

Radiation: Fact or Fiction? Quiz-Teacher Answer Key

Read each statement. Circle “Fact” or “Fiction” for each statement depending on what you think or believe to be correct.

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| Fact | Fiction | 1. Radioactive waste remains forever. Some radioactive materials and radioactive waste may remain radioactive for hundreds or thousands of years, while others only remain radioactive for seconds or days. |
| Fact | Fiction | 2. People who live in Denver, Colorado, receive more exposure to cosmic radiation than people living in Florida. Even though Florida is known as the “Sunshine State,” people at higher altitudes receive more exposure from cosmic radiation than people who live at a lower altitude. |
| Fact | Fiction | 3. Radiation from a tanning bed is more harmful than radiation from the sun. Our bodies do not differentiate between types of radiation; they absorb radiation as energy regardless of the source, dose or type. |
| Fact | Fiction | 4. If you are exposed to radiation, you will develop cancer. We are regularly exposed to some amounts of radiation. Our bodies have “repair genes” that help cells repair themselves from radiation exposure, much like the way our bodies heal from a sunburn or injury. However, large doses or long-term exposure to radiation may damage our body’s DNA to the extent that it cannot repair itself. The extent of the damage depends on the total amount of energy absorbed, the time period (duration) and dose rate of the exposure, and the particular organs exposed. Also, everyone reacts differently to radiation exposure. |
| Fact | Fiction | 5. Suntans are the result of skin damage from the sun. Suntans and sunburns are both types of sun damage. The fading of a suntan is a sign of the skin repairing itself. |
| Fact | Fiction | 6. Most radiation that we are exposed to is man-made. Approximately half of our annual radiation exposure comes from natural sources like cosmic rays from outer space or radon gas in the soil. This is called “background radiation.” The other half of our annual exposure comes from man-made sources of radiation. |
| Fact | Fiction | 7. Living near a nuclear power plant poses less risk of radiation exposure than living in a home or area with high radon levels. Radon exposure accounts for 37 percent of our annual exposure to radiation, and living in a home or area with high radon levels can be very harmful to your health. Nuclear power plants implement |

many radiation protection measures to limit your exposure to radiation. Therefore, living near a power plant barely increases your radiation exposure.

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| Fact | Fiction | 8. You should keep track of the number of medical x-rays and scans you have received. By tracking the number of medical x-rays and scans, you can better assess and control your exposure to radiation. |
| Fact | Fiction | 9. Exposing food to radiation makes it radioactive. Food irradiation is a technology for controlling spoilage and eliminating foodborne pathogens (e.g., salmonella). Like pasteurization, irradiation kills bacteria and other pathogens that could otherwise result in spoilage or food poisoning. Irradiation is safe and does not cause food to become radioactive. |
| Fact | Fiction | 10. All glow-in-the-dark items contain radioactive sources. When radium was discovered in the early 1900s, people were fascinated with its mysterious glow. The hands and faces of some clocks, watches, and ship and airplane instruments were painted with radium to make them glow in the dark. Over time, however, experts discovered that radium is highly radioactive and emits alpha, beta, and gamma radiation. Some glow-in-the-dark items like road signs, exit signs, clock dials and watches may contain tritium or promethium. However, non-radioactive sources are also becoming more widely used. If unsure of the glow-in-the-dark source, you should take precautions to handle and/or dispose of the item safely. |
| Fact | Fiction | 11. Radiation was discovered during World War II when the atomic bomb was developed. Radiation is all around us and has been present since the birth of this planet. |
| Fact | Fiction | 12. Radiation exposure will cause you to glow. While many fictional movies and the media have portrayed this, radiation does not cause you to glow. |
| Fact | Fiction | 13. Cigarettes are a source of radiation exposure. Naturally-occurring radioactive minerals accumulate on the sticky surfaces of tobacco leaves as the plant grows, and these minerals remain on the leaves throughout the manufacturing process. |
| Fact | Fiction | 14. Children are more sensitive to radiation than adults. Children are growing more rapidly than adults. There are more cells dividing and a greater opportunity for radiation to disrupt the growth process. U.S. Environmental Protection Agency (EPA) radiation protection standards take into account the differences in sensitivity due to age and gender. |