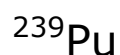
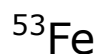


## Nuclear Review

- 1 Why would any isotope be unstable?
2. What can an unstable isotope do to get more stable?
- 3 What does spontaneous decay mean?
- 4 You discover a box sealed in 1917. It has 500.0 grams of Cs-137 inside. Being a great nuclear chemistry student you decide to figure out how much was originally packed in this box way back when.  
How much cesium was in there in 1917 (about)?
- 5 How would a graduate student in chemistry use C-14 to date fossils?
- 6 If you were behind a barn door made of wood, what protection would it offer to you from alpha, beta, and gamma radiation?

### COMPLETE THESE NUCLEAR REACTIONS

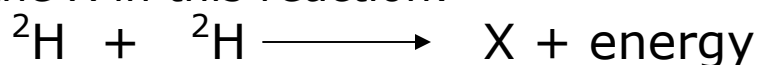


7 In a fission reaction there is a small loss of mass. Explain where that mass goes. How does this fit with the Law of Conservation of Matter?

8 Explain Einstein's famous equation in simple terms, and tell how it explains the loss of mass in a nuclear reaction.

9 How is I-131 used by doctors in hospitals?

10 What is the X in this reaction:



11 What type of reaction is this?  $\text{U} + 3\text{F}_2 \longrightarrow \text{UF}_6$

12 What is the X in this reaction:

