



# Science 8, 2009

<u>COURSE TITLE:</u>	Science 8
<u>SECTION:</u>	E block
<u>TOPICS:</u>	Mechanical systems; hydraulics & pressure; light & optics, kinetic theory
<u>TIME:</u>	Monday (2:05-3:05) Wednesday (10:40-11:50) Thursday (8:10-9:20)
<u>TEACHER:</u>	Mr. Jay Reimer
<u>LABORATORY:</u>	rm. 309
<u>TELEPHONE:</u>	GSIS main number: 031-695-2800 (open 8:00 am - 5:00 pm) Classroom: 031-695-2860 (please phone between 3:30 - 4:30 pm)
<u>EMAIL:</u>	reimerj@gsis.sc.kr

### TEXTS, BOOKS, MATERIALS

This class does not have a specific textbook that will be used every day. Instead, the objectives will be provided at the beginning of each unit, and daily lessons, lectures and exercises will provide information and opportunity for students to develop competency in meeting the objectives. The absence of a textbook means that it is very important students come equipped to learn and participate each day. Each student should bring the following materials to class EVERY day:

- a. Pencil and eraser and blue or black ink pen.
- b. Loose lined paper, A4 size (for handing in assignments) AND notebook (for taking notes)
- c. Planner for recording assignments
- d. Calculator
- e. Scissors
- f. Protractor
- g. Ruler (marked in cm and mm) at least 10 cm in length
- h. Textbook or photocopies of chapter (when this is provided by the teacher).
- i. Functional laptop and charger ("functional" means wireless works too)
- j. Completed assignment(s).

### COURSE DESCRIPTION:

In the second semester, students in science 8 will investigate mechanical systems, hydraulics, kinetic theory and light and optics in approximately this order. Emphasis in the course will be on possessing and articulating correct conceptual understanding (especially by writing), performing required calculations and measurements, and building models as a way of demonstrating understanding. Details of learning units can be found below in this syllabus.

## UNITS & OBJECTIVES

### **Mechanical Systems (Jan. 12 - Feb 13)**

Student will...

- explain, describe and calculate the difference between torque and work
- describe simple machines (levers, pulleys, ramps) as systems and identify the parts of the machines
- correctly identify inputs and outputs of the system (effort, resistance, etc.)
- measure forces and distances accurately with correct significant figures
- successfully plan, design, construct and perform assigned summative project

Summative assessment: Design and build a trebuchet or catapult. Check with your teacher for specifications on this project.

### **Fluid Systems (Feb. 16 - Mar. 20)**

Fluid Systems will be an overview of buoyancy (floating) and pressure in fluids (including gases) with an emphasis on calculation (forces, masses, volumes) systems perspective (input/output), efficiency (percent of force of input that goes into moving resistance) and design and construction (see summative described below).

One summative assessment for this unit will be to design and build a Rube Goldberg machine that incorporates simple machines and hydraulics to achieve the assigned goal. Check back here for specifications on this project.

### **Kinetic Theory (Mar. 23 - May 1)**

Kinetic Theory will be an overview of "particle theory of matter." Goals will include with an emphasis on calculation (heat transfer and temperature), systems perspective (input/output), and applying kinetic theory principles to interpretation of systems (ie. heat transfer systems) and designing systems for heat transfer (see summative described below).

One summative assessment for this unit will be to design and build a hot air balloon, or a heat machine or a house model which illustrates heat transfer systems. Check back here for specifications on this project.

### **Light & Optics (May. 4 - May 29)**

Light and Optics will be an overview of the nature of light and how light is reflected and refracted by mirrors and lenses. Learning will have an emphasis on calculation, systems perspective (input/output) and design and construction.

One summative assessment for this unit will (possibly) be to design and build a light maze in which students must arrange lenses and mirrors to meet specific requirements when a laser is shone through. Check back here for specifications on this project.

## ASSESSMENT:

The grade in Science 8 will be calculated from 0 % formative and 100% summative

**Late Work:** Submitting assignments on time is always part of the required performance of every student on every assigned task. For this reason, when a student does not hand in an assignment they will be asked to come in after school on the nearest future Tuesday or Thursday. In the classroom after school they will complete the assignment and submit it for grading. The teacher will grade whatever the student produces at that time and within that time frame. Students failing to hand in an assignment are responsible to organize transportation for their return home after their detention.

**Please note that late work can never earn an A or B. Lateness in itself demonstrates the product does not meet the highest level of performance. The highest possible grade for any assignment which is handed in after the due date and due time is a C+.**

When a student does not hand in an assignment on time, this information will be recorded in the record. In addition, assignments that do not conform to the requirements and are recorded as "missing" will be considered "late work." The teacher is responsible for maintaining accurate records (and will make changes accordingly) and the student is responsible for following instructions (and should make changes accordingly).

When you want a late assignment graded or an assignment has been overlooked, please record your request in writing on the paper in the classroom which I will show you in class.

