

Science Department Summer Assignments 2009

- Each student will complete **one** assignment and hand it into their Science teacher in September.
- Choose the assignment for the science course you will be taking in September 2009.
- Summer Assignments count for **15 % of term 1 grade**

Grading

- It is due the first day of first week of academics for full credit.
- **Due 9/8/09 A weeks and 9/21/09 B weeks**
- 50% after first day, for the rest of term 1

Incentive

If handed in on day 1 (**9/2/09**) for **A weeks** or day 2 (**9/3/09**) for **B weeks** there will be a +10 added to your grade

Bibliography/Sources must follow this format for credit

(No credit given if not in this format)

- Internet: Title of Article, author(s) if known, and web address.
- Book: Title, Author(s), publishing company, copyright date

Biology (Choose 1)

#1 Environmental Impact

XYZ Corporation has proposed building a 150 acre theme park on the site of the old Fall River Municipal Airport. The park itself will be 100 acres and 50 acres will be used for parking and administration of the park. The project will bring needed jobs to the area and tourism dollars. Assume that there are 150 acres available to develop at the site of the former airport. There are negatives to this proposal, however. The Environmental Protection Agency is concerned about the environmental impact such a project would cause. Your firm has been hired to do an environmental impact study of the area and make recommendations.

Things you need to address include, but are not limited to:

1. Wildlife in the area (list of common names)
2. Impact to the wildlife in the area
3. Impact to the municipal water supply (North Watuppa Pond)
4. Impact to waste treatment (sewage)
5. Increase in solid waste (trash)
6. Increase in pollution due to vehicular traffic

7. Increase in light and noise pollution
8. How the landfill will affect the park

Your report needs the following parts:

1. Cover page listing the title of your report, your name and your student ID number
2. Your report with all the subjects above addressed
3. A map of the area (can be hand drawn)
4. A summary of the environmental impact of the proposed project
5. References

Rubric for Environmental Impact Summer Project

_____	10 points	Cover page listing the title of your report, your name and your student ID number
_____	40 points (5 points each)	Your report with all the subjects addressed
_____	20 points	A map of the area (can be hand drawn)
_____	20 points	A summary of the environmental impact of the proposed project
_____	10 points	References
_____		Total points

2 Travel Brochure of the Human Body Systems

Your staff at Intestinal Excretions Corp. have been hired as travel consultants for a company called Sphincters R' Us who are planning to design luxury tours of the human body systems*. Before your company is offered a contract and paid their large commission you must develop a brochure and sales pitch for their tours. The owner of the company Sphincters R' Us wishes you to highlight the hot spots to hang out and the exciting activities to participate in at each location. Of course, for liability reasons you must inform the customers of any possible hazards or dangers associated with a particular system.

Directions:

1. **A large poster board should be divided into 3 sections (like a large brochure). You can use a tri-fold poster board or simply fold a large poster board into 3 sections.**

2. In each section you may use drawings, photographs or computer illustrations of each system's key features.
3. Also, in each section should be a description of the system's hot spots to visit during your trip and any possible dangers associated with a trip to that location.

*Systems to be covered:

Digestive, nervous, respiratory, circulatory, excretory and endocrine.

Key points to be covered for each system:

- A. Describe the function of each system
- B. List the parts (organs/structures) involved in the system
- C. What is exciting about this system? Why would tourists want to visit?

Grading Rubric:

Poster board brochure	40 points
Photos/illustrations for each system (5 points each)	30 points
Key points of each system as described above (5 pts each)	30 points

3 Swine Flu studying a pandemic: Get the Facts

Task:

Create an informational flyer/brochure/power point presentation about the Flu. Describe what the flu is and the status of the current flu outbreak. Should people be worried and scared or is this just another flu outbreak like the ones we get every year.

Things to include:.....80 points

- Where did the swine flu virus originate?
 - From what animals
- What is a pandemic
 - Countries affected by swine flu
 - Show on map
- What is a virus
 - Is a virus a cell, why or why not?
 - What are the characteristics of life and a cell?
 - Picture of animal cell and picture of virus labeled
- How are people infected?
- Recommendations of the government?
- Should people be worried?
 - History of Flu epidemics

- What precautions should people take?
- Who is more susceptible to this disease?
 - Symptoms of the flu

Sources: no search engines (google, wikipedia, etc.)

4 references correctly cited.....10 points

Visual appeal (color, neatness, etc.).....10 points

TOTAL:.....100 pts....._____

4 Endocrinology Research Summer Assignment

The endocrine system includes many glands (pituitary gland, thyroid gland, parathyroid gland, adrenal glands, and thymus glands). The glands secrete hormones into the bloodstream or the fluid around cells.

Research one of the above glands. Find the following information:

1. Location of gland (descriptive and picture)
2. Hormone(s) secreted by the gland
3. Effects of the secreted hormones
4. The name and description of at least 3 diseases/disorders of the gland

Assignment: Create an informational brochure for the gland that you researched. It should include all the information from above.

