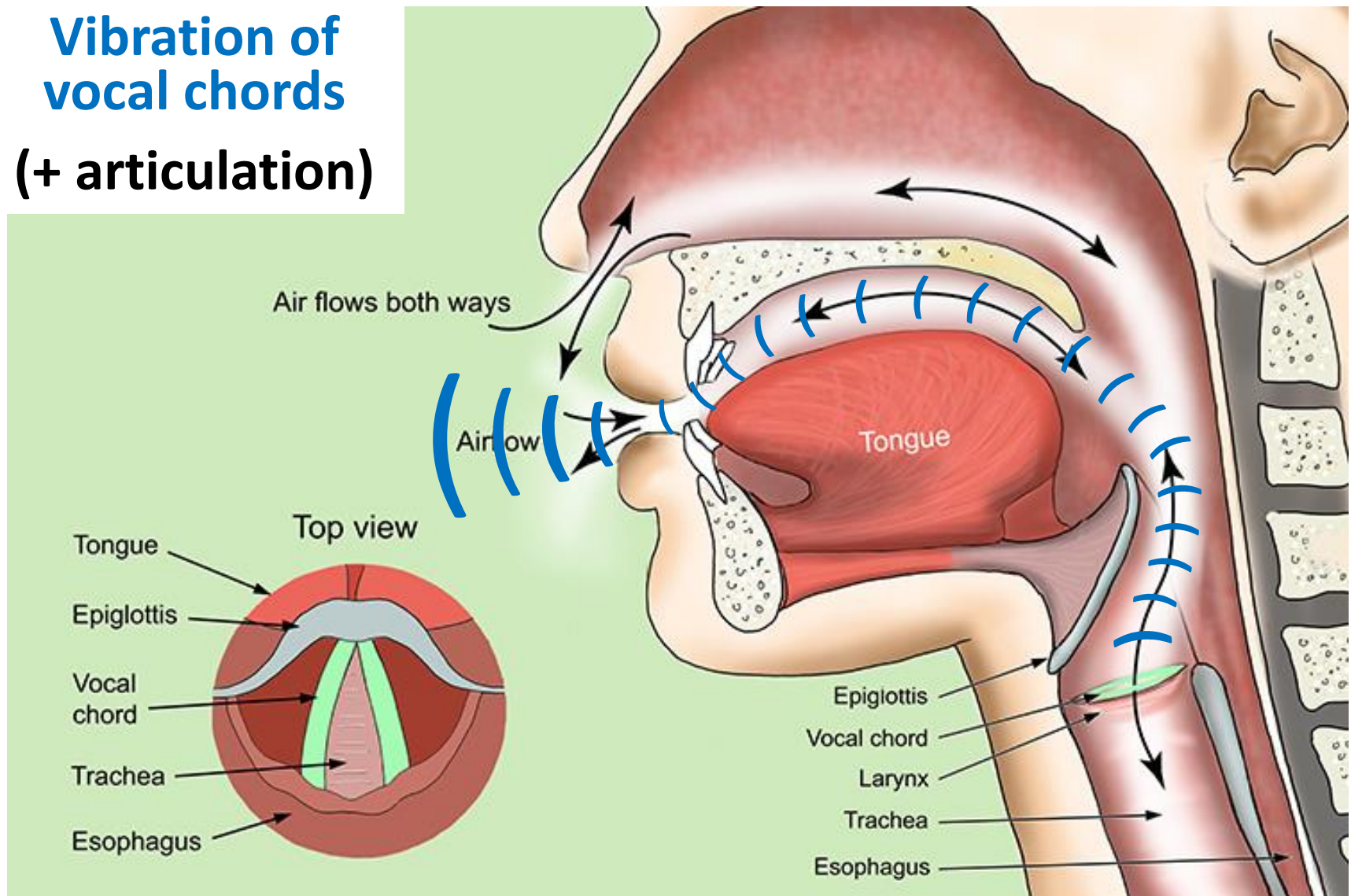
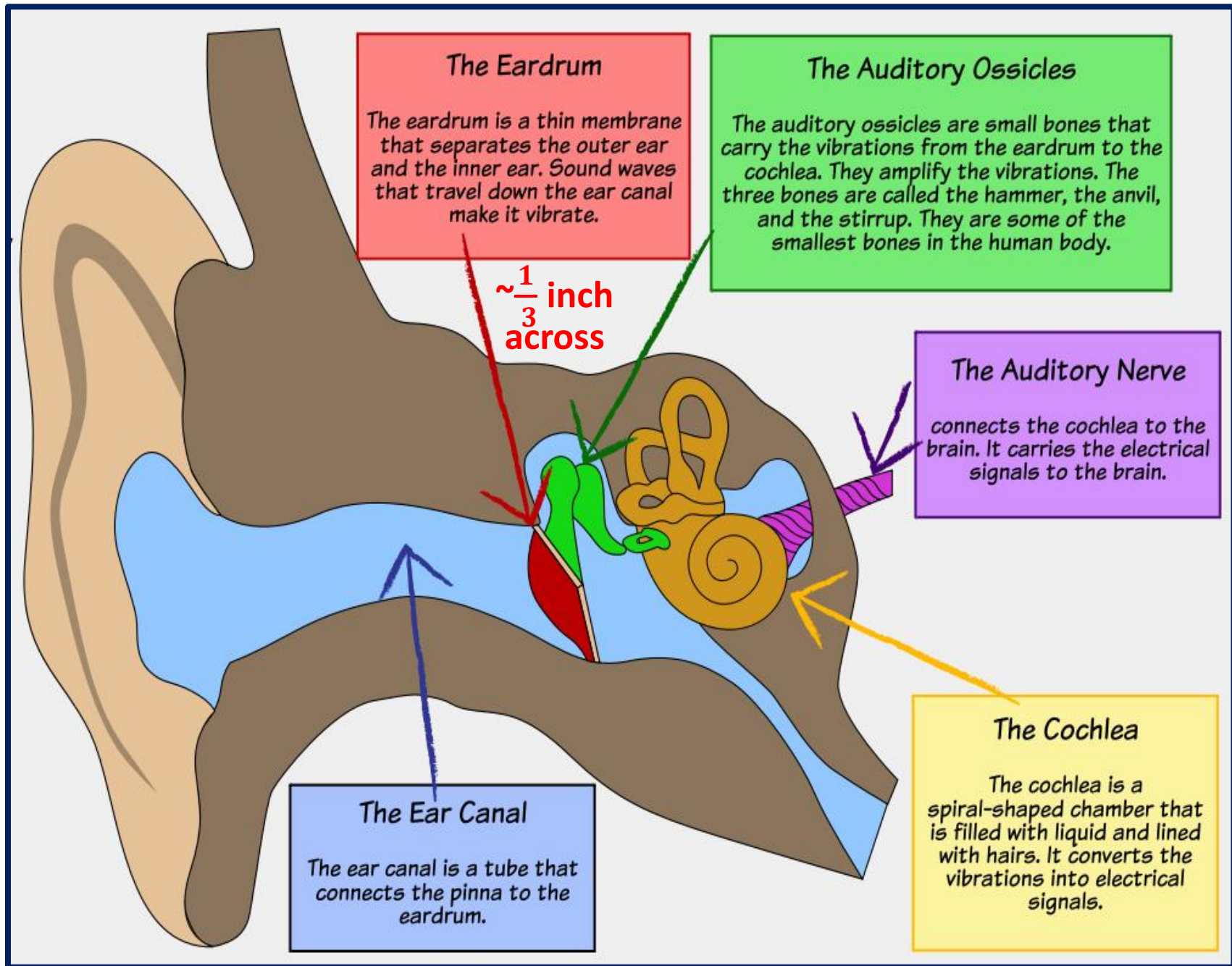


