

8th GRADE SCIENCE STUDENT INFO
WELCOME TO SCIENCE!

The next 36 weeks will be exciting! You will be learning about Chemistry, Physics, Earth & Space Science, Engineering and Sex Education. Plus we will spend some time on science fiction of yesterday (which in some cases is now science-fact!) and the science fiction of tomorrow! We will be working with chemicals, building roller coasters, burning things, building things, working with GPS technology... why we may even blow up a few things just for some Physics fun!! We will be busy, but I think you'll have fun and will enjoy learning!

You will be working with a Holt Physical Science AND some other texts. **LEAVE THESE BOOKS AT HOME!**

I will have a class set if we need to use them. You will also be working, a lot, from my web page. This will serve as another reading source. Any additional books, I will have in class and available for daily check out. You will be doing a lot of work ON LINE with my web page. Be sure to familiarize yourself with my page.

(please note there is NO www.) <http://mrsgillumscience.com> Please contact me if computer time is a problem.

I send weekly e-mails on Friday night/Saturday morning (by noon). Please be sure to check your e-mail DAILY to see if I have sent additional information. All e-mails will be sent prior to 8pm.

For class you will need a small 3 ring binder/folder (that has pockets plus 20 sheets of paper), or space in your "all class binder" and a pencil. **You will need to BRING ALL YOUR SCIENCE CLASS WORK EVERY DAY!**

Every Monday, be sure you have notebook paper and a pencil for the week. You will never need more than 20 sheets for the week. Failure to bring your science notebook/folder OR a pencil to class will result in a loss of 5 points each time.

Your folder will hold your syllabus, class lecture notes, labs & video notes. It needs to be kept neat, and in order. When we are done with a unit, you will staple/paperclip the pages together and turn it in. This is what will be graded. I will collect ALL your work for each unit at one time. These dates are noted on your syllabus by "Notebook turn in dates". Please assemble your work in the order of the cover sheet. Notebooks that have work out of order lose 25 points.

I do not want to have to search for your completed assignments.

You will receive a 3-4 week syllabus that states on a daily basis, class work, labs, videos, homework, review and tests dates. **LATE WORK IS UNACCEPTABLE!!** If you are absent, you are expected to see me the **FIRST DAY** you return, even if this is a **NON CLASS** day. You are welcome before school or during lunch.

All "sick day work" must be turned in before the end of the first day that you return or it will be marked LATE.

Please plan ahead and complete all work ON TIME!!! Work/assignments/tests will not be a surprise for you... please don't ask for extensions! I know you are juggling your life and your school work. Stay on top of your syllabus so you don't become overwhelmed! Notebooks/projects earn up to 50% if under 3 days late and 0% after 3 days

All late work the second semester will receive a zero.

All units will have "Little Books" to complete with chapter reading assignments. These "little books" will be used as "cheat sheet" for your final exam, so be sure they are well done and complete.

A successful scientist is extremely well organized! I believe this will be a wonderful year for your success in science!

If your parents have any questions,

My voice mail number is: 549-8840: x1260 (this is my class room number...but e-mail is best!)

My e-mail address is: MrsG9064@aol.com or egillum@sandi.net

My Web Page is: <http://mrsgillumscience.com> click on "8th grade science" in the top left hand side.

Good luck and welcome!!

Mrs. "G" Gillum

8th Grade CA State Science Standards:**Investigation & Experimentation: Week1-Week 3**

Scientific progress is made by asking meaningful questions and conducting careful investigations.

As a basis for understanding this concept and addressing the content in the other three strands, students should develop their own questions and perform investigations. Students will:

1. Plan and conduct a scientific investigation to test a hypothesis.
2. Evaluate the accuracy and reproducibility of data.
3. Distinguish between variable and controlled parameters in a test.
4. Recognize the slope of the linear graph as the constant in the relationship $y=kx$ and apply this principle in interpreting graphs constructed from data.
5. Construct appropriate graphs from data and develop quantitative statements about the relationships between variables.
6. Apply simple mathematic relationships to determine a missing quantity in a mathematic expression, given the two remaining terms (including speed = distance/time, density = mass/volume, force = pressure \times area, volume = area \times height).
7. Distinguish between linear and nonlinear relationships on a graph of data

Chemistry: Structure of Matter:

Each of the more than 100 elements of matter has distinct properties and a distinct atomic structure. All forms of matter are composed of one or more of the elements. As a basis for understanding this concept:

1. Students know the structure of the atom and know it is composed of protons, neutrons, and electrons.
2. Students know that compounds are formed by combining two or more different elements and that compounds have properties that are different from their constituent elements.
3. Students know atoms and molecules form solids by building up repeating patterns, such as the crystal structure of NaCl or long-chain polymers.
4. Students know the states of matter (solid, liquid, gas) depend on molecular motion.
5. Students know that in solids the atoms are closely locked in position and can only vibrate; in liquids the atoms and molecules are more loosely connected and can collide with and move past one another; and in gases the atoms and molecules are free to move independently, colliding frequently.
6. Students know how to use the periodic table to identify elements in simple compounds.

