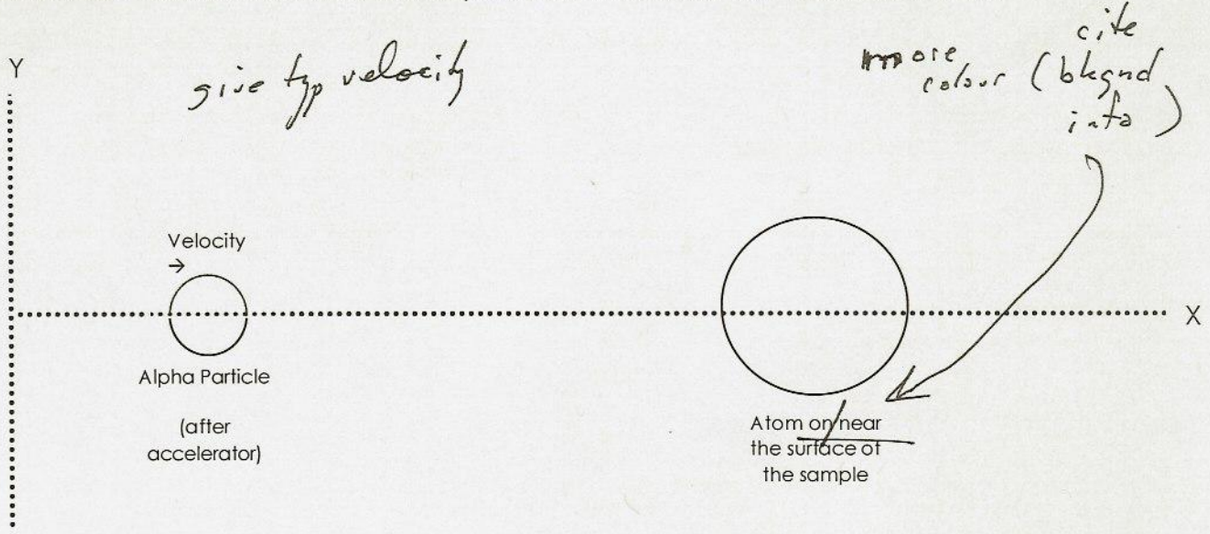
Target particle.?

how? Be explicit!

This mass is related to a specific element on the periodic table. In this manner we can measure the energy of the alpha particles after the collision and determine what elements are present near the surface of the target. We will consider two dimensions, x and y. The coordinates are labeled below.



Consider that the alpha particle's velocity is all in the X direction, with no Y component to the velocity. The atom near the surface does not have any initial velocity.

1. Using the velocity and mass you calculated in the first section for the alpha particle, calculate the momentum in the X direction ~~for the particle~~.

$\vec{p}_{xp} = m_p v_x$ **$(2.0\times10^{7}\ m/s)(1.7\times10^{-27}\ kg) = 3.4\times10^{-20}\ kg\ m/s$ in the x direction**

reverse

not the y though?

Be a little clearer & even more explicit please when describing "we choose coordinates such that..."

2. What is the total momentum in the x direction for the system of alpha particle and surface atom?

$\vec{p}_{yp} = m_p v_y = m_p(0\ m/s)$

No y component, ~~3.4x10^{-20} kg m/s in the x direction~~

p

3. What is the total momentum in the y direction for the system of alpha particle and surface atom?

No y component, 0 momentum in the y direction

Units