Radiation and Your Health

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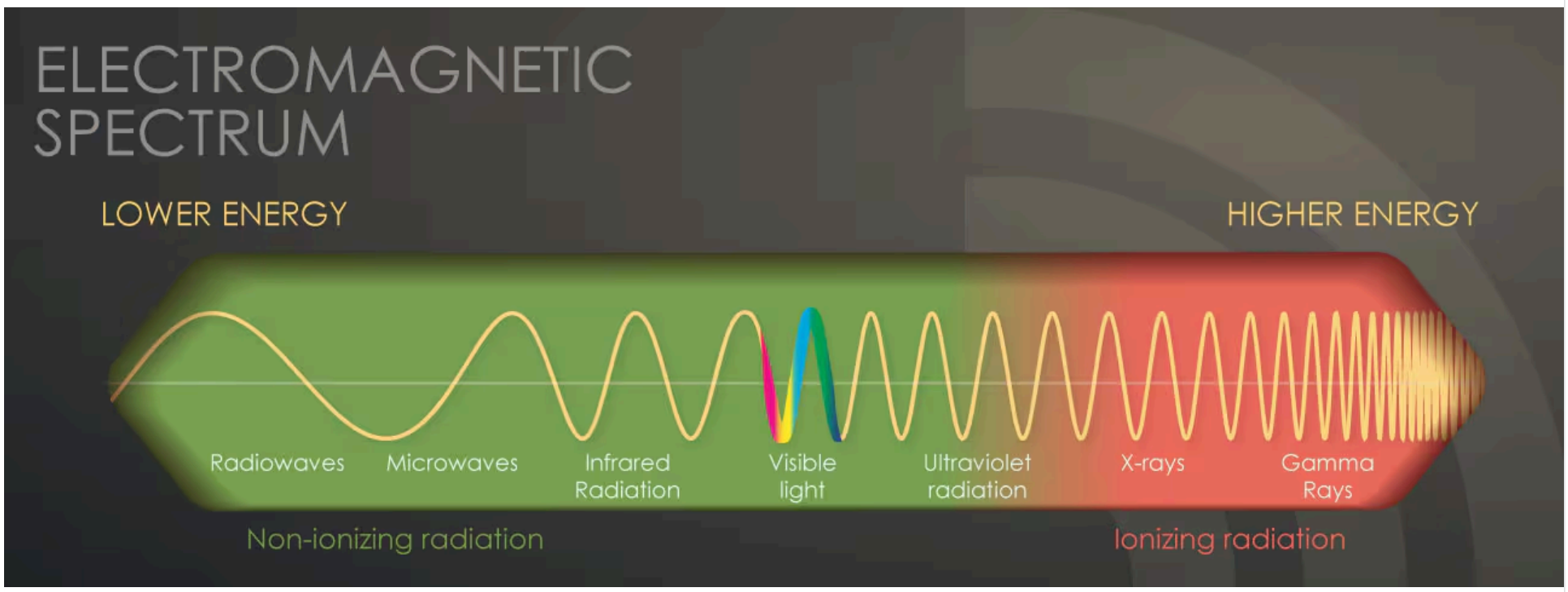
KEY POINTS

- Electromagnetic radiation is energy that comes from a source and travels through space at the speed of light.
- Electromagnetic radiation has an electric field and a magnetic field associated with it and has wave-like properties.
- You could also call electromagnetic radiation “electromagnetic waves."

What it is



There is a wide range of electromagnetic radiation in nature. Visible light is one example.

Radiation with the highest energy includes forms like far ultraviolet radiation, x-rays, and gamma rays. X-rays and gamma rays have a lot of energy. When they interact with atoms, they can remove electrons and cause the atom to become ionized.

Keep Reading:
The Electromagnetic Spectrum: An Overview

Categories

The radioactive atom

- Radioactive atoms have unstable blends of protons and neutrons.
- Radioactivity is the spontaneous release of energy from an unstable atom to get to a more stable state.
- Ionizing radiation is the energy that comes out of a radioactive atom.
- Radioactive isotopes are radioactive atoms of the same element that have different numbers of neutrons.

Keep Reading:
The Radioactive Atom: An Overview

Properties of radioactive isotopes

- Radioactive atoms can give off four types of ionizing radiation: alpha particles, beta particles, gamma rays, and neutrons.
- Each type of radiation has different properties. Their properties affect how we can detect it and how it can affect us.
- An unstable atom changes into a more stable atom of the same or different element by giving off radiation. This process is called radioactive decay.
- A half-life is the length of time it takes for half of the radioactive atoms in a group of radioactive isotopes to decay.

Keep Reading:
Properties of Radioactive Isotopes: An Overview

Preventing exposure

The guiding principle of radiation safety is "ALARA." ALARA stands for "as low as reasonably achievable."

ALARA means avoiding exposure to radiation that does not have a direct benefit to you, even if the dose is small. To do this, you can use three basic protective measures in radiation safety: **time**, **distance**, and **shielding**.

Keep Reading:
Guidelines for ALARA – As Low As Reasonably Achievable

SOURCES

CONTENT SOURCE:
National Center for Environmental Health