Open up the Alpha Decay lab at http://phet.colorado.edu/en/simulation/alpha-decay

Open the sim and go to the Single Atom tab. Run Polonium-211 10 times and record your findings.

2.) Make predictions as to what will happen to the atoms at different time intervals. (I.E - As time intervals go lower, what happens?)

Now, play around with the sim and try to figure out what's going on with the Polonium and Lead atoms. After you finish with those go to custom and change the half life around. See if you can find a pattern with time and decay. Try adding multiple atoms to really see the effect.

3.) Did your predictions hold true?

Research these in your book or use the Internet:
1.) Explain Radioactive Decay in your own words.

2.) Contrast alpha decay with beta decay, in terms of what happens to the atom.

3.) Contrast alpha decay with beta decay and gamma emission (gamma happens with both) in terms of:
a. how far they can penetrate through materials

b. their potential to damage what they are absorbed by (think in biological tissues)

.