**ELECTRICITY REVIEW**

What is the electrostatic series?

Explain what would happen to the electrons if a piece of gold was rubbed on silk.

Explain the distribution of charges during the buildup and release of lightning from a cloud into a building or lightning rod.

Draw a circuit diagram of three 1.5V cells connected in series to two 3.0A bulbs connected in parallel.

- What is the resistance through bulb #1?
- What is the electricity consumed by the circuit if it is left on for 1.5 hours?
- How much would it cost to run this circuit if the batteries require $3/w hr to recharge?

Explain how energy changes form as falling water is used to produce electricity.
**SPACE REVIEW**

What is the difference between an asteroid and a meteoroid and a comet?

What property does Mercury have that allowed it to keep its status as a planet but that Pluto did NOT have?

Use a diagram to explain the difference between a solar eclipse and a lunar eclipse.

Using the Earth and the moon as an example, explain the difference between rotation and revolution. How do these movements combine to create interesting “days” on the moon and on Mercury (i.e., how long is a day on each of these bodies)?

Altitude and Azimuth are both coordinates used to locate objects in the sky. What is the difference between them?

Astronomers are observing a star that is 270 billion km away. How far is this in light years?

If we wanted to explore a planet around this star, would we send a robotic or a manned probe? Explain why.

Explain 3 reasons why images from the Hubble Space Telescope take better images of stars and distant galaxies than ground based telescopes.

demonstrations (In groups of 4-5 students design a demonstration to illustrate)

*What is the difference between...*

- altitude and azimuth
- planet and dwarf planet
- rotation and revolution
- lunar eclipse and solar eclipse
- asteroid and meteoroid
CHEMISTRY QUESTIONS

Describe the difference between conductivity and malleability.

Find the density of a substance with a volume of 27ml and a mass of 90g. Would this substance float or sink in water?

What is the difference between a compound and an element?

What was John Dalton's understanding of the atom? What parts was he aware of? How is this different from the present model of the atom?

What are the postulates/statements of the particle theory of matter?

Give the names of the elements present in CaHCO$_3$?

Draw a Rutherford Bohr diagram for Magnesium. What charge would magnesium form if it became an ion?
ECOLOGY QUESTIONS

E - is all of the energy consumed by an organism (eg rabbit) available for the predators who eat that organism? (Eg wolf) What happens to the energy that is not?

Design a food web with the following organisms (grass, aphid, rabbit, mouse, spider, fox, frog, deer fly)

C - What is the difference between photosynthesis and respiration?
What is the difference between nitrogen fixation and denitrification?

D - what is the difference between genetic diversity and bio-diversity( ecological diversity)

C - what are the 4 spheres of the Earth?
How does soil contribute to the ecosystems it supports?
What is the difference between a community and a population?

I - Besides predator-prey relationships, what other two types of relationships are there between organisms? How can each of these types be further broken down?

C - A forest fire sweeps through an area and completely burns part of the forest. For several years, there are no plants. 40 years later, there is a thriving forest again. Explain what type of adaptation helped this to happen and how this was accomplished.

A disease sweeps through an area and kills most of the rabbit population in the forest. 10 years later, the rabbit population has returned to normal and when the same disease moves through, only a very few rabbits die. Explain what type of adaptation helped this to happen and how this was accomplished.

A - When species cannot adapt to changes in their ecosystem it may become endangered or extirpated. Explain the difference between these two terms.

A disease sweeps through an area and kills most of the rabbit population in the forest. 10 years later, the rabbit population has returned to normal and when the same disease moves through, only a very few rabbits die. Explain what type of adaptation helped this to happen and how this was accomplished.