the atomic structure of a given atom or ion.	CHEM A.2.2.3	Choose an item. November
Relate energy levels to atomic emissions spectrum.	CHEM A.2.2.4	Choose an item. November
Categorize known elements into different groups based on similarities and differences.	CHEM A.2.3.1	Choose an item. December
Identify the periodicity of elements and their contribution to the arrangement of the periodic table.	CHEM A.2.3.2	Choose an item. December
Identify trends in the periodic table (i.e., atomic radius, ionization energy, electronegativity, boiling points, and electron configuration).	CHEM A.2.3.2	Choose an item. December
Predict properties of elements based on their location in the periodic table.	CHEM A.2.2.2	Choose an item. December
Compare ionic and covalent bonding.	CHEM B.1.3.1	Choose an item. January
Explain how atoms combine when forming ionic bonds and covalent bonds.	CHEM B.1.3.1	Choose an item. January
Classify bonds as polar covalent, non-polar covalent, or ionic.	CHEM B.1.3.2	Choose an item. January
Predict the polarity of a molecule based on illustrations.	CHEM B.1.3.3	Choose an item. January
Identify covalent bonds representing shared valence electrons.	CHEM B.1.3.2	Choose an item. January
Construct Lewis dot structures representing bonds with shared valence electrons.	CHEM B.1.4.2	Choose an item. January
Construct Lewis dot structures representing ionically bonded compounds.	CHEM B.1.4.2	January Choose an item.
Identify ionically bonded compounds.	CHEM B.1.3.2	Choose an item. January

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Explore varying modeling techniques to represent bond formation.	CHEM B.1.4.1	Choose an item. January
Classify chemical reactions as decomposition, synthesis, combustion, single replacement, or double replacement.	CHEM B.2.1.3	Choose an item. February
Predict the products of simple chemical reactions.	CHEM B.2.1.4	Choose an item. February
Balance chemical equations by applying the law of conservation of matter.	CHEM B.2.1.5	Choose an item. February
Write formulas for ionic compounds and oxyanions	CHEM A.1.1.5	Choose an item. February
Apply naming conventions to ionic compounds and oxyanions.	CHEM A.1.1.5	Choose an item. February
Translate molecular formulas into binary molecular compound names.	CHEM A.1.1.5	Choose an item. February
Name acidic solutions.	CHEM A.1.1.5	Choose an item. February
Apply the mole concept to representative particles.	CHEM B.1.1.1	Choose an item. March
Perform conversions between moles, representative particles, mass, and volume.	CHEM B.1.1.1	Choose an item. March
Prepare molar solutions in the laboratory.	CHEM A.1.2.4	Choose an item. March
explain what is meant by percent composition of a compound	CHEM B.1.2.3	March Choose an item.
Determine the empirical and molecular formulas for a compound from mass percent and actual mass data.	CHEM B.1.2.1	Choose an item. March
Develop an understanding of the gas laws.	CHEM B.2.2.2	Choose an item. April

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Understand that certain laws govern the physical properties of ideal gases.	CHEM B.2.2.2	Choose an item. April
Utilize mathematical relationships to predict changes in the temperature, pressure, and volume in a gaseous system (i.e., Boyle's law, Charles's law, and the combined gas law).	CHEM B.2.2.2	Choose an item. April
Solve stoichiometry problems, given balanced equations.	CHEM B.2.1.2	April Choose an item.
Identify the limiting reactant and calculate the theoretical yield of a product.	CHEM B.2.1.1	Choose an item. April
Calculate the enthalpy change in a reaction.	CHEM B.2.1.2	Choose an item. April
Discover the different properties of solutions that occur when ionic compounds or covalent compounds are dissolved in a liquid such as water.	CHEM A.1.2.1	Choose an item. May
Determine the factors which affect solubility and the rate at which substances dissolve in a solvent.	CHEM A.1.2.3	Choose an item. May
Understand that certain laws govern the physical properties of ideal gases.	CHEM B.2.2.1	May Choose an item.
Utilize mathematical relationships to predict changes in the temperature, pressure, and volume in a gaseous system (i.e., Boyle's law, Charles's law, and the combined gas law).	CHEM B.2.2.1	May May
Develop an understanding of the gas laws.	CHEM B.2.2.1	Choose an item. May
Perform laboratory activities for each unit of content.	RST.11.2 RST.11.3 RST.11.8	August May
Write laboratory reports that include the following components: objectives, data, calculations, analysis, and conclusions.	WHST.11-12.1.e WHST.11-12.2.e	August May

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ASSESSMENTS

PSSA Academic Standards, Assessment Anchors, and Eligible Content: The teacher must be knowledgeable of the PDE Academic Standards, Assessment Anchors, and Eligible Content and incorporate them regularly into planned instruction.

Formative Assessments: The teacher will utilize a variety of assessment methods to conduct in-process evaluations of student learning.

Effective formative assessments for this course include: Labs, projects, posters, presentations, etc.

Summative Assessments: The teacher will utilize a variety of assessment methods to evaluate student learning at the end of an instructional task, lesson, and/or unit.

Effective summative assessments for this course include: Teacher created tests, quizzes, etc.