

WARREN COUNTY SCHOOL DISTRICT

PLANNED INSTRUCTION

COURSE DESCRIPTION

Course Title: Chemistry
Course Number: 00330
Course Prerequisites: [Click or tap here to enter text.](#)

Course Description: The science of chemistry deals with the structure of matter, its properties and the changes it undergoes. Living by Chemistry applies these concepts to real world problem solving. This course utilizes basic mathematical skills and includes hands on activities and laboratory applications.

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 chose the correct code that corresponds with the course.

WARREN COUNTY SCHOOL DISTRICT

PLANNED INSTRUCTION

TEXTBOOKS AND SUPPLEMENTAL MATERIALS

Board Approved Textbooks, Software, and Materials:

Title: Physical Science
Publisher: McGraw Hill Education
ISBN #: 978-0-07-677456-2
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).

WARREN COUNTY SCHOOL DISTRICT

PLANNED INSTRUCTION

SCOPE AND SEQUENCE OF CONTENT, CONCEPTS, AND SKILLS

Performance Indicator	PA Core Standard and/or Eligible Content	Month Taught and Assessed for Mastery
Name and describe the use of certain pieces of lab equipment which will be used throughout the year.	RST.11.2, RST.11.3, RST.11.8, WHST.11-12.1.e, WHST.11-12.2.e, CC.3.5.11-12, CC.3.6.11-12, 3.2.A	August September
Understand how to work safely in the lab.	RST.11.2, RST.11.3, RST.11.8, WHST.11-12.1.e, WHST.11-12.2.e, CC.3.5.11-12, CC.3.6.11-12, 3.2.A	August September
Use instruments to measure mass and volume and use appropriate metric units to record data.	RST.11.2, RST.11.3, RST.11.8, WHST.11-12.1.e, WHST.11-12.2.e, CC.3.5.11-12, CC.3.6.11-12, 3.2.A	September Choose an item.
Differentiate between volume and mass.	RST.11.2, RST.11.3, RST.11.8, WHST.11-12.1.e, WHST.11-12.2.e, CC.3.5.11-12, CC.3.6.11-12, 3.2.A	September Choose an item.
Describe the relationship between mass, volume, and density.	RST.11.2, RST.11.3, RST.11.8, WHST.11-12.1.e, WHST.11-12.2.e, CC.3.5.11-12, CC.3.6.11-12, 3.2.A	September Choose an item.
Differentiate between qualitative and quantitative measurements.	RST.11.2, RST.11.3, RST.11.8, WHST.11-12.1.e, WHST.11-12.2.e, CC.3.5.11-12, CC.3.6.11-12, 3.2.A, CHEM.A.1.1.2	September Choose an item.
Explain the importance of accuracy and precision in making valid measurements.	RST.11.2, RST.11.3, RST.11.8, WHST.11-12.1.e, WHST.11-12.2.e, CC.3.5.11-12, CC.3.6.11-12, 3.2.A, 3.1.C.C4	September Choose an item.
Differentiate between pure substances and mixtures.	RST.11.2, RST.11.3, RST.11.8, WHST.11-12.1.e, WHST.11-12.2.e, CC.3.5.11-12, CC.3.6.11-12, 3.2.A, CHEM.A.1.2.2, CHEM.A.1.1.1, CHEM.A.1.1.4, CHEM.B.1.2.2	September October
Recognize homogeneous and heterogeneous mixtures on a visible and molecular level.	RST.11.2, RST.11.3, RST.11.8, WHST.11-12.1.e, WHST.11-12.2.e, CC.3.5.11-12, CC.3.6.11-12, 3.2.A, CHEM.A.1.2.2, CHEM.A.1.1.1, CHEM.A.1.1.4, CHEM.B.1.2.2	September October

