**Anticipation Guide: The Difference Between Radiation and Radioactivity**

**Read the following statements related to Radiation/Radioactivity. Mark each sentence you think is true with “T” and each sentence you think is false with “F.”**

1. \_T\_\_ An atom is the smallest particle that can be described as a chemical.
2. \_F\_\_ Atoms of the same chemical always have the same number of protons and neutrons.
3. \_T\_\_ Instability in an atom is usually caused by a mismatch between the number of protons and neutrons.
4. \_T\_\_ The breaking up or rearrangement of an atom’s nucleus is known as radioactivity.
5. \_T\_\_ Radiation is actually a particle or wave that is released during the radioactive decay process.
6. \_T\_\_ The half-life of an isotope is the same for all nuclei of that isotope (Carbon-15 vs Carbon 14).
7. \_T\_\_ A material with a short half-life is very radioactive.
8. \_F\_\_ Microwaves emit a type of radiation.
9. \_T\_\_ Gamma rays come from nuclear decay.
10. \_T\_\_\_ The wavelengths of ionizing electromagnetic radiation contain enough energy to push an electron out of its orbit around the atom, yet are stopped by dense materials such as lead or concrete.