Unit 10 Day 1 Light Reflection

As students entered the classroom today the atmosphere of the classroom was obviously different.

Two disco spheres were turning on the ceiling as several bright lights shined on them from all over the top cabinets cascading points of light all over the ceiling, floor, and four walls of the classroom with Disney's Electrical Light Parade song filling the room.

Day 1 Light Reflection

- Leaving one disco sphere rotate with one bright light shining on it, students noticed that the reflections above disco sphere near it were turning slowly whereas the ones on the back wall were trucking by extremely fast.
- A star trails poster taken by leaving the shutter on a camera open all night and developing it the next day was shown the class.

Day 1 Light Reflection

- The whereabouts of Polaris (the north star) was pointed out as it would be the center of all the concentric arcs in the star trails picture.
- It was pointed out that when the sun rises on the first day of summer it is closest to Polaris thus moves slowly (like the lights above the disco sphere) and we have a lot of daylight, whereas the sun is furthest from Polaris in the winter thus spends little time above the horizon and moves quickly through the sky like the lights trucking by on the back wall.

Day 1 Light Reflection

- Next we watched a magician do tricks with mirrors. Pushing knives into a box containing her head and making a 7,000 pound 9 foot tall elephant disappear in front of their eyes.

Day 1 Light Reflection

- Next we did the lights off learning that explained that we are doing next Mon, Tues, and Wed the rest of this week and doing the reviews and test day early next week.
- If you were gone yesterday, what was written on the smart board was saved each period to smile2340.com This was the answers to the Wave Study Sheet you received or at the top of the Unit 9 page above.

Review of Chap. 9 Lights off Learning

- For review in short…
- A wave is the means of transporting energy from point A to point B.
- The two major types are transverse (like water waves passing as you sit in a boat) where the particles are vibrating perpendicular to the direction of the energy in the wave. The water waves move up and down while the energy travels toward the shore generally.

Review of Chap. 9 Lights off Learning

- The speed of a wave stays constant in any given medium. Even if the frequency increases the wavelength will decrease so their product is still the same.
- The medium can change in water by changing its depth or its temperature or whether salt water, dirty water, fresh water, or depth of the water.
- As the water gets shallower the energy will slow down making the wavelength shorter also since the frequency always stays the same as the medium changes.

Review of Chap. 9 Lights off Learning

- Like the wave machine on the front teachers desk demo … the medium changed from long rods to much shorter rods. The transmitted wave had the same freq. but speed up considerably. When a transformer (V shaped going from a long rod slowly shorter to a small rod) was introduced, much more of the wave was transmitted rather than reflected.
- The megaphone put to the mouth caused much more sound to be transmitted than reflected.

Review of Chap. 9 Lights off Learning

- As the slinky was stretched the medium changed so that the more tense spring had energy move through it quicker so the speed went up as did the wavelength as the frequency remained the same.

Review of Chap. 9 Lights off Learning

- Formulas…
- V = freq times wavelength
- f = 1/T or T = 1/f so if f = 2/3 hz, T = 3/2 s
- Polarized light is only in one plane so if light tries to travel through a second polarized filter perpendicular to it, the light cannot made it through.

Review of Chap. 9 Lights off Learning

- Sound travels at 331.5 m/s at 0 degrees Celsius but 0.6 m/s faster for each degree higher.
- Decreasing speed of sound would be steel, glass, wood, warm air, cold air.
- The denser the medium the faster sound will travel through it.

Review of Chap. 9 Lights off Learning

- Doppler Effect

If you are moving toward a sound the frequency will be higher.

If you are moving away from a sound the frequency will go down.

Review of Chap. 9 Lights off Learning

- Passed around holograms made in past years by students.

Review of Chap. 9 Lights off Learning

- Then we passed out hand-size mirrors and challenged students to print their name so the note can only be figured out by reading it in a mirror.