

# SCIENCE 8 – ELECTROMAGNETIC SPECTRUM WORKSHEET

NAME: \_\_\_\_\_

Vocabulary			
Electromagnetic radiation	Gamma rays	Radiant energy	Visible light
Electromagnetic spectrum	Infrared waves	Radio waves	Wavelength
Frequency	Microwaves	Ultraviolet rays	X rays

*Use your notes from pages 9 – 10 and the terms in the vocabulary box to fill in the blanks for the following nine questions. You will not need to use every term.*

- 1) The \_\_\_\_\_ represents the different forms of electromagnetic radiation.
- 2) Light is classified as \_\_\_\_\_ because electrical and magnetic fields vibrate in a light wave.
- 3) \_\_\_\_\_ is energy that travels by radiation. An example of this is light.
- 4) Heat radiation, also known as \_\_\_\_\_, cannot be seen by your eyes but can be felt by your skin.
- 5) Microwaves are one type of \_\_\_\_\_.
- 6) \_\_\_\_\_ can be used to communicate with satellites.
- 7) Because \_\_\_\_\_ have the highest energy of all electromagnetic radiation, they are the most damaging to human tissue.
- 8) Compared to all other types of electromagnetic radiation, radio waves have the lowest \_\_\_\_\_.
- 9) An overexposure to \_\_\_\_\_ can result in sunburns and skin cancer.
- 10) Why does an empty plate not heat up in the microwave?

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- 11) Why should you use sunscreen and a hat when you are out in the Sun?

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12) Match the kind of **Electromagnetic Radiation** (on the left) likely to be used in each of the following **technologies** (on the right). Each Technology may be used only once

Electromagnetic Radiation		Technology	
	X rays	A.	TV broadcast signals
	Microwaves	B.	In a hospital to keep surgical equipment sterile
	Gamma rays	C.	Examining the inside of a weld in a steel oil pipe
	Radio waves	D.	Lamp used to warm a baby chick
	Infrared waves	E.	Measuring the speed of a passing car
	Ultraviolet waves	F.	Used by an oncologist (a physician who studies and treats cancer)
	Radar	G.	Cell phone

*Read the statements given below. If the statement is true, write "T" on the line in front of the statement. If it is false, write "F" and rewrite the statement to make it true.*

13) \_\_\_ Radiant energy spreads out from its source in all directions.

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14) \_\_\_ Electromagnetic radiation includes only visible light waves.

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15) \_\_\_ Microwaves are a type of infrared wave.

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16) \_\_\_ X rays have more energy than gamma rays.

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17) \_\_\_ Radio waves, microwaves and ultraviolet waves all have longer wavelengths than visible light.

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18) \_\_\_ Both X rays and gamma rays have higher frequencies than ultraviolet rays.

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19) \_\_\_ The Sun radiates both visible energy and invisible energy.

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20) \_\_\_ Communicating with satellites is an application of gamma rays.

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