

# ACTIVITY - ELECTROMAGNETIC SPECTRUM POSTER

Adapted by NSO from "EM spectrum poster project guidelines" © 2014 Florida State University. [cpalms.org](http://cpalms.org)

## OBJECTIVE

Become familiar with the electromagnetic spectrum.

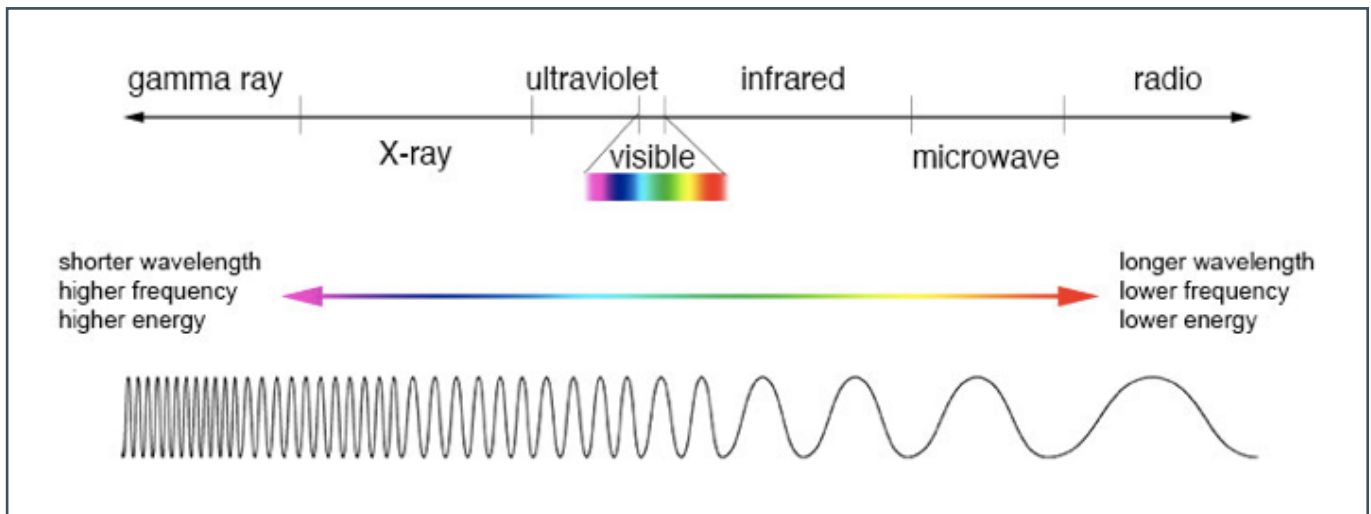
*This activity is an optional pre-requisite to lessons 4 and 5, which incorporate topics requiring knowledge of electromagnetic energy waves and their properties.*

## MATERIALS

- Poster paper
- Markers
- Internet access or alternative source for information

## BACKGROUND

The Electromagnetic (EM) Spectrum is the range of wavelengths and frequencies of electromagnetic radiation. The EM spectrum includes frequencies lower than the low radio frequencies used in radio communication and extends to gamma radiation, a short-wavelength, high-frequency radiation. The wavelengths covered in the EM Spectrum span from lengths smaller than an atom to those measuring thousands of kilometers long. Radiation energy falling within specific ranges of the EM spectrum are used for multiple purposes, including radio communication, medical diagnostics, reheating food, and night vision technology to name a few.