<b>GSIS grade scale:</b>		A+≥	99%
	99%	> A ≥	96%
	96%	> A- ≥	94%
	94%	> B+ ≥	91%
	91%	> B ≥	88%
	88%	> B- ≥	86%
	86%	> C+≥	83%
	83%	> C ≥	79%
	79%	> C- ≥	76%
	76%	> D+≥	74%
	74%	> D ≥	70%
	70%	> F	

**Documentation:** *Formative* assessment tasks are designed for learning and students are encouraged to complete them in order to learn and practice for success on summative assessments. Formative assessments may include worksheets, Google Docs, presentations, drawings and diagrams, etc.

*Summative* assessments may include paper tests, constructed models/projects (like the trebuchet), writing assignments, reading summaries, lab reports, graphs, quizzes, etc.

#### SUBMITTING ASSIGNMENTS:

**Paper assignments:** Assignments done on paper will be collected at the beginning of class by the teacher. The teacher will announce when they are collecting assignments and will state when receiving assignments is closed and all assignments after receiving is closed are considered late (even if "almost on time...")

It is a requirement that all students follow these instructions:

1. Write in the upper right hand corner of each page of your assignment:  
**Student number:** [each student in a class will receive a unique identifying number to improve organization of data]  
**Name:**  
**Date:**  
**Book:**
2. Assignment must be on loose A4 paper, unless otherwise determined by your teacher.
3. Be handed in when requested by the teacher. Assignments handed in after the teacher collects them are considered "late" even if they are handed in during the same period.
4. Write in dark blue or black ink for and HB (or softer) pencil. Graphing should always be done in pencil.
5. Have a single line through typographical errors that you want the teacher to consider omitted; do NOT use any correction fluid or whiteout tape.
6. Use a full line spacing for each letter (for example, the bottom of a capital G should touch the bottom line and the top of the G should touch the line above the letter.)
7. Have at least 2 cm space on left and right of the paper (or use the margin lines printed on the paper).
8. Assignments not meeting these guidelines are "late" or may not be graded.

**Electronic assignments:** Assignments handed in electronically, ie. not on physical paper, must follow the following guidelines exactly in every case. Not following these instructions is the reason for assignments recorded as "missing."

1. Make your Google Doc from your school address: <[name@gsiscommunity.kr](mailto:name@gsiscommunity.kr)> and not a personal address. Only assignments done from correct school addresses will be accepted.
2. Name your assignment using the pattern: block\_assignment specific name\_student number\_student name, as in: D\_Precipitation\_7\_Brenda
3. Save your assignment in Google Docs (as word processing, spreadsheet, etc.)
4. Share your assignment with Mr. Reimer as collaborator, using his address: [reimerj@gsis.sc.kr](mailto:reimerj@gsis.sc.kr)

#### EMAILING THE TEACHER

Mr. Reimer welcomes your email, but please put your name, block and assignment name (if present) in the subject line of your email. I cannot help you if I do not remember which class you are in or I do not know which assignment your question is regarding.

#### TARDY

You must be in your seat when the tardy bell rings or you will be counted "late." Three tardies means after school detention with Mr. Reimer during which you must RUN on the soccer field. Bring your running shoes regardless the weather. Running detentions usually occur on Friday so you will have to arrange your own transportation home.

5. When given permission to re-do an assignment you must always:
  - a) Hand in the new version stapled to the top of the original assignment, or make a NEW Google Doc for the original assignment so that the teacher can compare the original document to the "new" one.

#### BEHAVIOR

I assume every student is here to learn and do not doubt that you are capable, eager and ready. However, it is a requirement that I make rules for class. The rules in this class are:

1. **Respect Everyone**
  - a. Always listen to teaching and teacher instructions
  - b. When the teacher is talking, you should NOT be.
  - c. Be constructive in everything you say to others.
  - d. Behavior that prevents others' learning will receive immediate attention
2. **Act Safely**
  - a. Follow safety guidelines
  - b. Do not intentionally harm anyone
  - c. Students working unsafely may be required to do labs independently, after school hours and complete additional assignments in class time.
3. **Perform Well**
  - a. Everything you do is a reflection on yourself; be excellent!
  - b. Do your own work all the time
  - c. Help others learn but do not hinder their learning by providing answers to them.

GSIS Integrated Science 8

Student Name: \_\_\_\_\_

Block: E

Mr. Reimer,

I have read and I understand the course expectations for Mr. Reimer's Science 8 class.

Student (print) \_\_\_\_\_

Student (sign) \_\_\_\_\_

Date: \_\_\_\_\_

Parent (print) \_\_\_\_\_

Parent (sign) \_\_\_\_\_

Parent mobile phone: \_\_\_\_\_

Parent email: \_\_\_\_\_@\_\_\_\_\_

Date: \_\_\_\_\_

Please make any comments or ask any questions below.

Thank you,

Jay Reimer

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GSIS: 031-695-2800

Class: 031-695-2860 (feel free to call 4 - 5 pm)