WARREN COUNTY SCHOOL DISTRICT

PLANNED INSTRUCTION

Differentiate between an element and a compound.	RST.11.2, RST.11.3, RST.11.8, WHST.11-12.1.e, WHST.11-12.2.e, CC.3.5.11-12, CC.3.6.11-12, 3.2.A, CHEM.A.1.2.2, CHEM.A.1.1.1, CHEM.A.1.1.4 , CHEM.B.1.2.2	September October
Determine the mixture category into which a given material falls based on laboratory experience.	RST.11.2, RST.11.3, RST.11.8, WHST.11-12.1.e, WHST.11-12.2.e, CC.3.5.11-12, CC.3.6.11-12, 3.2.A, CHEM.A.1.2.2, CHEM.A.1.1.1, CHEM.A.1.1.4 , CHEM.B.1.2.2	September October
Describe specific physical properties of matter, such as density, boiling point, and freezing point.	RST.11.2, RST.11.3, RST.11.8, WHST.11-12.1.e, WHST.11-12.2.e, CC.3.5.11-12, CC.3.6.11-12, 3.2.A, CHEM.A.1.2.2, CHEM.A.1.1.1, CHEM.A.1.1.4 , CHEM.B.1.2.2	September October
Classify physical or chemical changes within a system in terms of matter and/or energy.	RST.11.2, RST.11.3, RST.11.8, WHST.11-12.1.e, WHST.11-12.2.e, CC.3.5.11-12, CC.3.6.11-12, 3.2.A, CHEM.A.1.1.1	September October
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.	RST.11.2, RST.11.3, RST.11.8, WHST.11-12.1.e, WHST.11-12.2.e, CC.3.5.11-12, CC.3.6.11-12, 3.2.A	October Choose an item.
Learn how John Dalton, J.J. Thomson, Ernest Rutherford, Niels Bohr, and some Pennsylvania scientists were responsible for the evolution of atomic theory leading to the current model of the atom.	CHEM.A.2.1.1, RST.11.2, RST.11.3, RST.11.8, WHST.11-12.1.e, WHST.11-12.2.e, CC.3.5.11-12, CC.3.6.11-12, 3.2.A	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 , RST.11.2, RST.11.3, RST.11.8, WHST.11-12.1.e, WHST.11-12.2.e, CC.3.5.11-12, CC.3.6.11-12, 3.2.A	October Choose an item.
Predict properties of elements using trends of the periodic table.	3.2.10.A1 , RST.11.2, RST.11.3, RST.11.8, WHST.11-12.1.e, WHST.11-12.2.e, CC.3.5.11-12, CC.3.6.11-12, 3.2.A	October November
Categorize known elements into different groups based on similarities and differences.	3.2.10.A1 , RST.11.2, RST.11.3, RST.11.8, WHST.11-12.1.e, WHST.11-12.2.e, CC.3.5.11-12, CC.3.6.11-12, 3.2.A	October November

WARREN COUNTY SCHOOL DISTRICT

PLANNED INSTRUCTION

Compare ionic and covalent bonding.	3.2.10.A1 , RST.11.2, RST.11.3, RST.11.8, WHST.11-12.1.e, WHST.11-12.2.e, CC.3.5.11-12, CC.3.6.11-12, 3.2.A CHEM.A.1.2.5, CHEM.B.1.3.1, CHEM.B.1.3.2, CHEM.B.1.4.1, CHEM.B.1.4.2	December Choose an item.
Explain how atoms combine when forming ionic bonds and covalent bonds.	3.2.10.A1 , RST.11.2, RST.11.3, RST.11.8, WHST.11-12.1.e, WHST.11-12.2.e, CC.3.5.11-12, CC.3.6.11-12, 3.2.A CHEM.A.1.2.5, CHEM.B.1.3.1, CHEM.B.1.3.2, CHEM.B.1.4.1, CHEM.B.1.4.2	December Choose an item.
Classify bonds as polar covalent, non-polar covalent, or ionic.	3.2.10.A1 , RST.11.2, RST.11.3, RST.11.8, WHST.11-12.1.e, WHST.11-12.2.e, CC.3.5.11-12, CC.3.6.11-12, 3.2.A CHEM.A.1.2.5, CHEM.B.1.3.1, CHEM.B.1.3.2, CHEM.B.1.4.1, CHEM.B.1.4.2	December Choose an item.
Identify covalent bonds by representing shared valence electrons.	3.2.10.A1 , RST.11.2, RST.11.3, RST.11.8, WHST.11-12.1.e, WHST.11-12.2.e, CC.3.5.11-12, CC.3.6.11-12, 3.2.A CHEM.A.1.2.5, CHEM.B.1.3.1, CHEM.B.1.3.2, CHEM.B.1.4.1, CHEM.B.1.4.2	December Choose an item.
Identify ionically bonded compounds.	3.2.10.A1 , RST.11.2, RST.11.3, RST.11.8, WHST.11-12.1.e, WHST.11-12.2.e, CC.3.5.11-12, CC.3.6.11-12, 3.2.A CHEM.A.1.2.5, CHEM.B.1.3.1, CHEM.B.1.3.2, CHEM.B.1.4.1, CHEM.B.1.4.2	December Choose an item.
Write ionic and covalent formulas.	RST.11.2, RST.11.3, RST.11.8, WHST.11-12.1.e, WHST.11-12.2.e, CC.3.5.11-12, CC.3.6.11-12, 3.2.A, CHEM.A.1.1.5	January Choose an item.
Name ionic and covalent compounds.	RST.11.2, RST.11.3, RST.11.8, WHST.11-12.1.e, WHST.11-12.2.e, CC.3.5.11-12, CC.3.6.11-12, 3.2.A, CHEM.A.1.1.5	January Choose an item.
Classify the different types of chemical reactions.	RST.11.2, RST.11.3, RST.11.8, WHST.11-12.1.e, WHST.11-12.2.e, CC.3.5.11-12, CC.3.6.11-12, 3.2.A, CHEM.B.2.1.3, CHEM.B.2.1.4, CHEM.B.2.1.5	February Choose an item.

