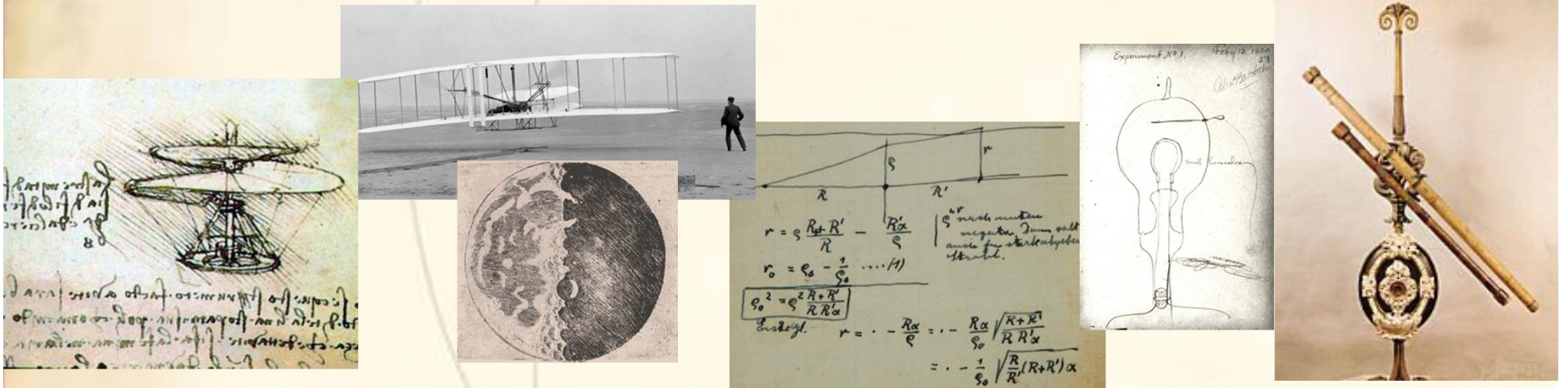




Historical Use of Notebooks in Science





Why Use a Notebook?

- ◆ Using notebooks today is based on solid evidence that successful scientists use this method of record keeping.
- ◆ Using a notebook systematically and intentionally will **increase** content knowledge and **academic success!**

Historical Uses

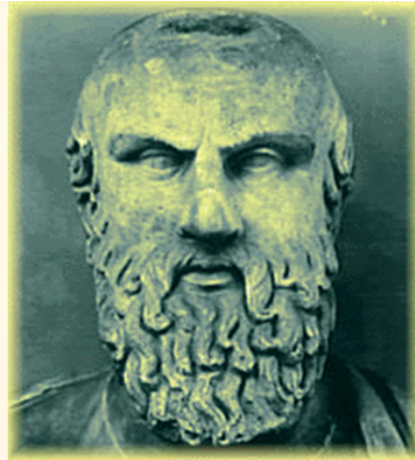
- ◆ As long as people have been investigating natural phenomena, they have been keeping records of what they observe and do.





Why?

- ◆ Keeping records allows the investigator to go back and review original thoughts or to modify thoughts based on new evidence.
- ◆ It is a convenient place to record and organize data.
- ◆ The notebook is an integral part of the investigative process.



Archimedes

287 BCE to 211 BCE

- ◆ Restoration began on a discovered “palimpsest” in 1998.

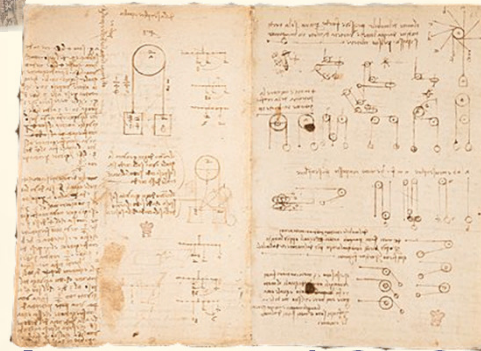


- ◆ We now know Archimedes had figured out the value for Pi; a basic idea of center of gravity; and took the first steps towards developing Calculus.

