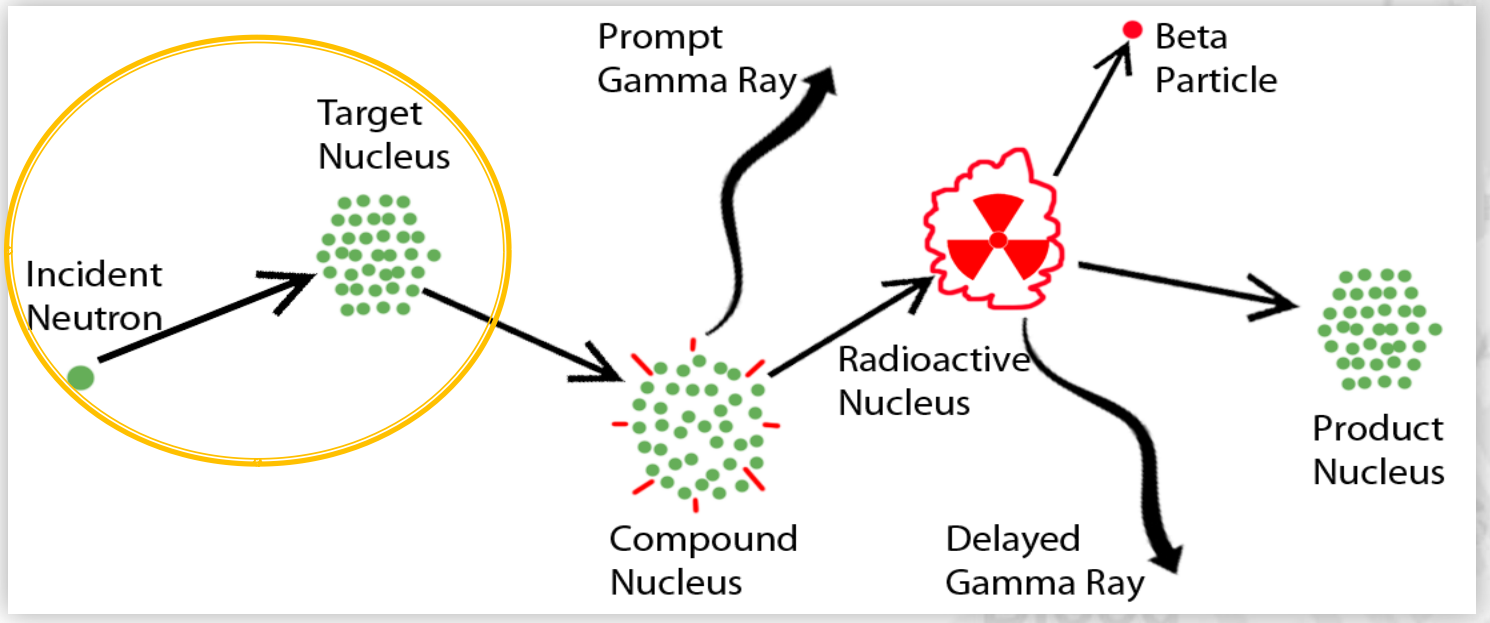
Elemental Analysis

1. Using electrons
   - Absorption spectroscopy
   - Emission spectroscopy
2. Using the nucleus
   - Neutron Activation Analysis (NAA)