How do humans create sound?

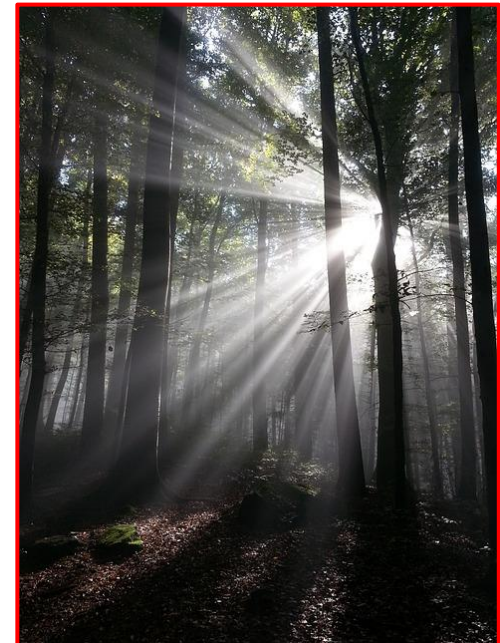
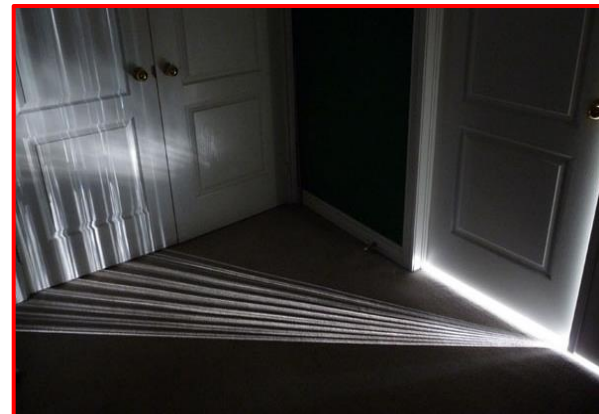
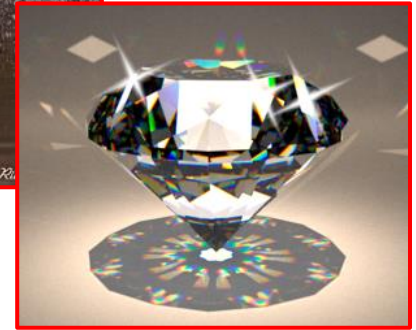
Vibration of
vocal chords
(+ articulation)



How do we hear?