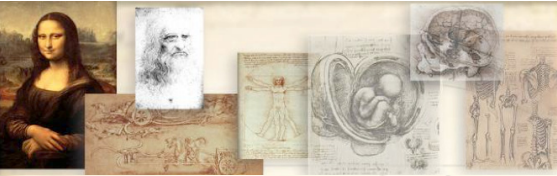


Leonardo da Vinci

1452 to 1519



- ◆ Created over 13,000 pages of detailed notes and drawings!
- ◆ His notebooks contained plans for a helicopter, calculator, ways to concentrate solar power, and a basic theory of plate tectonics.
- ◆ Advanced the science of biology through his detailed drawings.



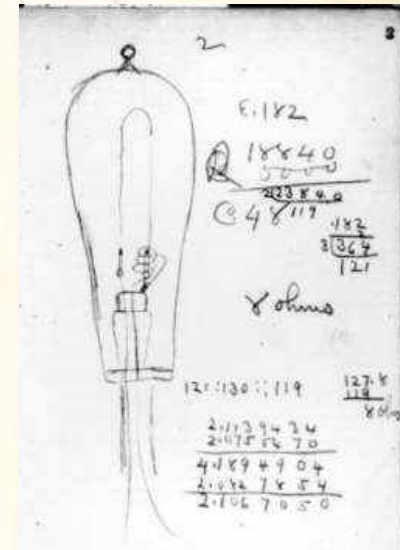
Thomas Edison

1847 to 1931

◆ Holds 1,093 US patents

- ◆ Light Bulb
- ◆ Electric power distribution
- ◆ Motion picture camera
- ◆ Phonograph

◆ “...a 'genius' is often merely a talented person who has done all of his or her homework.”





The Wright Brothers

Orville (1871-1948) Wilbur (1867-1912)

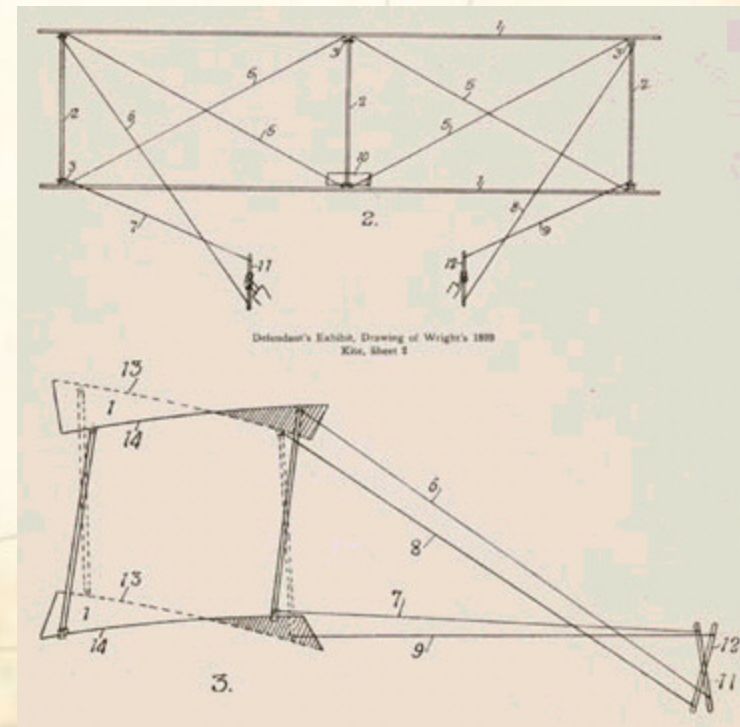
- ◆ Developed controls so that fixed-wing flight was possible.
- ◆ First successful flight in a powered airplane.

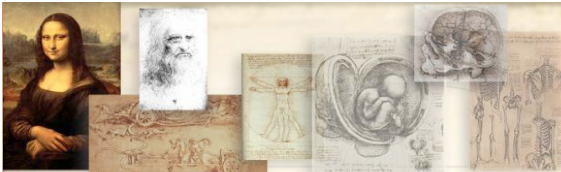
7. 16 X 9									
100	2	2 1/2	2 3/4	3 1/4	4	5	6	7	8
4	1/2	3/4	1	1 1/4	1 1/2	1 3/4	2	2 1/4	2 1/2
5	- 3/4	- 1/2	- 1/4	0	1/4	1/2	3/4	1	1 1/4
7 1/2	- 2	- 1 1/2	- 1	- 1/2	0	1/2	1	1 1/2	2
10	- 2 1/2	- 2	- 1 1/2	- 1	- 1/2	0	1/2	1	1 1/2