WARREN COUNTY SCHOOL DISTRICT

PLANNED INSTRUCTION

Balance chemical equations by applying the Law of Conservation of Mass.	RST.11.2, RST.11.3, RST.11.8, WHST.11-12.1.e, WHST.11-12.2.e, CC.3.5.11-12, CC.3.6.11-12, 3.2.A, CHEM.B.2.1.3, CHEM.B.2.1.4, CHEM.B.2.1.5	February Choose an item.
Differentiate between the reactants and products in a chemical reaction.	RST.11.2, RST.11.3, RST.11.8, WHST.11-12.1.e, WHST.11-12.2.e, CC.3.5.11-12, CC.3.6.11-12, 3.2.A, CHEM.B.2.1.3, CHEM.B.2.1.4, CHEM.B.2.1.5	February Choose an item.
Utilize mathematical relationships to predict changes in the temperature, pressure and volume in a gaseous system.	RST.11.2, RST.11.3, RST.11.8, WHST.11-12.1.e, WHST.11-12.2.e, CC.3.5.11-12, CC.3.6.11-12, 3.2.A, CHEM.B.2.2.1	March Choose an item.
Explain how a gas exerts pressure on its container.	RST.11.2, RST.11.3, RST.11.8, WHST.11-12.1.e, WHST.11-12.2.e, CC.3.5.11-12, CC.3.6.11-12, 3.2.A, CHEM.B.2.2.1	March Choose an item.
Evaluate materials based on thermal properties.	RST.11.2, RST.11.3, RST.11.8, WHST.11-12.1.e, WHST.11-12.2.e, CC.3.5.11-12, CC.3.6.11-12, 3.2.A, CHEM.A.1.1.9	March Choose an item.
Explain phenomenon in terms of the concepts of thermodynamics.	RST.11.2, RST.11.3, RST.11.8, WHST.11-12.1.e, WHST.11-12.2.e, CC.3.5.11-12, CC.3.6.11-12, 3.2.A, CHEM.A.1.1.9	March Choose an item.
Predict the direction of phases when heat is changed in the system.	RST.11.2, RST.11.3, RST.11.8, WHST.11-12.1.e, WHST.11-12.2.e, CC.3.5.11-12, CC.3.6.11-12, 3.2.A, CHEM.A.1.1.9	March Choose an item.
Interpret phase change diagrams.	RST.11.2, RST.11.3, RST.11.8, WHST.11-12.1.e, WHST.11-12.2.e, CC.3.5.11-12, CC.3.6.11-12, 3.2.A, CHEM.A.1.1.9	March Choose an item.
Differentiate between how particles move in different states of matter.	RST.11.2, RST.11.3, RST.11.8, WHST.11-12.1.e, WHST.11-12.2.e, CC.3.5.11-12, CC.3.6.11-12, 3.2.A, CHEM.A.1.1.9	March Choose an item.
Differentiate between radioactive and stable nuclei.	3.2.12.A2, 3.2.12.A3 RST.11.2, RST.11.3, RST.11.8, WHST.11-12.1.e, WHST.11-12.2.e, CC.3.5.11-12, CC.3.6.11-12, 3.2.A	April Choose an item.