What Is Light?



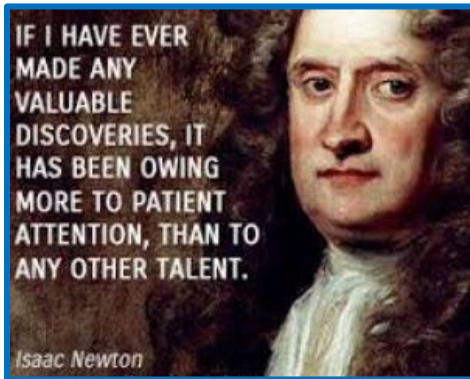
Observed Properties of Light

- Light travels in straight lines (*shadows*)
- Light can be bright or dim (*intensity*)
- Light can be different colors (*dispersion*)
- Light can bounce off surfaces (*reflection*)
- Light can, or cannot go through objects/substances (*transmission/absorption*)
- Light changes its speed/direction when entering different materials (*refraction*)
- Light can bend at an opening or edge (*diffraction*)

... **WHAT IS LIGHT ?**

Nature of Light Debate

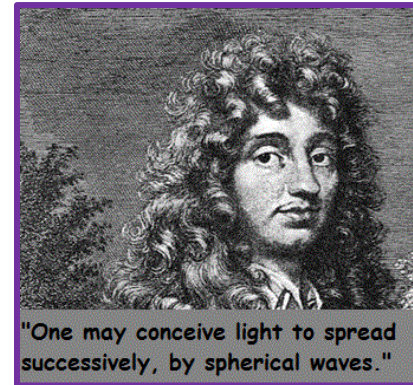
Isaac Newton, 1675:



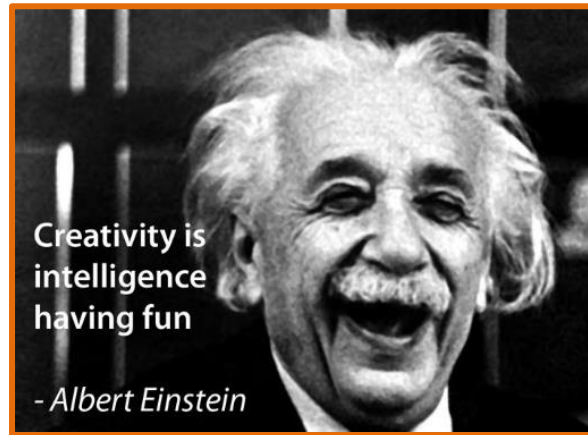
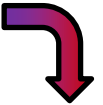
light is made of **particles of energy (corpuscles)**. Explained reflection, shadows, traveling in straight lines.



Christiaan Huygens, 1678:

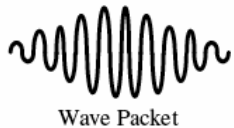


light is made of **waves in ether**. Explained diffraction, interference.

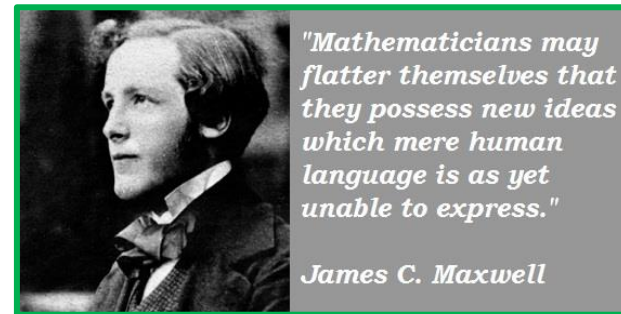
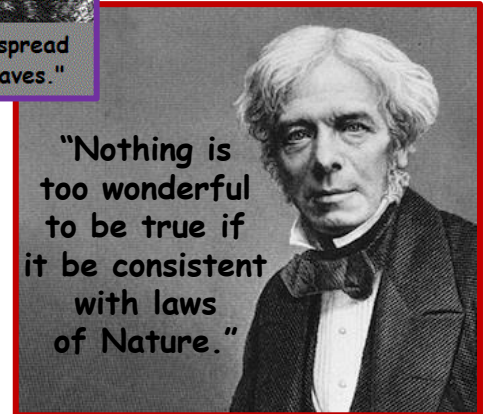


Albert Einstein, 1905:

a beam of light is not a continuous wave propagating through space, but rather a **collection of discrete wave packets, photons**.



Michael Faraday, 1847: light is a **high-frequency electromagnetic vibration**, which could propagate even in the *absence of a medium*.



James Maxwell, 1864: light is an **electromagnetic wave**.

