**Uses of Radioisotopes**

**Strontium-90**

“Strontium-90, a radioactive isotope, is a by-product of nuclear reactors and present in nuclear fallout. It has a half-life of 28 years. It is absorbed by bone tissue instead of calcium and can destroy bone marrow and cause cancer. However, it is also useful as it is one of the best high-energy beta-emitters known. It can be used to generate electricity for space vehicles, remote weather stations and navigation buoys. It can also be used for thickness gauges and to remove static charges from machinery handling paper or plastic.”

(<http://www.rsc.org/periodic-table/element/38/strontium>)

**Americium-241**

“The vital ingredient of household smoke detectors is a very small quantity of Am-241 as americium dioxide (AmO2).

Americium-241 emits alpha particles and low energy gamma rays. The alpha particles emitted by the Am-241 collide with the oxygen and nitrogen in air in the detector's ionisation chamber to produce charged particles (ions). A low-level electric voltage applied across the chamber is used to collect these ions, causing a steady small electric current to flow between two electrodes. When smoke enters the space between the electrodes, the smoke particles attach to the charged ions, neutralizing them. This causes the number of ions present – and therefore the electric current – to fall, which sets off an alarm.

(<http://www.world-nuclear.org/information-library/non-power-nuclear-applications/radioisotopes-research/smoke-detectors-and-americium.aspx>)

Make sure to include in your recreation of the text:

* The application of the radioactive decay
* Type of radiation used (alpha, beta, gamma)