

CHEMISTRY INFORMATION SHEET HOPEWELL SENIOR HIGH SCHOOL

Welcome to the chemistry lab! My name is Mr. Smith and I will be your instructor for this course. Please take time to read this sheet entirely and keep it in your files for reference. The information is relevant and is important. It is my sincere hope that your time spent in chemistry will be educational, rewarding, and enjoyable.

ROOM LAYOUT

The chemistry room is divided into two general areas: the classroom and the lab. Because of the complexity and inherent risk associated with the lab, it will be treated separately. Please note that students should not be in the lab area unless an instructor is present and permission has been given to be in the lab.

LOCATION OF FACILITIES

1. Bathrooms are located across the hallway from 326. You may use the bathroom for an emergency only.
2. Unless otherwise noted, during a fire or drill exit the room through the front door, turn immediately to the left, proceed down the stairs, and cross the mall into the faculty parking lot. Stay in a group so roll may be taken.

ROOM POLICIES

1. The hall pass may be used only in the event of an emergency, i.e., a necessary trip to the bathroom or the nurse. Phone or locker use is unacceptable. Please don't interrupt a lesson to ask for the hall pass.
2. Littering is not expected nor will it be tolerated. Most of the equipment is very sensitive to dirt.
3. Sit only in your assigned seat.
4. Always have a cover on your textbook.
5. Be ready to work at the beginning of the period. Four minutes is ample time to get to class and be ready for work.

OVERALL ACTIVITIES

1. You will gain an understanding of the nature of chemistry.
2. You will gain an understanding of the structure of matter and the properties associated with this structure.
3. You will perform quantitative lab work and generate relevant reports.
4. You will gain an understanding of the underlying principles of chemical bond formation, arrangements, and properties.
5. You will consider the kinetic behavior of physical states.
6. You will gain an understanding of stoichiometry.

GRADING PROCEDURES

1. You will be graded in the following areas: tests, quizzes, special homework assignments, projects, and lab reports. Normal homework assignments will not be graded but will be checked for completion and credit will be noted.
2. Unless otherwise stated, tests will carry twice the weight of quizzes or lab reports. Your homework for the grading period will be averaged and carry the weight of one test grade.
3. Because of the independent nature regarding parts of the course and the different ways in which grades are earned, no extra credit will be given, unless the circumstances are extreme and the request is timely.
4. All lab reports are due on the Monday following a lab, unless school starts on a later day. After the due date, lab reports will be subject to one letter-grade-per-day deduction.
5. When you are absent it is your responsibility to arrange to make up work. If you are absent only the day of an exam, you will be expected to make up the exam the next day. Under few circumstances will you be permitted to make up any work after three school days. Two significant advantages to this policy are that subject material will still be fresh in your mind and subsequent work will not suffer any large interruption. Please make arrangements to complete your work promptly.
6. Keep a neat notebook, with all handouts and supplementary materials included. Probably the single biggest difference between success and failure is easy access to information received in class.

OBLIGATIONS

1. Please remember that you are expected to act as young adults in this class. A large portion of your work is of an individual nature and you must budget your time accordingly. The room is in use each period of the day so it is generally not possible for you to come in during a study hall to complete work.
2. Talking (other than about subject material,) should be curtailed. You should never participate in any horseplay. This type of behavior will not be tolerated.
3. You have every reason to expect me to grade your materials in a reasonable time and I have every reason to expect you to complete those materials on time.

SUMMARY

Chemistry is a new subject for you. You have elected to take this subject because of your future plans or interests. I think you will find that chemistry is rewarding, interesting, and apposite. Remember at all times that your goal is to gain a working knowledge of chemistry and my job is to help you.

SYLLABUS

- 1. An Introduction to Chemistry**
 - Part 1: Substances
 - Part 2: Chemistry and Matter
 - Part 3: Scientific Methods
 - Part 4: Scientific Research
- 2. Analyzing Data**
 - Part 1: Units and Measurements
 - Part 2: Scientific Notation
Dimensional Analysis
 - Part 3: Uncertainty
 - Part 4: Data Representation
- 3. Matter**
 - Part 1: Properties of Matter
 - Part 2: Changes in Matter
 - Part 3: Mixtures
 - Part 4: Elements and Compounds
- 4. The Structure of the Atom**
 - Part 1: Introduction
 - Part 2: Classical Experiments
 - Part 3: Isotopes
 - Part 4: Radioactivity
- 5. Electrons**
 - Part 1: Light and Electromagnetic Energy
 - Part 2: The Quantum Theory
 - Part 3: Electron Configurations
- 6. The Periodic Table**
 - Part 1: History and Development of the Modern Table
 - Part 2: The Elements
 - Part 3: Periodic Properties
- 7. Ionic Compounds and Metals**
 - Part 1: Ions
 - Part 2: Ionic Bonds
 - Part 3: Nomenclature
 - Part 4: Metallic Bonds
Properties of Metals
- 8. Covalent Bonding**
 - Part 1: Covalent Bonds
 - Part 2: Nomenclature
 - Part 3: Molecules
 - Part 4: Molecular Shapes
 - Part 5: Electronegativity
Polarity
- 9. Chemical Reactions**
 - Part 1: Types of Reactions
 - Part 2: Types of Equations
 - Part 3: Reactions in Aqueous Solutions
- 10. The Mole**
 - Part 1: Measuring Matter
 - Part 2: Mass and the Mole
 - Part 3: Moles
 - Part 4: Empirical Formulas