#1 = 16' x 9' x .01" thick. curvature .005" aft. for
 #2 = 1" with thickness just aft .045"
 #3 = 1"
 #4 = 1 1/2" + 1/4"
 #5 = Depth of curve = 1/16"

Dimensions of Posts
 □ = 6 3/4" = 9" - 6 1/2" on area 25"
 □ = 3 3/4" = 9 3/4" and 9" materials
 □ = 7 3/4" = 9 3/4"
 ○ = 2 3/4" = 10 3/4" (See table June 1903)
 ○ = 4 1/4" = 11 3/4"
 ○ = 4 3/4" = 11 3/4"
 ○ = 5" = 13 1/4"

1903

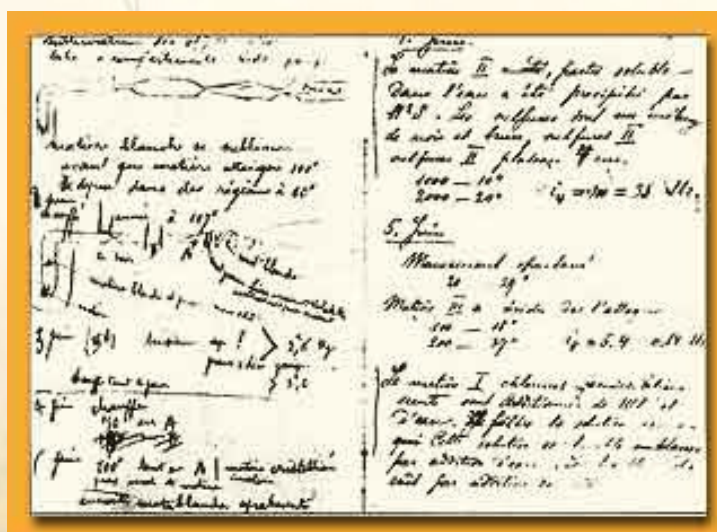




Marie Curie

1867 - 1934

- ◆ Developed a theory of radioactivity.
- ◆ Discovered two elements.
- ◆ Directed the first attempts to treat cancer with radiation.
- ◆ Won two Nobel Prizes!



Notebook Setup

please do not write in your notebooks yet!

2014-2015

Physics

Mr. Konyha

Notebook Setup Guide

ON THE FRONT COVER

- Your FIRST and LAST Name
 - Period # Physics 7011
 - Mr. Konyha

Notebook Protocol

- Use pencil or black or dark blue ink only
- Neatly place all handouts on the correct pages in the correct order
 - Occasionally, your work may not take up as much room as I've allotted in the notebook. If this happens, ***leave your unused pages blank.***
 - Your assignments **MUST** be on the pages I indicate.
 - Papers should not be sticking out of the notebook.
- The notebook is for **physics** work only.
 - No doodling, note writing or work from other classes.

②

③

Inside the Notebook

- Number **ALL** pages in the top corners
- ***Circle*** the numbers to distinguish them from data.

Rear (left) = evens

Front (right) = odds

- Inside front cover and inside rear cover don't have page #s
- Please number pages 1-10 now
- ***We will all have the same thing on the same page***

Do NOT number ahead!

- For assignments like lab reports, you don't really know how many pages you'll use.
 - Lab reports will begin on the page I assign them. The rest of the pages will have notations of a, b, c, etc.
 - Example: If the Buggy Lab starts on page 26, the rest of the Buggy Lab pages will be numbered 26a, 26b, 26c, etc.
 - Once you are finished with the report, resume regular numbering – ***keeping odd pages on the right and even pages on the left.***

Pages 1, 2, 3

Table of Contents

- Make two columns by folding the pages in half length-wise (hot-dog)
- EVERY page should have a TITLE
- The title is written in the *TOP TWO LINES* only
- EVERY page should have an entry in the Table of Contents (TOC).