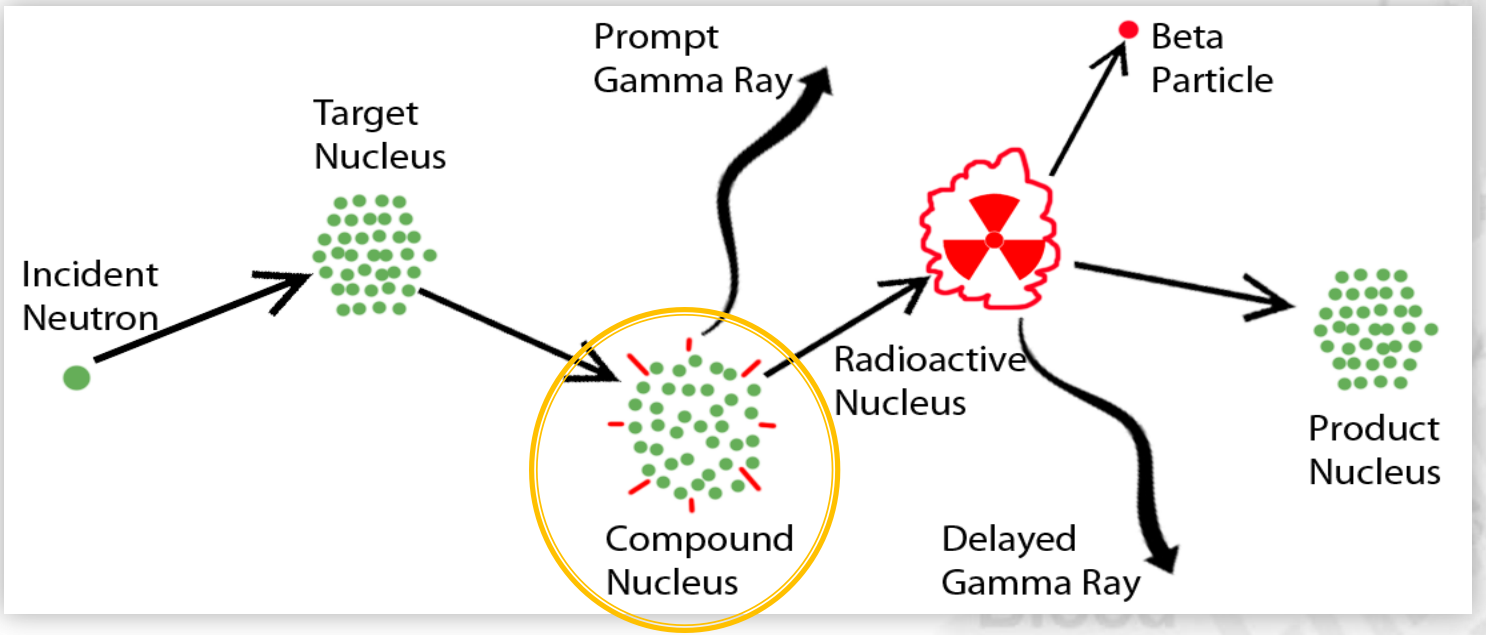
Neutron Activation Analysis

1 Irradiate sample with neutrons



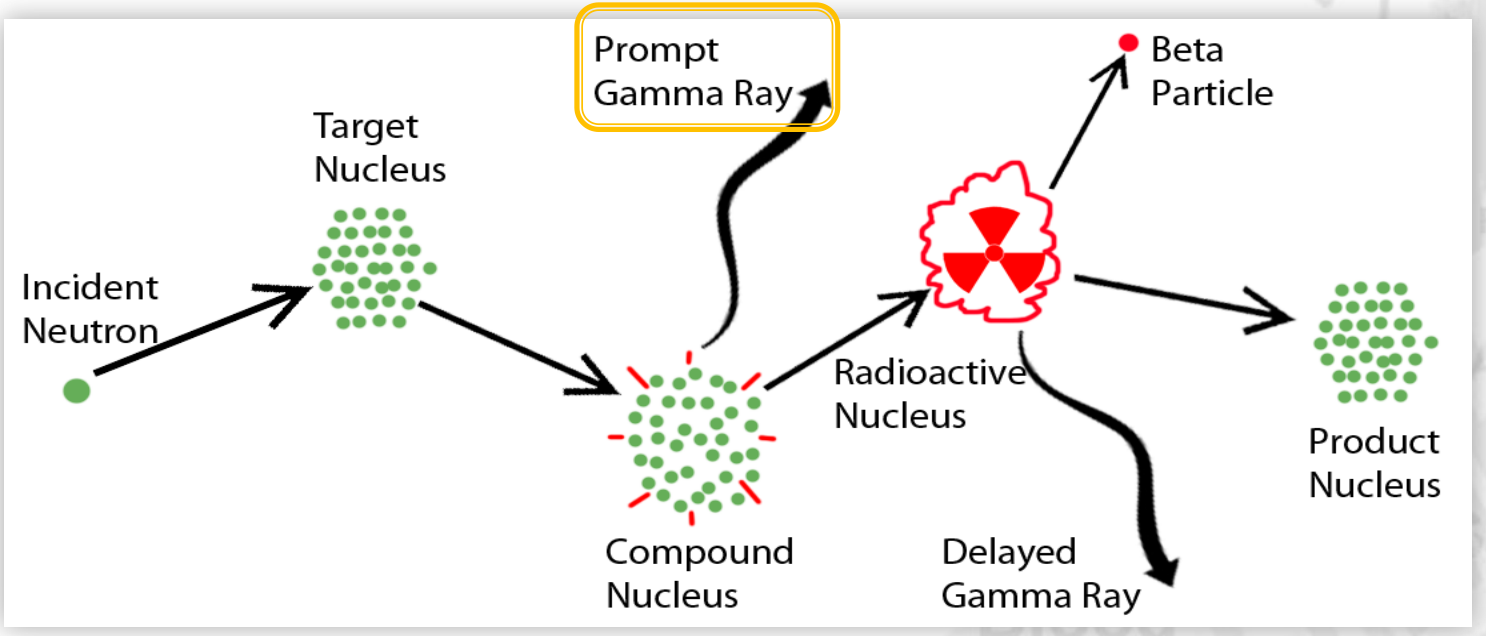
Neutron Activation Analysis

2 Excited nucleus



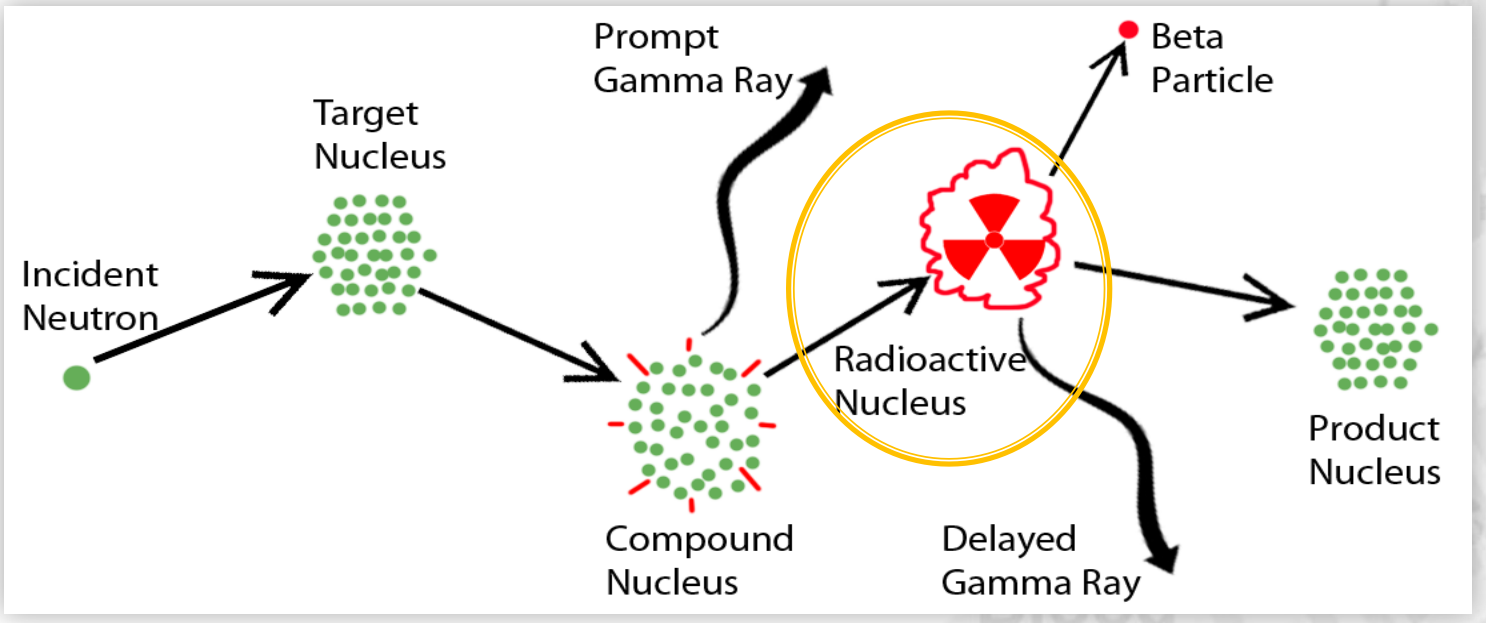
