

USES FOR NUCLEAR TECHNOLOGY

Radiation can be helpful in many ways that affect our everyday lives. It can be used in medicines, for research and testing, and even to help things like smoke detectors work better.



ENERGY

Some power plants use energy released through nuclear fission to operate turbines and generators that produce electricity for our homes and businesses.

STERILIZATION/SANITATION

Radiation is used to kill germs and parasites that can get into our foods. It's also used to remove bacteria from medical products, like surgical tools.



EDUCATION

Some teachers and scientists use nuclear materials to conduct research, like finding the age of mummies and other artifacts.

INDUSTRY

Radiation is also used to take different types of measurements, for mapping, and supplying energy for spacecraft.



RADIATION AND YOU

RADIATION IS ENERGY IN MOTION!

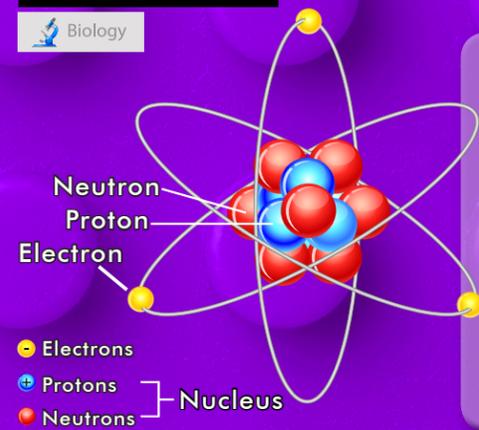


WHERE DOES RADIATION COME FROM?

Atoms are like the LEGO® bricks of the Universe. They form the basis of all things that surround us, which is called "matter."
Radioactivity is the spontaneous release of energy from an unstable atom.

Atom Structure

Biology



3 PARTS OF AN ATOM

PROTON = Positive Charge

Positive charge found inside an atom's nucleus

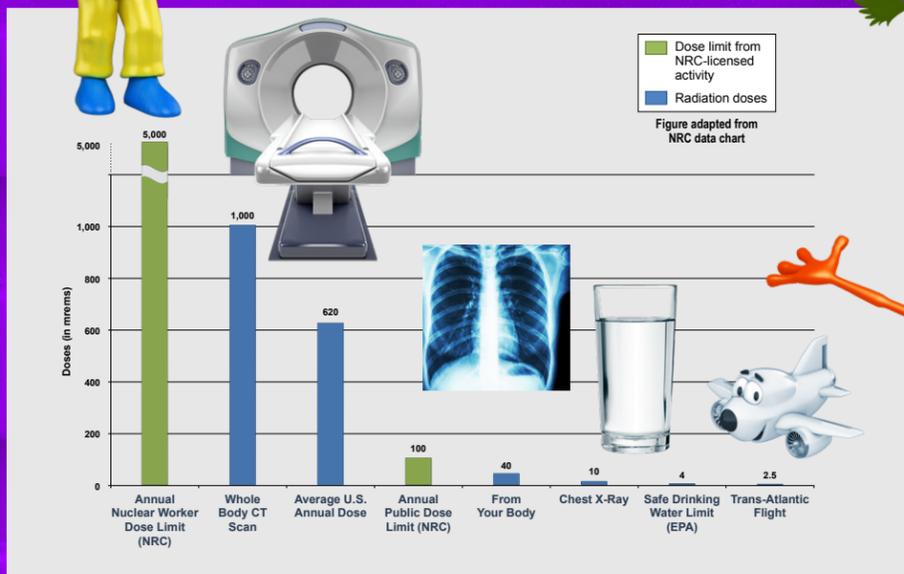
NEUTRON = Neutral Charge

Neutral charge (has an equal number of electrons and protons) found inside an atom's nucleus

ELECTRON = Negative Charge

Negative charge that surrounds an atom's nucleus

RADIATION DOSES AND REGULATORY LIMITS



NATURALLY OCCURRING RADIATION

"**Background**" is the word we use to describe radiation from natural sources like cosmic and terrestrial, which are parts of our everyday lives.

THE SUN
Cosmic radiation

ROCKS AND SOILS
Terrestrial radiation

The **Altitude** and **elevation** where we live affects the amount of cosmic radiation we are exposed to.

We are all born with traces of **natural radioactive material** inside of us, and as we age, radioactive material continues to enter our bodies through the radioactive material contained in the food we eat and the water we drink.

HUMAN-MADE RADIATION

Radiation is encountered or used for different purposes in our daily lives. Some encounters can contribute to our daily dose amount, while other encounters happen in ways that can't be seen and don't affect us at all.

MEDICAL

Our highest exposure to human-made radiation comes from medical CT scans and X-rays.

BUILDING MATERIALS

Uranium and other **radioactive materials** commonly found in building materials we use or make can add to our radiation dose.

TOBACCO PRODUCTS

Natural materials used to make cigarettes and other tobacco products contain **radioactive elements** that add to the dose of smokers.