The Periodic Table:

The organization of the periodic table is based on the properties of the elements and reflects the structure of atoms.

1. Students know how to identify regions corresponding to metals, nonmetals, and inert gases.
2. Students know each element has a specific number of protons in the nucleus (the atomic number) and each isotope of the element has a different but specific number of neutrons in the nucleus.
3. Students know substances can be classified by their properties, including their melting temperature, density, hardness, and thermal and electrical conductivity

Chemical Reactions

Chemical reactions are processes in which atoms are rearranged into different combinations of molecules.

1. Students know: Reactant atoms and molecules interact to form products with different chemical properties.
2. Students know: The idea of atoms explains the conservation of matter: In chemical reactions the number of atoms stays the same no matter how they are arranged, so their total mass stays the same.
3. Students know: Chemical reactions usually liberate heat or absorb heat.
4. Students know: Physical processes include freezing and boiling, in which a material changes form with no chemical reaction.
5. Students know how to determine whether a solution is acidic, basic, or neutral

8th Grade CA State Science Standards:**Chemistry of Living Systems/Organic Chemistry (Life Sciences)**

Principles of chemistry underlie the functioning of biological systems. As a basis for understanding this concept:

- a. Students know that carbon, because of its ability to combine in many ways with itself and other elements, has a central role in the chemistry of living organisms.
- b. Students know that living organisms are made of molecules consisting largely of carbon, hydrogen, nitrogen, oxygen, phosphorus, and sulfur.
- c. Students know that living organisms have many different kinds of molecules, including small ones, such as water and salt, and very large ones, such as carbohydrates, fats, proteins, and DNA.

Physics: Forces & Motion: Kinetic/Potential/Wave Energy Motion (Flying Car Competition)

The velocity of an object is the rate of change of its position.

As a basis for understanding this concept, students know:

- a. position is defined relative to some choice of standard reference point and a set of reference directions.
- b. average speed is the total distance traveled divided by the total time elapsed. The speed of an object along the path traveled can vary.
- c. how to solve problems involving distance, time, and average speed.
- d. to describe the velocity of an object one must specify both direction and speed.
- e. changes in velocity can be changes in speed, direction, or both.
- f. how to interpret graphs of position versus time and speed versus time for motion in a single direction.

Forces

Unbalanced forces cause changes in velocity. Students know:

- a. a force has both direction and magnitude.
- b. when an object is subject to two or more forces at once, the effect is the cumulative effect of all the forces.
- c. when the forces on an object are balanced, the motion of the object does not change.
- d. how to identify separately two or more forces acting on a single static object, including gravity, elastic forces due to tension or compression in matter, and friction.
- e. when the forces on an object are unbalanced the object will change its motion (that is, it will speed up, slow down, or change direction).
- f. the greater the mass of an object the more force is needed to achieve the same change in motion.
- g. the role of gravity in forming and maintaining planets, stars and the solar system.

Earth in the Solar System (Earth Sciences):

The structure and composition of the universe can be learned from studying stars and galaxies and their evolution..

- a. Galaxies are clusters of billions of stars and may have different shapes.
- b. The Sun is one of many stars in the Milky Way galaxy and that stars may differ in size, temperature, and color.
- c. Know how to use astronomical units and light years as measures of distances between the Sun, stars, and Earth.
- d. Stars are the source of light for all bright objects in outer space and that the Moon and planets shine by reflected sunlight, not by their own light.
- e. Know the appearance, general composition, relative position and size, and motion of objects in the solar system, including planets, planetary satellites, comets, and asteroids.

In addition:**Sustaining Local and Global Biodiversity****Life's Unity and Diversity, Engineering****Transforming Energy / Junior Solar Car Sprint****Life Skills & Sex Ed**

We will be integrating NGSS (Next Generation Science Standards)