

Uranium Myths and Facts Quiz-Teacher Answer Key

Name: _____ Date: _____

Read each statement. Circle "True" or "False" for each statement depending on what you think or believe to be correct.

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| True | False | 1. Uranium is a man-made element. Uranium is a naturally occurring element found in rock, soil, water, air and our bodies. |
| True | False | 2. Uranium (U) is a silvery-white, weakly radioactive material in the actinide series of the periodic table. Uranium is a heavy metal with an atomic number of 92 and atomic weight of 238. It serves as an energy source because it is radioactive and gives off radiation that can be used for many purposes. |
| True | False | 3. Uranium atoms are unstable and decay (forming other elements like radium and radon) until they become stable lead atoms. Uranium decays at a slow rate. The decay process can take billions of years. |
| True | False | 4. Uranium decays at a quick rate. The amount of damage depends on the type of radiation, its energy and the total amount of radiation absorbed. Also, some human cells are more sensitive to radiation. |
| True | False | 5. Any amount of uranium exposure will cause you to develop cancer. The amount of damage depends on the type of radiation, its energy and the total amount of radiation absorbed. Also some human cells are more sensitive to radiation. |
| True | False | 6. Waste from uranium mining and milling remains radioactive forever. The radioactivity of the waste reduces with time. However, it can take many thousands of years before some of these materials no longer pose a risk. |
| True | False | 7. Most of the radiation that we are exposed to is man-made. Generally, half of our exposure to radiation comes from man-made sources and half from natural (background) radiation. The largest source of man-made radiation is medical exposure. |
| True | False | 8. Uranium gives off radiation (alpha particles, beta particles, and gamma rays) as it decays. As uranium decays and forms other elements, some atoms (like uranium-238, radium-226 and polonium-210) emit alpha particles (positively charged; made of two protons and two neutrons) from the atom's nucleus. Most isotopes decay by a combination of alpha particles, beta particles, and gamma rays. |

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| True | False | 9. Gamma rays produce short wavelengths at a high frequency and can penetrate the body and damage living tissue. Radiation is energy that travels in the form of waves or high-speed particles. Gamma rays produce ionizing radiation found at the short wavelength, high frequency end of the electromagnetic spectrum. The high energy of gamma rays can penetrate the body like x-rays and damage tissue and DNA. |
| True | False | 10. People are more at risk from radon exposure in their home than living near a nuclear power plant. 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. Radon can be an issue in any region and living near a nuclear power plant does not make you more or less likely to have a high level of radon in your home or school. Nuclear power plants implement many radiation protection measures to limit your exposure to radiation. Therefore, living near a power plant barely increases your overall radiation exposure. |
| True | False | 11. Uranium 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. Martin Klaproth, a German chemist, discovered uranium in 1789. However, the demand for and recognition of uranium increased after World War II. |
| True | False | 12. Radioactive mining and milling waste can get into our food, water, and air supplies. Radioactive waste that is not cleaned up or properly stored can get into food, water and air supplies. This increases the risk of inhaling, ingesting or experiencing direct exposure to radiation. |
| True | False | 13. I can reduce my risk of uranium exposure by using time, distance, and shielding protection measures. Basic radiation protection concepts (time, distance and shielding) can be applied separately or in combination to help limit people's exposure to increased radiation levels. |
| True | False | 14. Children and adults are equally sensitive to radiation exposure. Children are in the process of growing. There are more cells dividing and a greater opportunity for radiation to disrupt the growth process. Recent U.S. Environmental Protection Agency (EPA) radiation protection standards take into account differences in sensitivity due to age. |