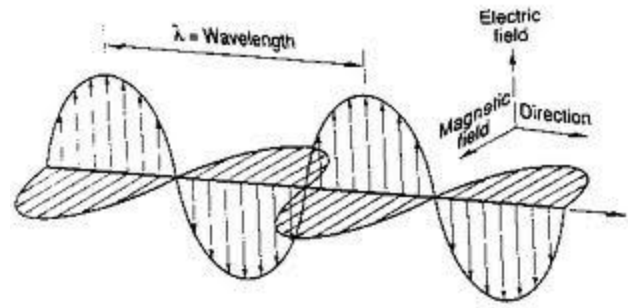


## Introduction to Electromagnetic Waves

**Part A – Brainstorm** what you already know about EM waves.  
(pictures, words...)



## **Part B – Electromagnetic Theory**

1. Google 'Einstein's Legacy'. You want the link put out by 'colordao.edu' which is the same group that created pHet.
2. Scroll down to bottom of page and click on 'table of contents'.
3. See 'Einstein's legacy' in orange. See below 'Xrays' in purple. Click on 'Electromagnetic Theory' in green just below.
4. Read down to the applet with wavelengths. Use it to draw & label the EM spectrum from low energy (long wavelength) at the left to high energy(short wavelength) at the right.

Low energy → EM Spectrum → high energy

5. **The Electric Force:** (Fe) Click 'next' to go to next page. Read the dialogue from the 'talking cartoon heads' and play with the proton/electron applet. The talking heads give you suggestions.

Could **you** get the electron to orbit the proton? \_\_\_\_\_

Go to next page.

6. **Electric force fields:** Read down to the applet. Play with it, following the instructions. Do you think you are putting down electrons? \_\_\_\_\_ . Explain your answer \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

Read to bottom of page and Go to next page.

7. **Vibrating Charges & Electromagnetic Waves:** Play and read to the bottom of the page. Does this page help you or confuse you? \_\_\_\_\_

Now choose 'table of contents' at the bottom of the page.

## **Part C: Evidence for Electromagnetic Waves**

8. Scroll **way** down the contents page and **find** 'Science Trek' in orange. Below that is 'Electromagnetic Waves and Particles' in purple. See below 'Evidence for Electromagnetic Waves' in green and **click on it**.

9. What do all forms of EM waves have in common AND what is the proof of this?

10. Click on the 'astronomy links' near bottom to see some cool space shots. Notice not all taken with visible light!