Table of Contents

Table of Contents	1	_____	23
Table of Contents	2	_____	24
Table of Contents	3	_____	25
Course Outline	4	_____	26
Plan for Success	5	_____	27
Safety contract	6	_____	28
Classroom Procedures	7	_____	29
NB: Left Sides	8	_____	30
NB: Right Sides	9	_____	31
Etc...	10	Etc...	32

Page folded
in half here

**Please number 1-22 now, and
then start column 2 with 23**

Page 4

Course Outline

Unit	Activities	Resources
Unit 1: Scientific Thinking in Experimental Settings <ul style="list-style-type: none"> • Experimental Design • Data Collection • Graphing • Mathematical Modeling • Dimensional Analysis • Lab Reports 	Unit Investigations: <ul style="list-style-type: none"> • Observation <u>vs</u> Inference Lab • Baggie Lab • Pendulum Lab 	<i>Conceptual Physics</i> pp. 2- 20
Unit 2: Constant Velocity <ul style="list-style-type: none"> • Origin • Reference frame • Displacement <u>vs</u> distance • Velocity <u>vs</u> speed • Position-Time Graphs • Vectors • Motion Maps 	Unit Investigation: Buggy Lab Term 1 Project: Mousetrap Cars	<i>Conceptual Physics</i> pp. 41- 45 Terms: http://www.physicsclassroom.com/Class/1DKin/U1L1a.cfm Motion Maps: http://www.physicsclassroom.com/Class/1DKin/U1L2a.cfm Position-Time Graphs: http://www.physicsclassroom.com/Class/1DKin/U1L3a.cfm Graphing Practice: http://www.physicsclassroom.com/morehelp/graphpra/graphs.cfm
Unit 3: Uniform Acceleration <ul style="list-style-type: none"> • Instantaneous velocity • Average velocity • Velocity-Time Graphs • Acceleration-Time Graphs • Free fall • Acceleration due to gravity 	Unit Investigation: <ul style="list-style-type: none"> • Inclined Ramp Lab • Water Balloon Drop Practicum: Predict the Time	<i>Conceptual Physics</i> pp. 46- 57 Velocity-time Graphs: http://www.physicsclassroom.com/Class/1DKin/U1L4a.cfm Free Fall and Acceleration due to Gravity: http://www.physicsclassroom.com/Class/1DKin/U1L5a.cfm Kinematics Equations and Problem Solving: http://www.physicsclassroom.com/Class/1DKin/U1L6a.cfm

School: Maryvale High School
 Room: 413 Phone: (602) 764-2000

Teacher: Ms. Stobhan Sackey
 e-mail: sackey@phs.k12.az.us



Page 5

Plan for Success

Tape the second page of the PFS onto page 5 first

Then put the first page of the PFS on top and tape it down

Physics 1-2 H Plan For Success 2010-11

School: Maryvale High School
Room: 413 Phone: (602) 764-2000

Teacher: Ms. Kathleen Sackey
e-mail: sackey@peixls.k12.az.us

HOMEWORK

The problems assigned as homework in this class are designed to test to see if you really understand the concepts developed in class. It is reasonable to expect that you will often experience difficulty in setting up and solving more types of problems. It is during the discussion of the homework the following day that you and your classmates really learn the material. To be a successful contributor to your group you must attempt to do the problems. To receive credit for attempting the assignment you must at least write down the starting facts and what you are supposed to find, draw a picture of the scenario, and write down relevant formulas. Text and quiz questions will be similar to the problems you encounter in the homework. Writing clear solutions with diagrams (rather than just answers) will help you prepare for the tests. You should expect to complete most assignments on your own time and be prepared to present problems on white boards.

LABS

Labs are an essential part of this course, and tend to be of an open-ended inquiry format. Labs will be carefully planned up in the proper format. Your labs will be graded on the quality of the work, as evidenced in your notebook. The essentials of maintaining your notebook will be discussed in class. Remember, caution and common sense must be exercised during any lab activity. Many labs are graded on your accuracy and involve fragile or expensive equipment so it is important to take the labs seriously. *Flammable, irritating, or poisonous chemicals in any way during a lab will not be tolerated! Failure to act responsibly during a lab will result in being removed from the lab, a grade of D for the lab and possible administrative involvement. Students will be charged a replacement fee for any damaged equipment.*

GROUP WORK

You will work in the lab and on some assignments in 3-4 person groups. Cooperation is a necessity for success in this class. Members of your group will make oral presentations before the whole class in which you present your ideas and answer questions from your classmates. Group members may be called on randomly so every member of the group is responsible for understanding and explaining the work done. The emphasis is on the general understanding of the principles involved and how you solved the problem rather than on the answer.

