**Warren County School District**

**PLANNED INSTRUCTION**

**COURSE DESCRIPTION**

**Course Title: \_\_**Chemistry \_\_

**Course Number:** \_\_00330\_\_

**Course Prerequisites: \_\_**      \_\_

**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:** | One Semester | Two Semesters | Other (Describe) |

**Units of Credit:** 1(Insert ***None*** if appropriate)

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

CSPG 34 Chemistry

**Certification verified by WCSD Human Resources Department**:  Yes  No

**TEXTBOOK AND SUPPLEMENTAL MATERIALS**

**Continue using Board approved textbook?** Yes  No (*If yes, then complete the information below.*)

**Board Approved Textbooks, Software, Supplemental Materials:**

**Title: Physical Science**

**Publisher: McGraw Hill Education**

**ISBN #: 978-0-07-677456-2**

**Copyright Date: 2017**

**Date of WCSD Board Approval:**

**BOARD APPROVAL:**

**Date Written:** 2/28/18

**Date Approved:**

**Implementation Date:** 2018-2019

**SPECIAL EDUCATION AND GIFTED REQUIREMENTS**

The teacher shall make appropriate modification to instruction and assessment based on a student’s Individual Education Plan (IEP) or Gifted Individual Education Plan (GIEP).

**COURSE OVERVIEW**

(*List the content to be taught*)

**PA Science Standards:**

3.1.C.A: CHEMISTRY

3.1.C.B: CHEMISTRY

3.1.C.C: CHEMISTRY

3.2.C.A: CHEMISTRY

3.2.C.B: CHEMISTRY

3.3.C.A: CHEMISTRY

3.3.C.B: CHEMISTRY

**Common Core Standards:**

CC.3.5.11-12 Reading Informational Text

CC.3.6.11-12 Writing

**Content:**

I. Nature of Science

A. Scientific Method

1. Lab Equipment

2. Lab Safety

3. Data Collection (qualitative vs. quantitative)

4.%Error

B. Measurement

1. metric system

2. mass

3. Density

4. Temperature

C. Graphing

II. Matter and Changes

A. Types of Matter and Separations

B. States of Matter

C. Physical

1. Properties

2. Changes

D. Chemical

1. Properties

2. Changes

III. Atomic Theory and Periodic Table

A. Development of Atomic Theory

1. Dalton’s Atomic Theory

2. Thomson

3. Rutherford

4. Bohr

5. Electron cloud model

B. Atomic Particles

C. Isotopes

1. History and Organization of the Periodic Table
2. Movement of electrons – ground state vs. excited state
3. Octet Rule
4. Groups and periods
5. Group characteristics

IV. Bonding

1. Ionic bonds
2. Covalent bonds
3. Polar Covalent

2. Nonpolar Covalent

V. Formula Writing and Nomenclature

A. Ionic

1. Binary

2. Ternary – Polyatomic ions

B. Molecular (Covalent)

VI. Chemical Reactions

A. Balancing

1. Law of Conservation of Mass

2. Skeleton equations

3. Understanding chemical equations

\*mole, molar mass, mole-mass conversions, Avogadro’s #, Scientific notation

B. Reaction Types

1. Single Replacement

2. Double Replacement

3. Synthesis (Combination)

4. Decomposition

5. Combustion

6. Energy changes (endothermic vs. exothermic)

C. Factors That Affect Reaction Rate

VII. Gases

A. Kinetic Molecular Theory

1. Gas Pressure

2. Atmospheric Pressure

3. Temperature

B. Gas Laws

1. Relationships Between Pressure, Temperature, and Volume

2. Dalton’s Law of Partial Pressures

VIII. Heat and Phase Changes

A. Heat and Specific Heat

B. Calculating Heat

C. Phase Changes

IX. Nuclear Chemistry

A. Nuclear Particles

B. Reactions

C. Half-life

D. nuclear waste

E. Applications: nuclear energy and reactors, nuclear medicine,

X. Acid – Base

A. Definitions

B. Properties

C. Neutralization

D. pH

XI. Chemistry in Everyday Life and Career

1. Applications to:
2. Culinary
3. Welding and metals
4. Medical
5. Engines
6. Farming
7. Chemistry in the Home
8. Reaction safety
9. Kitchen chemistry

**ASSESSMENT**

**Portfolio Assessment:**   Yes  No

**District-Wide Common Final Examination Required:** Yes  No

**Course Challenge Assessment** (Describe)**:** Successful completion of the course final exam at 80% or better.

**WRITING TEAM:** Warren County School District Teachers

**WCSD STUDENT DATA SYSTEM INFORMATION**

1. Is there a required final examination?  Yes  No

***\*Warren County School District Policy 9741 and9744 state, “All classes in grades 9-12 shall have a final exam.”***

1. Does this course issue a mark/grade for the report card?  Yes  No
2. Does this course issue a Pass/Fail mark?  Yes  No
3. Is the course mark/grade part of the GPA calculation?  Yes  No
4. Is the course eligible for Honor Roll calculation?  Yes  No
5. What is the academic weight of the course?

|  |  |  |
| --- | --- | --- |
| No weight/Non credit | Standard weight | Enhanced weight |
|  |  |  |