

UNIT ONE: EXPERIMENTAL DESIGN
9TH GRADE SCIENCE EXAM STUDY GUIDE
STUDY SESSION: WEDNESDAY, 9/13/2006 3:15-4:00
EXAM: THURSDAY, 9/14/2006

Below is a list of topics covered on the upcoming exam. The exam will consist of multiple choice, short answer, and T/F questions. It will also have 2-4 short answer questions. Material will come from in-class notes and activities. *Please see me if you have any questions.*

SCIENCE TOPIC	STUDY RESOURCES
• Definition of Science	Textbook (Chapter 1) In-Class Notes (08/21)
• Problems and Hypothesis	In-Class Notes (08/22-23) “Problems and Hypotheses” Worksheet (blue) Experimental Design Unit Quiz #1
• Objectivity in Science	Worksheet #3: Thinking Objectively Experimental Design Unit Quiz #1
• Observations vs Inferences	In-Class Notes (08/24) In-Class Candle Demonstration and Discussion “Window to the World” Lab Experimental Design Unit Quiz #1
• Direct Measurements Mass, Weight, Length, etc...	Guided Notes from PowerPoint (available on web) Measurement Lab
• Derived Measurements Density, Volume, Speed, etc...	Guided Notes from PowerPoint (available on web) Measurement Lab
• The Metric System: Prefixes and Conversions	Guided Notes from PowerPoint (available on web) Measurement Lab and Post-Lab
• The Scientific Method	Guided Notes from PowerPoint (available on web) Graphic Organizer from Notes (09/06)
• Variables: Independent & Dependent	Guided Notes from PowerPoint (available on web) PowerPoint Presentation and Notes (09/06) In-Class Simpsons Activity
• Graphing Results	Graphing Guide (09/08, 09/11)

All of these resources have been made available in class.
For resources marked “Available on web” go to <http://earthscience.wordpress.com>

Short answer essay questions on the test *may* come from the list below.

1. Why do scientists perform experiments? Discuss at least two of the four reasons given in class.
2. What is Science?
3. What is the difference between an observation and an inference?
4. Scientists want to always try to think and record observations in an *objective* manner. Why?
5. In what way is the Metric system superior to the English system of measurement?
6. What is the difference between *mass* and *weight*?
7. What is density and how is it calculated?
8. A boat with dimensions 20m x 10m x 15m has a total mass of 2.755 million kilograms. What is its density in grams per cubic centimeter? *Will it float?*
9. A runner completed a 5K race course in 19 minutes and 47 seconds. What was his speed in meters per second?
10. What is the scientific method?
11. A student wants to study the affect of miracle grow on the height of corn plants. What is the independent variable and what is the dependent variable?
12. What is the difference between a variable and a control?
13. What is Peer Review and why is it considered important?
14. What is a Scientific Theory?
15. What is the difference between a *quantitative* observation and a *qualitative* one?