TESTS & QUIZZES

Throughout a unit, quizzes may be given at any time to check for your understanding. Quizzes are often unannounced so be sure to keep up with assignments! Tests are given at the end of assignments.

EXPECTATIONS

This is a unique course in the sense that it is primarily student led through readings, explorations and peer discussions. It is therefore my expectation that you are to make 100% of the time by fully participating in all lab practices and discussions and completing all assigned work in addition to following school/classroom rules at all times and respecting all people and equipment in the room.

LATE WORK/MAKE-UP POLICIES

CLASS WORK, HOMEWORK, PROJECTS, AND LABS WRITE-UPS are due by the time the *bell rings* on the assigned day (the due date). If you are absent on a due date and the absence is excused, work must be turned in the day you returns for full credit. If an absence on a due date is unexcused, work will still be subject to a late penalty. Late or incomplete work may be completed and turned in for half-credit within three school days of the original due date.

LABS

Labs are crucial to your understanding of the concepts you will be exploring in this class and you will gain the most from them if you are prepared to conduct them with your lab partners. Any lab missed can only be made up if the lab is still set up in the room, and must be completed within two days of the assigned session.

TESTS AND QUIZZES

Tests and quizzes missed will count as a "D" grade. Quizzes and tests may only be made up on the day you return if an absence is excused. If an absence on a quiz or test day is unexcused, you will not be allowed to make it up.

Pages 6

Safety Contract

Physics Student Safety Contract

Physics is a hands-on laboratory class. At times you will perform experiments that present the possibility of injury if performed carelessly. For that reason, you must always perform your work in a safe manner. To ensure a safe laboratory, the following rules and procedures must be followed at all times. Before any student can enter the laboratory, this safety contract must be read, and the student and parent must sign the agreement.

Conduct yourself in a responsible manner at all times while in the laboratory. No eating, personal jobs, pranks, and throwing objects are dangerous to you and your classmates.

Never work alone while in the laboratory. A teacher must be present at all times.

Monitor your experiments at all times. You will be assigned a laboratory partner. Do not wander around the room, discuss other students, or interfere with the laboratory experiments of others.

Stay alert in the lab, and proceed with caution. Be aware of others near you or your equipment when you are performing an experiment. If you are conscious of how to proceed, ask.

Follow directions, both written and oral, carefully. If you do not understand a direction or procedure, ask the teacher before proceeding.

Perform only those experiments as authorized by the teacher. Never perform any unauthorized experiments for the "fun of it." Do not touch any equipment, chemicals, or other materials in the laboratory unless instructed to do so. Use only materials and equipment listed in the security equipment list as authorized by the teacher. Steps in a procedure should only be performed as described by the teacher or lab manual.

Do not eat food, drink beverages, or change in while in the laboratory area. Do not use laboratory glassware or other containers as containers for food or beverages. Care should always be taken when you are assigned tasks.

The work area should be clean and tidy at all times. Bring only your laboratory resources, worksheets, and reports to the work area. Other materials should be stored in your assigned room. Remove all equipment from and in proper working order in the proper storage room as instructed. If equipment is broken or not working properly, report the problem to the teacher.

Keep tables clean.

Do not sit or lean on laboratory counters or tables. Also keep all four legs of the chairs or stools on the floor. There is only one foot of space in the lab area so it is very easy to bump into equipment while sitting on the tables or counters.

Shells are not to be used for trash disposal. Paper towels and other solid waste shall be placed in the trash can in the classroom. Matches shall be placed in the designated metal container.

Know the location and operating procedures of all safety equipment. Listen carefully to all safety instructions.

Know what to do if there is a fire drill during a laboratory period. Close all containers and gas valves, shut off running water, and disconnect electrical equipment. Exit the room in a quick and orderly manner.

During an emergency remain quiet and orderly and follow the directions given by the teacher.

Notify the teacher of any unsafe conditions you observe.

Students are not permitted in the storage room or equipment room unless given specific permission.

