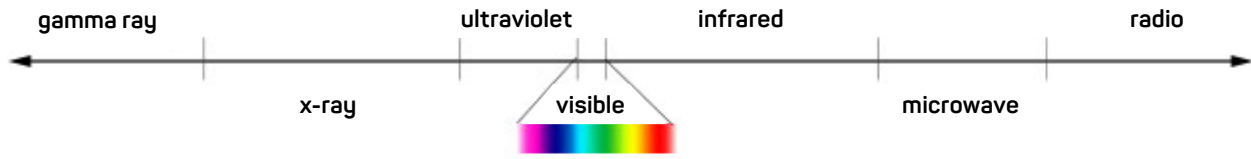


The Electromagnetic Spectrum

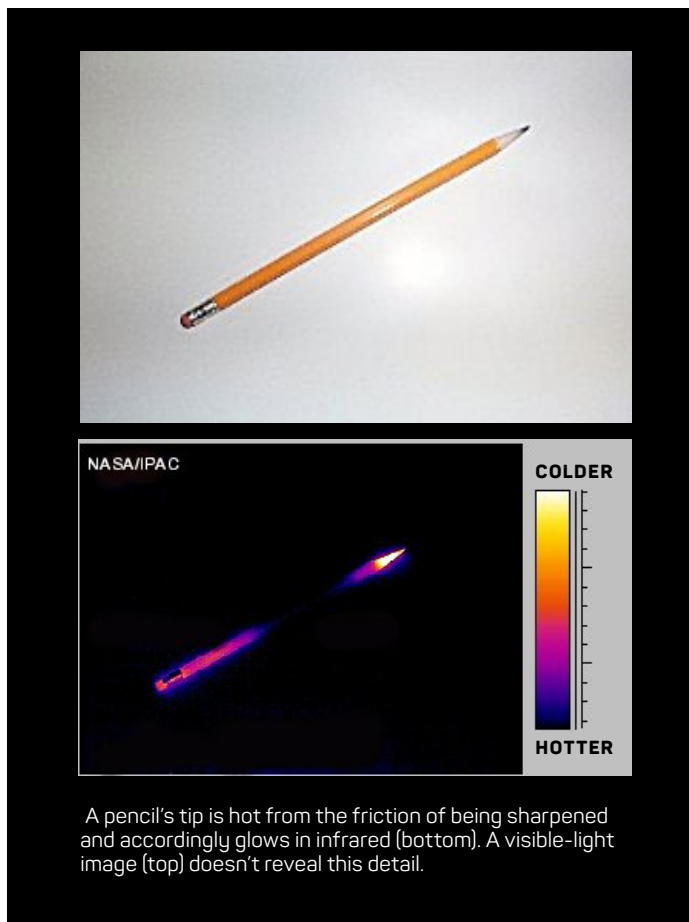
There's much more to light than what our eyes can see.



high energy ← → low energy



Light waves range from very short-wavelength, high-energy gamma rays to long-wavelength, low-energy radio waves.



A pencil's tip is hot from the friction of being sharpened and accordingly glows in infrared (bottom). A visible-light image (top) doesn't reveal this detail.

Our eyes see only visible light, but we live in a universe that spans the *electromagnetic spectrum*, or EMS. The EMS consists of light energy travelling in waves. You're probably familiar with some kinds of this energy: X-rays reveal broken bones, we slather on sunscreen to protect our skin from ultraviolet rays, our television remotes use infrared signals to change channels, and radio waves bring us music. Objects in the universe radiate energy across the EMS, and scientists use instruments sensitive to these different energies—or different *wavelengths*—to accurately study planets, stars, galaxies, and black holes. Can you imagine how the world might look different if our eyes could see another type of light?