05Objectives, equations and vocabulary- Mirrors & Reflection

$f = 1/T = cyc/sec$ $v = f \lambda$ $x = v t$ $2^{(1/12)} = 1.05946$ $A_0 = 27.5$ Hz	$M = V_0/v_{sound}$ $v_{sound} = 331 + 0.6T(°C)$ $v_{sound} \sim 340$ m/s $e = 1.60 \times 10^{-19}$ C $k = 9.0 \times 10^9$ Nm^2/C^2 $Q = ne$	$V = W/q = J/C$ $i = \Delta Q/\Delta t$ $\Delta V = i R$ $P = E/t$ $P = iV$ $P = V^2/R$	$I \Delta$ inversely with r^2 Δ: +10 dB = 2x Vol = 10x I Beats = $\lvert f_1 - f_2 \rvert$ Series $R_e = R_1 + R_2$ Parallel $1/R_e = 1/R_1 + 1/R_2$ $N_1/V_1 = N_2/V_2$	$F = k \frac{q_1 q_2}{r^2}$ $E = \frac{F}{q} = \frac{kq}{r^2}$

Mirrors & Reflection

1. The student understands all vocabulary, math, demos, videos, class assignments and discussions
2. The student remembers objectives & vocabulary from previous units.
3. The student understands specular and diffuse reflection including reflection off paper vs. mirrors
4. The students knows how the brain locates objects in space and why we see images as illusion of objects
5. The student can ray trace and distinguishes between incident and reflected light rays in image formation
6. The student can draw and identify a normal and understands the law of reflection
7. The student knows the light rays an observer sees and doesn't see when looking at images in a mirror
8. The student can apply and make sense of the three principal rays using mirror geometry and logic
9. The student can find the two easiest principal ray for convex and concave mirrors
10. The student understands all reflected light rays from any object point will converge post-reflection at some location in space to form an image (or no image is seen)
11. The student understands how "horizontal" light rays emerge from distant sources and diverging light rays emerge from source close to the mirror
12. The student can recite the three mirror types used in car and why their special properties make them ideally suited for the very different jobs they do
13. The student knows other mirror uses besides in cars
14. The student knows how satellite dishes work and why are truly mirrors - just not visible light mirrors
15. The student has created an information sheet with information on how images change with object location

Numbered Unit Vocabulary list (you need to know all previous vocabulary too)

1. diffuse	10. perpendicular	18. horizontal ray	26. image properties
2. specular	11. flat	19. center ray	27. upright
3. Matte	12. planar	20. center point	28. inverted
4. Object	13. plane	21. curved mirror	29. enlarged
5. Image	14. angle of incidence	22. convex	30. reduced
6. ray tracing	15. angle of reflection	23. concave	31. real
7. diverge	16. focal point	24. principal axis	32. virtual
8. converge	17. focal ray	25. principal ray	33. blind spot
9. normal			