Additionally, your brochure:

1. must be typed
2. must include a picture of the human body showing the location of the gland (computer added or traditional cut & paste)
3. must include a list of 3 website addresses where you found your information on the back of the brochure
4. must have a professional appearance

Grading Rubric

	3	2	1	0
Gland Information	All gland information is accurate	Most gland information is accurate	Some gland information is accurate	None of the gland information is accurate
Diseases/disorders of the gland	Includes correct information on all 3 diseases/disorders of the gland	Includes correct information on 2 diseases/disorders of the gland	Includes correct information on 1 diseases/disorders of the gland	Does not include any information on the diseases/disorders of the gland
Has a human body picture for location, is typed, and looks professional	All 3 requirements have been met	Only 2 requirements have been met	Only 1 requirement has been met	None of the requirements have been met
Resources	3 websites are listed on the back of the brochure	2 websites are listed on the back of the brochure	1 website is listed on the back of the brochure	0 websites are listed on the back of the brochure

Marine Biology

Threatened and Endangered Species

Research a threatened or endangered species that lives in the ocean. A good place to start is this website <http://www.marinebio.org/Oceans/ThreatenedEndangeredSpecies.asp>.

Start a campaign to bring this species off of the threatened or endangered list. In your campaign you should include.

1. Questions to consider (DO NOT hand in questions and answers) while conducting research (internet pages should be printed and book pages should be photocopied to be handed in with your project)
 - a. What are the criteria for being threatened and endangered?
 - b. What is the known cause for the decline in population numbers?
 - c. What can be done to reverse these causes?
 - d. How specifically can **teenagers** get involved?
2. A Brochure for informing **teens** about the problem and possible solutions. (Hint: You see tri-fold brochures in doctor's offices and in museums to give you information.)
 - a. This should be in color.
 - b. The brochure should be **NO LARGER** than 12" X 12"
 - c. Citations need to be on the front of the flyer
 - d. The flyer should contain problems and solutions to those problems (as stated by the questions above)
3. Write a letter to the local legislator where this organism is currently living demanding change to save this organism. (Hint: A Legislator is a person who holds public office.)

Rubric for Summer Assignment (Hand this in with your project)

Criteria	Possible Points	Earned Points
Internet research pages are printed and handed in and/or book research is photocopied and hard copies are handed in.	10	
Student got information from 3 different sources.	10	
Student created a brochure and not another product.	10	
Brochure is in color and has information about causes, and solutions of the threatened or endangered species.	20	
The Brochure is attractive to teens.	5	
The brochure is not larger than 8.5" X 11" open.	5	
Sources are cited on the brochure.	10	
Letter is to appropriate legislator (Hint: A legislator is a person who can change laws). Letter describes the problems that cause the species to be endangered. Letter describes a specific change that is known to increase the population of the endangered or threatened species. The letter is typed in business letter format and is grammatically correct.	30	

Anatomy & Physiology I - for Health Career/Dental students Juniors Only

Choose one of the following

1. The Brain

The left and right sides of the brain are responsible for different activities. Research how the brain works. Create a brochure on the different things each side of the brain is responsible for. Include at least two brain disorders or diseases in the brochure. Treatments of the diseases should also be included. Citations should be on the back of the brochure. This should be a tri fold brochure either done on the computer or by hand. Illustrations should be included.

Use at least 3 resources.

2. The Skin

Research the organ the skin. Create a brochure on the functions and structures of the skin. Include at least two skin disorders or diseases in the brochure. Treatments of the diseases should also be included. Citations should be on the back of the brochure. This should be a tri fold brochure either done on the computer or by hand. Illustrations should be included.

Use at least 3 resources.

Absolutely No plagiarizing.....Must be in your own words.

Note: Bibliography is in the format that the Science Department is using. This is stated at the beginning of the Science Department Summer Assignment

Rubric

_____ Information about the brain or skin (15 pts)

_____ Disease 1 (10 pts)

_____ Treatments 1 (15 pts)

_____ Disease 2 (10 pts)

_____ Treatment 2 (15 pts)

_____ Illustrations with labels or headings (10 pts, 5 w/out labels/headings)

_____ Tri-fold style (5pts)

_____ Neat in appearance (5 pts)

_____ 3 Resources used listed on back of brochure (15 pts)

no credit if incorrect format

Total _____

Chemistry I (Choose one)

Research and write a report (minimum of 3 pages of content and 3 resources/citations) on the life of and contributions to science made by members of the Curie family (Marie, Pierre, Irene).

Research and write a report (minimum of 3 pages of content and 3 resources/citations) on the pseudo-science of alchemy. Describe the discoveries of alchemists and the chemical techniques they developed and used.

Research and write a report (minimum of 3 pages of content and 3 resources/citations) on the discovery and use of superconductivity.