Neutron Activation Analysis

3 Nucleus decays ➡ Gives out gamma ray



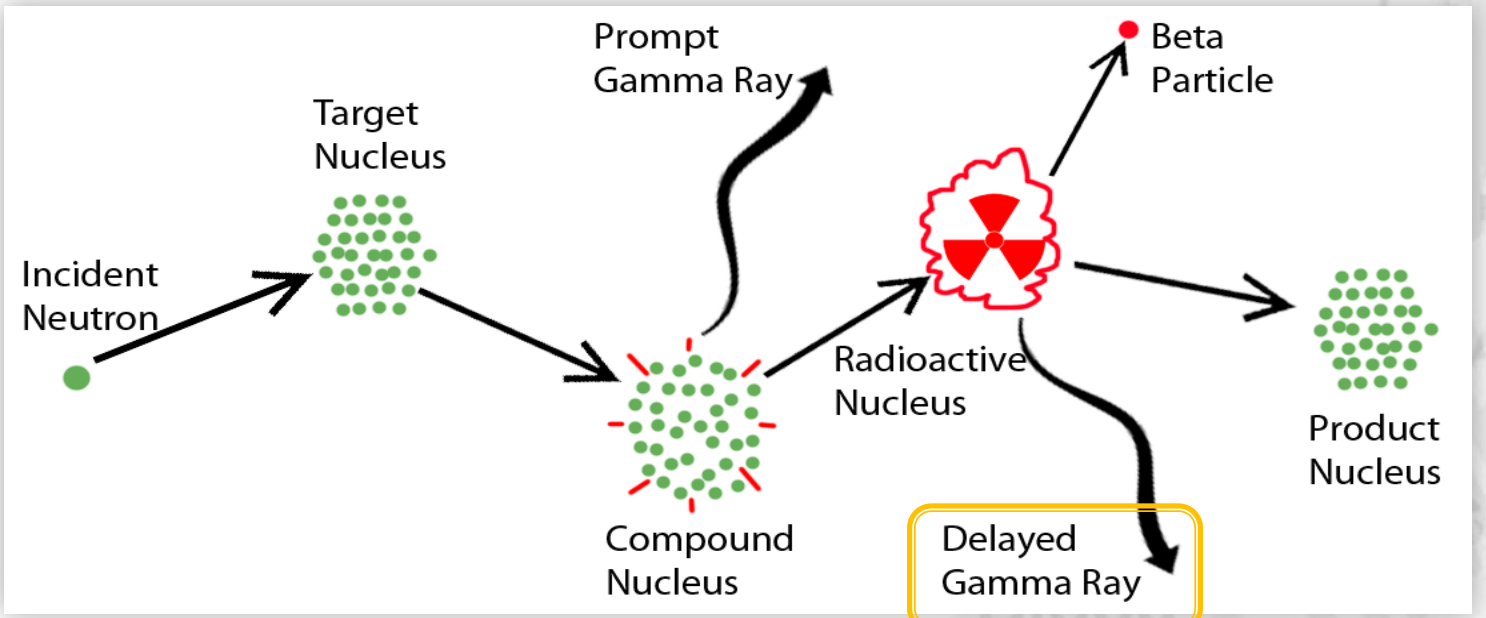
Neutron Activation Analysis

4 Nucleus becomes radioactive



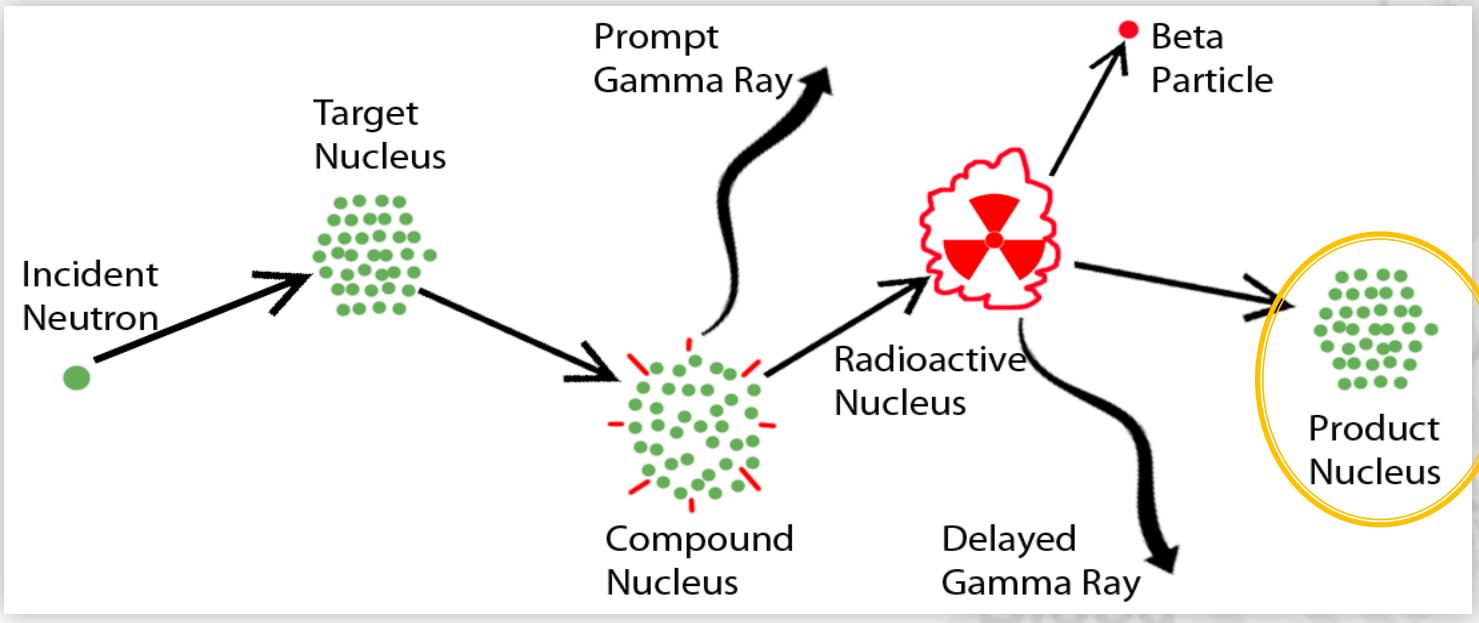