WARREN COUNTY SCHOOL DISTRICT

PLANNED INSTRUCTION

Distinguish between alpha, beta and gamma radiation.	3.2.12.A2, 3.2.12.A3 RST.11.2, RST.11.3, RST.11.8, WHST.11-12.1.e, WHST.11-12.2.e, CC.3.5.11-12, CC.3.6.11-12, 3.2.A, 3.2.C.A3	April Choose an item.
Define and determine the half-life of a radioisotope.	3.2.12.A2, 3.2.12.A3 RST.11.2, RST.11.3, RST.11.8, WHST.11-12.1.e, WHST.11-12.2.e, CC.3.5.11-12, CC.3.6.11-12, 3.2.A, 3.2.C.A3	April Choose an item.
Identify sources of background radiation.	3.2.12.A2, 3.2.12.A3 RST.11.2, RST.11.3, RST.11.8, WHST.11-12.1.e, WHST.11-12.2.e, CC.3.5.11-12, CC.3.6.11-12, 3.2.A, 3.2.C.A3	April Choose an item.
Utilize half-life in the dating of organically based artifacts.	3.2.12.A2, 3.2.12.A3 RST.11.2, RST.11.3, RST.11.8, WHST.11-12.1.e, WHST.11-12.2.e, CC.3.5.11-12, CC.3.6.11-12, 3.2.A, 3.2.C.A3	April Choose an item.
Critique the applications of radioactive sources.	3.2.12.A2, 3.2.12.A3 RST.11.2, RST.11.3, RST.11.8, WHST.11-12.1.e, WHST.11-12.2.e, CC.3.5.11-12, CC.3.6.11-12, 3.2.A, 3.2.C.A3	April Choose an item.
Differentiate between nuclear fission and nuclear fusion.	3.2.12.A2, 3.2.12.A3 RST.11.2, RST.11.3, RST.11.8, WHST.11-12.1.e, WHST.11-12.2.e, CC.3.5.11-12, CC.3.6.11-12, 3.2.A, 3.2.C.A3	April Choose an item.
Differentiate between an acid and base through properties and characteristics.	CHEM.A.1.1, RST.11.2, RST.11.3, RST.11.8, WHST.11-12.1.e, WHST.11-12.2.e, CC.3.5.11-12, CC.3.6.11-12, 3.2.A	May Choose an item.
Predict the products of a neutralization reaction.	CHEM.A.1.1, RST.11.2, RST.11.3, RST.11.8, WHST.11-12.1.e, WHST.11-12.2.e, CC.3.5.11-12, CC.3.6.11-12, 3.2.A	May Choose an item.
Predict the addition of a reactant to create a neutralization reaction.	CHEM.A.1.1, RST.11.2, RST.11.3, RST.11.8, WHST.11-12.1.e, WHST.11-12.2.e, CC.3.5.11-12, CC.3.6.11-12, 3.2.A	May Choose an item.
Utilize pH values as indicators of acids or bases.	CHEM.A.1.1, RST.11.2, RST.11.3, RST.11.8, WHST.11-12.1.e, WHST.11-12.2.e, CC.3.5.11-12, CC.3.6.11-12, 3.2.A	May Choose an item.
Explain how common acids and bases are used.	CHEM.A.1.1, RST.11.2, RST.11.3, RST.11.8, WHST.11-12.1.e, WHST.11-12.2.e, CC.3.5.11-12, CC.3.6.11-12, 3.2.A	May Choose an item.

WARREN COUNTY SCHOOL DISTRICT

PLANNED INSTRUCTION

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: Analyzing student work, Strategic Questioning

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: End of chapter tests, Final Exam, Lab Reports