Unit 1: Scientific investigation and data analysis:

Objectives: (This is a list of what you should focus on making sure you understand during the activities, lectures, labs, and reinforcement problems of this unit. Review periodically and before the tests to be sure you understand all that is expected. Think of this list as a study guide or review sheet.

1. Identification of some lab equipment, lab safety, and safety procedures
2. Evaluate information for reliability based on good scientific experimentation
3. Identify and use proper vocabulary involving scientific study (vocab listed below)
4. Recognize and develop a question that can be addressed through scientific investigation
5. Recognize and develop a testable hypothesis
6. Develop an experimental design for a scientific investigation
7. Perform or research and revise your developed experimental design for a scientific investigation
8. Present the results of a scientific study graphically and defend your findings
9. Recognize, use and identify proper vocabulary involving graphing
10. Construct data tables and graphs based on experimental results
11. Identify relationships between independent and dependant variables
12. Perform calculations involving conversion factors
13. Identify SI Units
14. Perform temperature conversions
15. Compare and contrast accuracy and precision
16. Experimentally calculate density
17. Calculate and evaluate % error

| Objective | Resource for Learning | Assessed through |
|---|---|---|
| 1 | - class presentation and discussion<br>- safety contract | - on line safety quiz<br>- class safety and equipment quiz |
| 2 | - advertisement discussion and notes<br>- S.I.D.A. exercises | - Sci method quiz<br>- S.I.D.A. graded exercise |
| 3 | - notes and S.I.D.A. exercises<br>- ACT Prep exercises | - ACT prep<br>- Sci method quiz<br>- S.I.D.A. graded exercise |
| 4 | - notes and S.I.D.A. exercises #1 | - Sci method quiz<br>- S.I.D.A. graded exercise |
| 5 | - notes and S.I.D.A. exercises#1 | - Sci method quiz<br>- S.I.D.A. graded exercise |

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| 6 | - notes and S.I.D.A. exercises #2 | - Sci method quiz<br>- S.I.D.A. graded exercise |
| 7 | - notes and S.I.D.A. exercises (graded) | - Sci method quiz<br>- S.I.D.A. graded exercise |
| 8 | - notes and S.I.D.A. exercises #3 | - Sci method quiz<br>- S.I.D.A. graded exercise |
| 9 | - notes graphing worksheets #1 - #3 | - Sci method quiz<br>- S.I.D.A. graded exercise<br>- graphing worksheet #3 |
| 10 | - notes and S.I.D.A. exercises #3 | - Sci method quiz<br>- S.I.D.A. graded exercise |
| 11 | - notes and graphing worksheets<br>- ACT prep review sheets | - Sci method quiz |
| 12 | - conversion factor worksheets<br>- fastest vehicle journal<br>- human feet as a measuring device journal | - journals<br>- conversion worksheet #3<br>- conversions, density, % error quiz |
| 13 | - notes | - conversions, density, % error quiz |
| 14 | - conversions worksheet | - conversions, density, % error quiz<br>- conversions worksheet #3 |
| 15 | - bulls eye activity/journal | - conversions, density, % error quiz |
| 16 | - density simulation and experiment | - conversions, density, % error quiz<br>-density sim. and experiment |
| 17 | - density experiment | - conversions, density, % error quiz<br>- density sim. and experiment |

Formal Assessments: (What will be graded)

safety contract and quiz =

a. http://daphne.palomar.edu/safetyquiz/
b. http://www.mninfinity.org/forms/Infinity%20Online%20Chemistry%20Class%20Safety%20Contract.pdf

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|---|---|
| online lab safety quiz and contract | 10 |
| lab equipment and safety quiz | 10 |
| completion of practice exercises on time | 5 |
| graphing worksheet #3 and #4 | 10 |
| S.I.D.A. graded lab | 30 |
| scientific method quiz | 30 |
| ACT prep worksheet | 10 |
| practice conversion factors worksheet | 5 |
| graded conversion factors worksheet | 10 |
| density simulation | 5 |
| density lab | 15 |
| conversions, density, and %error quiz | 20 |

Journal checklist: (for semester exam)

1. S.I.D.A. practice exercises
2. S.I.D.A. graded lab
3. human feet journal entry
4. fastest vehicle journal entry
5. density simulation
6. density lab

Vocabulary:

1. bunsen burner
2. graduated cylinder
3. flask
4. beaker
5. test tube holder
6. tongs
7. glass stirring rod
8. watch glass
9. microspatula
10. well plate
11. weighing tray
12. tongs
13. wire gauze
14. ring stand
15. dropper pipet
16. hypothesis
17. constant
18. control
19. controlled experiment
20. independent variable
21. dependant variable
22. variable
23. theory
24. x axis
25. y axis
26. line graph
27. bar graph
28. circle or pie graph
29. volume
30. density
31. conversion factor
32. kelvin
33. celsius
34. direct relationship
35. inverse relationship
36. slope
37. percent error