Chemistry II (Choose one)

Research safety tips dealing with fires. Write a report (minimum of 2 pages of content and 3 resources/citations) and create a poster or brochure about fire safety in which you explain both these tips and their basis in science.

or

Research and write a report (minimum of 3 pages of content and 3 resources/citations) on the environmental threats made by the organic compound dimethyl mercury. Research how this compound affects living things. Identify locations where this compound has caused harm.

or

Research and write a report (minimum of 3 pages of content and 3 resources/citations) on nature's nuclear reactor in Oklo, Gabon.

Rubric:	Report & Poster/Brochure Projects		
	Report 2 full pages	x 25% each	=50%
	Citations 3	x 3.33% each	=10%
	Poster/Brochure	x 40%	=40%
	Report Project		
	Report 3 full pages	x 30% each	=90%
	Citations 3	x 3.33% each	=10%

PHYSICS I and II

Research one of the following topics and write a three (3) page report. The report will be 3 pages both sides HANDWRITTEN. It will include a minimum of two (2) sources that will be listed in the bibliography at the end of the report. The last page of the report shall include a summary paragraph of your opinions on the information in the report. Any diagrams and drawings will be extra.

TOPICS TO CHOOSE FROM

- 1) How is electricity generated? A 3 page report as outlined above or you can make a model of an electric power plant. Clearly identify the major components and include a 1 ½ page report on how it works. Clearly identify all resources at end of report. Report will be HANDWRITTEN.
- 2) Pros and Cons of using Fossil Fuels. Identify each fossil fuel and discuss the advantages and disadvantages (Pros and Cons) of each.
- 3) Identify and discuss 3 alternative energy sources available to use to replace and/or reduce our dependence on fossil fuels. What are their Pros and Cons.
- 4) How do nuclear power plants work? What are their pros and cons.

RUBICK: REPORTS

Report (3 pages):	80%.
Citations (2):	10%
Summary Paragraph:	10%

**Alternate for Topic 1 (Electric power plant)

Report (1 ½ pages):	40 %
Model:	40%
Summary:	10%
Citations:	10%

Astronomy

For this summer assignment, you must pick a space mission from the list below. You will then have to research this mission and create a poster about the mission that you have picked. Your poster should include background information (manned or unmanned, dates, etc.), purpose/objectives of mission, discoveries, pictures, and at least two (2) sources (properly cited). It is important that you take the time to do a good job on this as presentation and neatness will be a portion of the grade. Feel free to email me, lmurphy@dimanregional.org, if you have any questions

Your grade will be based on the following:

Background information – 20 points

Purposes/Objectives – 20 points

Discoveries – 20 points

Pictures – 20 points

At least two sources – 10 points

Sources cited correctly (author, title, book/website, publication date/date accessed) – 10 points

ACE

AIM

Apollo

Aqua

Aquarius

ARCTAS

Ares

ASTRO-1

ASTRO-2

Aura

CALIPSO

Cassini

CHAMP

Chandra

Clementine

Cloudsat

Compton Gamma-Ray Observatory

Constellation

Constellation Program

Cosmic Background Explorer (COBE)

Dawn

Deep Impact

Earth Radiation Budget Satellite

EPOXI

Exploration Plans

Explorer

Extreme Ultraviolet Explorer

FAST

FUSE

GALEX

Galileo

Gemini

Genesis
Geotail
GLAST
GOES
Gravity Probe-B
Gravity Recovery and Climate Experiment
HETE-2
Hinode (Solar-b)
Hubble
IBEX
ICESat
IMAGE
International Space Station
James Webb Space Telescope
Jason
Kepler
LAGEOS 1 and 2
Landsat 7
LCROSS
LRO (Lunar Reconnaissance Orbiter)
Magellan
Mars Exploration Rover
Mars Global Surveyor
Mars Odyssey
Mars Pathfinder
Mars Reconnaissance Orbiter
Mars Science Laboratory
Mercury
MESSENGER
Moon Mineralogy Mapper
Near Earth Asteroid Rendezvous (NEAR)
New Horizons
NMP EO-1
NOAA-N
NPP
Ocean Surface Topography Mission
Orbiting Carbon Observatory
Orion
Phoenix
Pioneer
POES
Polar
QuikSCAT
Ranger
RHESSI
Roentgen Satellite (ROSAT)
RXTE
SDO
Shuttle Radar Topography Mission
Skylab
SOFIA
SOHO
Solar Anomalous and Magnetospheric Particle Explorer (SAMPEX)
Solar Radiation and Climate Experiment
SORCE
Space Shuttle

Spitzer
Stardust
STEREO
Submillimeter Wave Astronomy Satellite (SWAS)
Surveyor
SWIFT
Terra
THEMIS
TIMED
TOMS-EP
TOPEX/Poseidon
TRACE
Tropical Rainfall Measuring Mission
Ulysses
Upper Atmosphere Radiation Satellite (UARS)
Viking
Voyager
Wide-Field Infrared Explorer
WIND
WISE