

## Scavenger Hunt: Getting to Know the Electromagnetic Spectrum

### Background:

Light, as in the light that our eyes detect, is an example of a type of electromagnetic wave. In actuality, there are many types of these electromagnetic waves. In this exercise you will gain some familiarity with the various types and their characteristics.

### Getting Ready:

Navigate to the EM Spectrum Infographic at The Physics Classroom: [www.physicsclassroom.com/Physics-Interactives/light/EM-Spectrum](http://www.physicsclassroom.com/Physics-Interactives/light/EM-Spectrum)

Navigational Path: [www.physicsclassroom.com](http://www.physicsclassroom.com) → Physics Interactives → Light and Color → Electromagnetic Spectrum Infographic

Once you arrive at the page, launch the Interactive and size it to your liking by tapping the expansion arrow (bottom right) or the full-screen mode icon (top left). Navigate past the first two screens until you come to the "Home Screen" with sections of the infographic labeled with a letter. Tap a letter to zoom in on the that section. Use the magnifying glass in the navigational panel (bottom) to zoom in further. Use the **Right, Left, Up, Down** arrows to navigate the entire infographic. Observe the section titles at the top of the infographic. Notice that a tap on the Infographic icon (bottom left) takes you back to the Home Screen. Get acquainted with the interface.

### Time to Hunt:

For each row of the table, navigate through the infographic to find the requested items. For each find, identify the section of the infographic (listed at top of screen) where the *item* was found and identify the *item* and describe the physics of how it works.

Find ...	Section	Description of the Finding
1. ... the narrowest region of the electromagnetic spectrum.		Identify name of region:
2. ... the name given to the highest-frequency region of the EM spectrum.		Identify name of region:
3. ... the name of one region of the spectrum that has a wavelength longer than waves of the visible light region.		Identify name of region:
4. ... the name of two or more characteristics of electromagnetic radiation that are best explained by a wave model.		Name each behavior and describe them:

5. ... the name of two or more characteristics of electromagnetic radiation that are best explained by a particle model.		Name each behavior and describe them:
6. ... one example of how electromagnetic radiation affects matter when it is absorbed by matter.		Give a name for the effect (if it has a name) and describe the effect that absorbed <i>light</i> has on matter:
7. ... one example of a material absorbing light of high frequency and emitting an electron as a result.		Describe the example:
8. ... one method or device commonly used to produce or emit X-Rays.		Identify name and describe:
9. ... one example of high-frequency electromagnetic waves being used for medical purposes.		Identify example and describe how it works:
10. ... a free pass for 20 extra credit points that is usable at any time of year.		First student to find it must "Eureka" in order to use it.