Neutron Activation Analysis

5 Gives out delayed gamma ray



Neutron Activation Analysis

6 Product nucleus formed



Neutron Activation Analysis

Gamma rays are characteristic

- Measure energy of gamma rays
- Analyze element

Neutron Activation Analysis

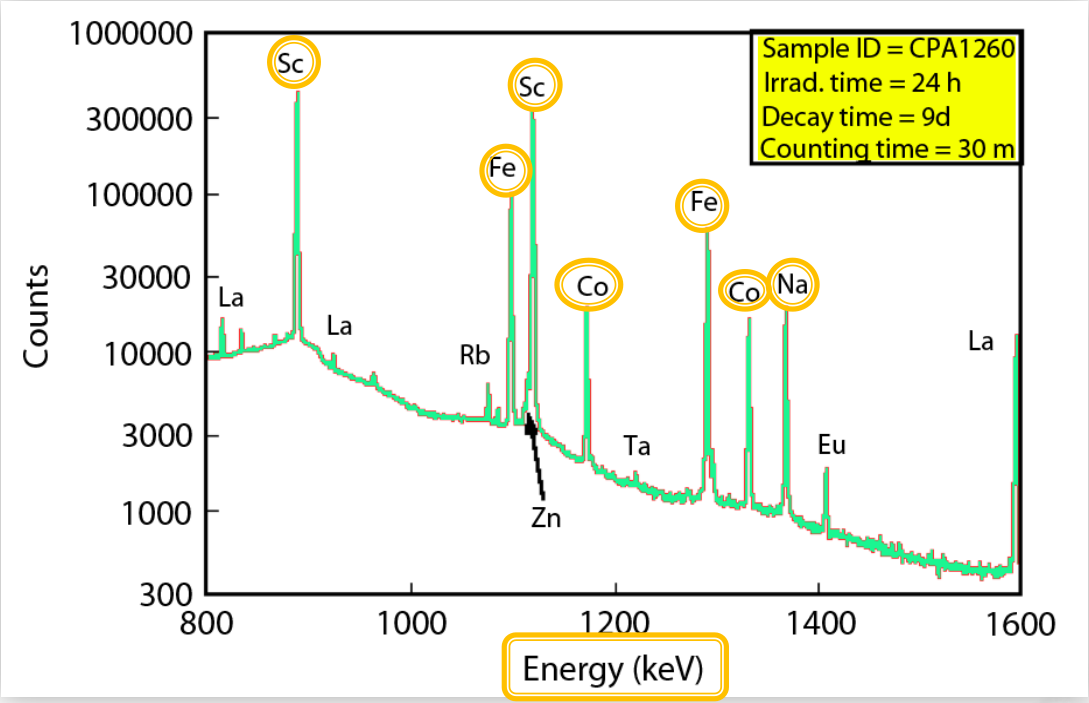
Advantage

- Non-destructive of sample

Disadvantage

- Require nuclear reactor

Neutron Activation Analysis



Qualitative & quantitative multi-element analysis