OVERVIEW

Always wear safety goggles when working with chemicals, flames, heated liquids, glassware, projectiles or any substance or activity that might injure eyes.

Do lab days and wear long-sleeved shirts, dangling bracelets, bulky jewelry, and bulky or loose-fitting clothing. Long hair should be tied back. Contact, dangling items may get caught in moving parts, and loosely secured electrical connections, or interfere with the investigation in a potentially hazardous manner. In addition, chemical fumes may react with some jewelry, such as pearls, and some items. Contact clothing is preferable to wool, nylon, or polyester. Wear shoes that will protect you from chemical spills and falling objects - open-toed shoes or sandals, and shoes with worn rubber soles are not allowed in the laboratory.

ACCIDENTS AND INJURIES

Report any accident, spill, or injury to the teacher immediately, so that he or she can first aid it as soon as possible. This includes burns, sprains, bruises, cuts, and foreign material in the eye, or any other such occurrence.

Pages 7

Classroom Procedures

Room 413 Classroom Procedures

Entering the Classroom	<ol style="list-style-type: none"> 1. You will ALWAYS enter the classroom calmly and quietly. 2. Make sure all electronic devices are off and out of sight. 3. Remove your backpack water and females! 4. All gum, food and beverages, except water will be thrown away upon entering the room. 5. Sit in your assigned seat. 6. Get your notebook, pencil, and other items needed for class out of your backpack. 7. Place all other belongings under your desk (so we don't bump into them or trip.) 						
Collecting Homework	<ol style="list-style-type: none"> 1. Upon entering the classroom, place your homework in the basket on the desk. 2. Homework submitted after the tardy bell will be considered late. 						
Starting Class	<ol style="list-style-type: none"> 1. Class starts WHEN the tardy bell rings. 2. Silently, begin bell work. 3. If you are tardy, enter the room quietly and sign the tardy sheet clipboard. If you have a pass, leave it on the tardy clipboard. I will speak with you after class if necessary. 						
Warm-Up	<ol style="list-style-type: none"> 1. Work on the assigned bell work, at your seat, quietly. 2. Be sure to copy the questions directly from the board. 3. Write your bell work answers in complete sentences. 4. If you are ABSENT or miss class, YOU are responsible for getting the bell work for those dates from a classmate. 						
Stamping Work	<ol style="list-style-type: none"> 1. I will check your homework while you are working on the bell work. 2. You will receive two stamps (full credit) for assignments that are complete with thoughtful, reasonable answers. You are still expected to correct any wrong answers when we review the assignment in class. 3. You will receive one stamp (half credit) in the right-hand corner if any part of the assignment is complete or has a sensible answer. You may finish the assignment during the class discussion to receive up to 75% of your missing points back (for a possible total of 75% of the total points). 4. Some assignments (such as late assignments) are not eligible to make up points on. You will receive one stamp (half credit) in the left-hand corner of these assignments. While you should still correct any wrong answers, you will not receive additional points for it. 						
Paper Reading	<ol style="list-style-type: none"> 1. Always PRINT in the upper right hand corner 2. ALWAYS put your name on the paper (a subtraction of one point if it is not there) 3. It will go as follows: <table style="margin-left: 40px; border: none;"> <tr> <td>Name</td> <td>Juan Valdez</td> </tr> <tr> <td>Hour</td> <td>3rd</td> </tr> <tr> <td>Due Date</td> <td>2-4-2010</td> </tr> </table> 	Name	Juan Valdez	Hour	3 rd	Due Date	2-4-2010
Name	Juan Valdez						
Hour	3 rd						
Due Date	2-4-2010						
Passing to Papers	<ol style="list-style-type: none"> 1. Pass papers to the front and then to your right (the side closest to the door.) 2. The person in the front of the row closest to the door will put the papers in the basket on the desk. 3. If there are multiple pages to hand us, group the different pages separately (i.e. all the signature forms together and then all questions together) 						
Getting your Attention	<ol style="list-style-type: none"> 1. I will usually call for your attention by saying something like, "Ladies and gentlemen..." 2. You have 3 seconds to stop what you are doing, stop talking, and face towards me. 3. If anybody is not quietly facing me after 3 seconds, I will start the stopwatch. "Every second wasted in class will hold you past the bell." 						