


Announcements Astronomy 101A 10/05/11

- * Jacobsen Observatory 8:30 - 9:30 pm OPTIONAL (especially if it is not clear)
- * Review for exam 1 on Friday; exam 1 Monday, 10/10
 - Will have summer's exam on-line soon (will announce) for study purposes
 - Mix of short answers, fill in blanks, short essay, reading star map, vocabulary
- * Exercise on spectral analysis in sections tomorrow - important for next 2 weeks! (and, your scores)

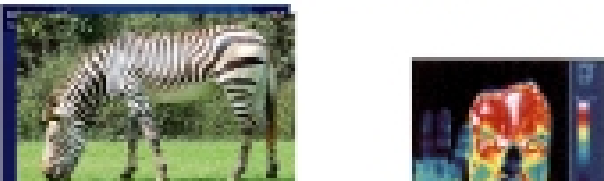


Microwaves Radio waves



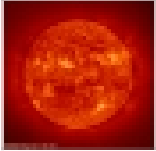
Infrared Radiation

If we could see at IR wavelengths, what would we see?



The slide is divided into four quadrants. Top-left: A white microwave oven. Top-right: A radio tower with a dashed horizontal line across its top. Bottom-left: A photograph of a zebra in a field. Bottom-right: A thermal image of a zebra's head, showing heat signatures in red and yellow.

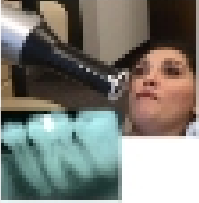
Ultraviolet A, B, C



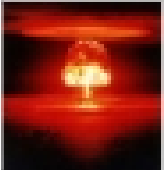
The Sun's UV rays can cause:


- More wrinkles
- Sagging skin
- Age or liver spots
- Tan/burns
- Eye damage/ cataracts
- Skin Cancer

X-Rays



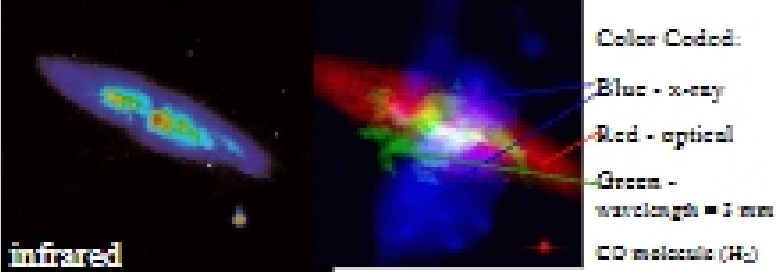
Gamma Rays





optical

Messier 82 (M82)



infrared

Color Coded:

- Blue - x-ray
- Red - optical
- Green - wavelength = 3 mm

CO molecule (H₂)

Learning goals

- > Define light (electromagnetic radiation) and describe how we characterize it
- > List 3 ways that light is created
- > Explain why stars appear to be different colors and how we use this property
- > Distinguish between emission and absorption spectra by what is happening with the electron in the atom.

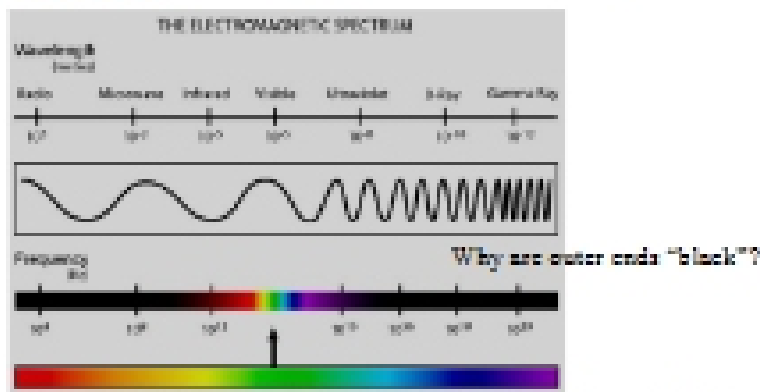
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Light measured in wavelength λ , frequency ν , or photon energy; light has the velocity c in a vacuum



Light can behave as a wave OR a PARTICLE!

[Planck's Constant]

$$E = h\nu$$

Energy Frequency (ν)

1.7 microns
 1.7×10^{-6} m

The Eye