Molecular Formulas

Part 5: Hydrates

11. Stoichiometry

Part 1: Introduction

Part 2: Calculations

Part 3: Limiting Reactants

Part 4: Yield

12. States of Matter

Part 1: Gases

Part 2: Forces

Part 3: Liquids and Solids

Part 4: Phase Changes

13. Gases

Part 1: The Gas Laws

Part 2: The Ideal Gas Law

Part 3: Gas Stoichiometry

14. Mixtures and Solutions

Part 1: Types of Mixtures

Part 2: Concentration

Part 3: Solvation

Part 4: Colligative Properties

15. Energy and Chemical Change

Part 1: Energy

Part 2: Heat

Part 3: Thermochemical Equations

Part 4: Enthalpy

Part 5: Reaction Spontaneity

Planned goal for year ends here.

16. Reaction Rates

Part 1: A Model

Part 2: Factors Affecting Reaction Rates

Part 3: Rate Reaction Laws

Part 4: Instantaneous Reaction Rates

Reaction Mechanisms

THE CHEMISTRY LAB

Nowhere in the high school, with the possible exception of the industrial arts facility, is the chance for personal injury greater than in the chemistry laboratory. With this in mind, it is imperative that you adhere to all safety procedures, know where all safety equipment is located and how to use the equipment, and follow all of the instructor's directions. Because of the inherent risks when dealing with chemicals, absolutely no misbehavior will be tolerated. Violations will result in expulsion from the lab and loss of credit for the work.

You will be given a tour of the lab facility and its safety equipment. When done, please make sure that you can locate and/or operate the following items:

- Eyewash
- Safety blanket
- Gas valves
- Emergency gas valve
- Shower
- Ground Fault Interrupter circuit
- Hoods and switches
- Goggles
- Lab coats

Some rules of the lab are:

1. Always wear goggles during an experiment.
2. No equipment nor chemicals leave the chemistry room.
3. No student should ever be in the stock room unless accompanied by the instructor.
4. Always turn off your gas valve at the end of the lab.
5. Put all equipment and materials back.
6. Put all safety equipment back.
7. Sponge and dry your lab station after use.
8. Report all injuries, no matter how slight.
9. Never taste any chemical!
10. Handle toxic and flammable substances under the hood.
11. Never insert glass tubing into rubber stoppers without the instructor's supervision.
12. When heating substances in a test tube always point the mouth of the tube away from other people.
13. Keep all solids out of the sink.
14. Do not use water jets for drawing water for casual use or cleaning up.
15. Return all stoppers or lids to chemical containers immediately after drawing the correct amount of chemical.
16. Never return unused portions of chemicals to their original containers.
17. Never add water to an acid.
18. Use clean equipment at all times.
19. When using a Bunsen burner or other equipment utilizing rubber tubing, ensure that there are no kinks in the tubing.
20. Keep all glassware and materials away from the edge of the lab table.
21. Clean up all spills promptly, using large quantities of water .
22. Avoid loose clothing in the lab. Roll up sleeves and tie back hair.
23. Keep combustible materials away from open flames.
24. Never take a reagent to your lab station.
25. Thoroughly read and prepare for a lab before the lab. Do not expect to walk into an experiment and be permitted to perform the experiment if you are not familiar with the objectives, procedures, and safety concerns.

LAB REPORTS

All lab reports will be due on the Monday following a lab. All reports are to be typed on unlined white typing paper. Though students may work with partners at lab stations, each student must submit a lab report.

The typical lab report should include the following subjects, arranged in an orderly fashion and in this order:

1. Your name, the period, and the lab title or number.
2. The objective(s) of the experiment.
3. The materials used.
4. A procedure of the experiment summarizing the important activities done during the experiment. The summary should not be as detailed as your instruction sheet.
5. An analysis of the experiment, to include any observations, data, and graphs or charts and calculations.
6. Conclusions pertaining to the observations and calculations.

The inclusion of title pages and color diagrams is discouraged. Your grade will be based on your results and a clear, concise report, not on its length. Use extra pages only when they are necessary to clarify the report.

The laboratory manual accompanying the textbook is an excellent source of reference should you have further questions.