Student Notes
Science Unit
Light

Three reasons light is vital to us and our planet:
1. We need light to see
2. Sun’s light in the form of solar energy is the primary source of heat for our planet; without heat from the sun, life as we know it could not exist because it would be too cold
3. Sunlight provides us with food – green plants need sunlight to perform photosynthesis; without plants no animals could live

What is Light?
Light is a form of radiant energy

What is a lens?
A lens focuses or concentrates light to one point; a lens bends light
Light bends when it passes through liquids and transparent solids
Light travels in a straight line when it passes through air

Light Rays Slow Down
When light passes through some mediums such as glass or water, it is slowed down
This “bending” of light as it passes from air through water is called refraction
Light travels slower through glass and water than it does through air

What is color?
White light is a mixture of all colors
A prism separates the colors
The order of color ROY G. BIV
A rainbow is a spectrum formed as white sunlight is refracted by tiny drops of water that are suspended in the air
The range of colors that make up white light is known as the visible spectrum
Each color has a different wavelength, but the same speed
Red – longest wavelength
Violet – shortest wavelength
The three primary colors of light are red, green, and violet-blue (indigo)

Afterimage
What is seen after one stares at an image or picture for a length of time; this occurs after a portion of the retina becomes tired by continued fixed stimuli (staring at the same thing for a long time)
An afterimage is not seen in the same color as the original; instead we see complementary colors – ex. where there was red, we see green (remember eye after shocks activity in class)
Colored Objects

Colored objects are every color except the color we see.
Objects absorb the light waves of some colors and reflect others.
When we see a blue ball, we see a ball that is absorbing all the colors of light except for the blue waves, which it is reflecting; we see the reflected color.
Black objects absorb all the colors of the visible light spectrum and reflect nothing.
White objects absorb nothing and reflect everything.
We see things by means of reflected light.

Light and Surfaces

Transparent – all or most of the light passes through the object (clear plasticwrap)
Translucent – some of the light passes through the object (waxed paper)
Opaque – no light passes through the object (aluminum foil)
Opaque objects cast a shadow where they block light.
Shiny surfaces (such as mirrors) reflect light – light rays bounce back off of the surface.