

Name \_\_\_\_\_

## What Is An Isotope?

### Open-Ended Response Answer Key

1. Possible Answer: Scientists find isotopes fascinating because they allow us to explore the history of our planet, improve medical treatments, and develop new sources of energy. Isotopes provide a window into the past and the future of science.
2. Possible Answer: Without isotopes, we would struggle to determine the ages of ancient objects accurately, making archaeological discoveries more challenging. Medical imaging would be less effective, and we might not have developed nuclear energy. Our understanding of the world would be limited, and many scientific advancements would remain undiscovered.
3. Possible Answer: Radioactive isotopes can pose risks to human health and the environment if not handled properly. Scientists and society must ensure proper storage, handling, and disposal of radioactive materials to prevent accidents and contamination. Safety protocols, regulations, and monitoring are essential to manage these risks effectively.
4. Possible Answer: A career as a nuclear physicist or a radiologist could involve working with isotopes. Nuclear physicists research and develop new isotopes for various applications, including medical treatments and energy production. Radiologists use isotopes for medical diagnostics, helping to identify and treat illnesses. Both careers contribute to advancing our knowledge of science and improving human well-being.

