Nuclear Decay Worksheet FR answers

1. s

a. Alpha and beta particles have mass and volume, so he surface of the body can often stop or slow them down. Gamma rays are electromagnetic radiation, which doesn't undergo collisions and can travel farther into the body.

b. Some of the mass if he neutrons and protons is lost to nuclear binding energy, which is released by unstable nucleus.

c. Stable arsenic has an atomic weight of 75, so arsenic-81 has too many neutrons. It will undergo B^- decay, which converts a neutron into a positron.

d. In electron capture, the nucleus captures and electron from a lower energy level and combines it with a proton to form a neutron.

e. Remember Einstein's equation: $E=mc^2$.
This means that the energy released by a nuclear process is $9 X10^{16}$ times as large as the mass consumed.