EM Spectrum - [https://imagine.gsfc.nasa.gov/Images/science/EM\\_spectrum\\_compare\\_level1\\_lg.jpg](https://imagine.gsfc.nasa.gov/Images/science/EM_spectrum_compare_level1_lg.jpg) . Retrieved 7/24/17

## DIRECTIONS

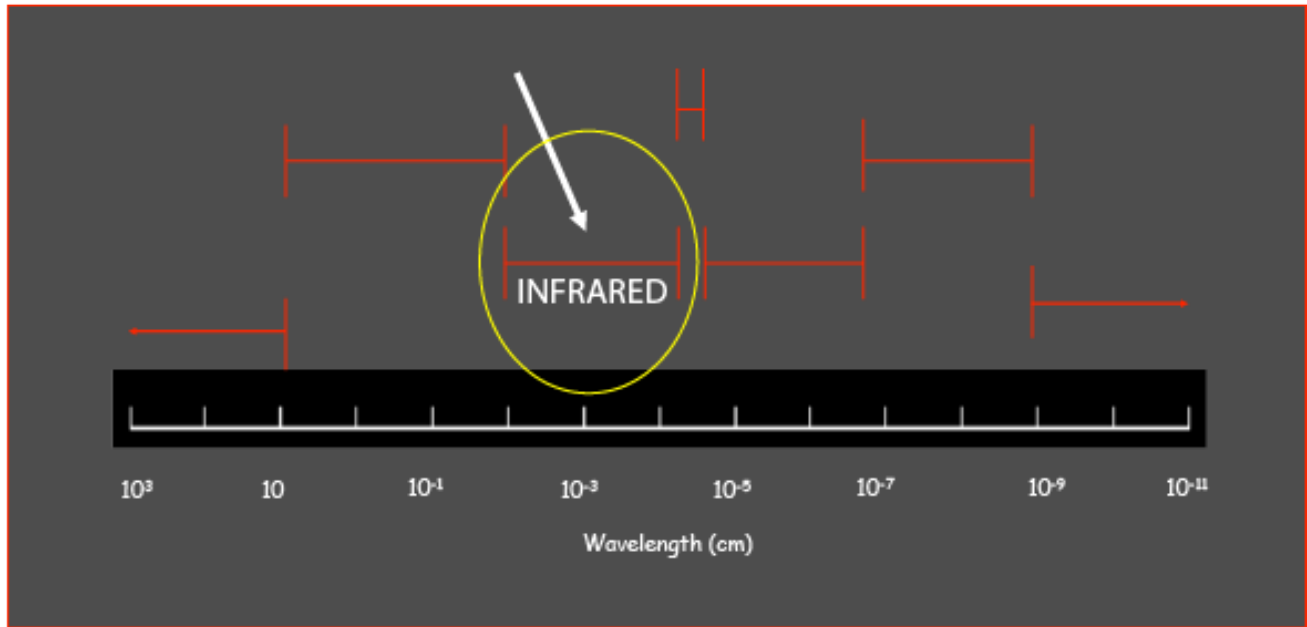
1. Assign students working in groups of 2 or 3 a specific region of the electromagnetic spectrum (i.e. radio, microwaves, infrared, visible, ultraviolet, x-ray, gamma).
2. Students will then research their assigned area of the Electromagnetic Spectrum and create a poster or other means of presenting their research. Posters must include the following information:
  - a. Title and assigned region of Electromagnetic Spectrum
  - b. Where is this type of radiation located on the EM Spectrum? What properties of the energy wave define its location in the spectrum?
  - c. Key characteristics of the assigned radiation type (i.e. wavelength, frequency, key information, etc.)
  - d. How is the assigned radiation type used or found in everyday life and/or industry? Identify and explain at least 3 uses.
  - e. Is the radiation type harmful, beneficial, or both? Provide evidence to support your argument.
  - f. At least 3 references, cited in a format designated by the teacher.

## ASSESSMENT

1. Have students participate in a gallery walk in order to learn about the different types of radiation energy from the work of their classmates.
2. See the slideshow presentation titled "Interactive EM Quiz". This is an interactive quiz on the electromagnetic spectrum, where students identify the type of radiation energy that is displayed on each slide.

# SAMPLE STUDENT POSTER

## Infrared Radiation



Night Vision & Heat Sensing



Cooking and Heating

Can be both Harmful and Beneficial!

Harmful - too much can cause burns  
Helpful - night vision, cooking, scientific discovery

Wavelengths: 0.0010 cm to 0.1 cm  
Frequencies: 3 GHz to 400 THz



Studying complex structures in galaxies and nebulae