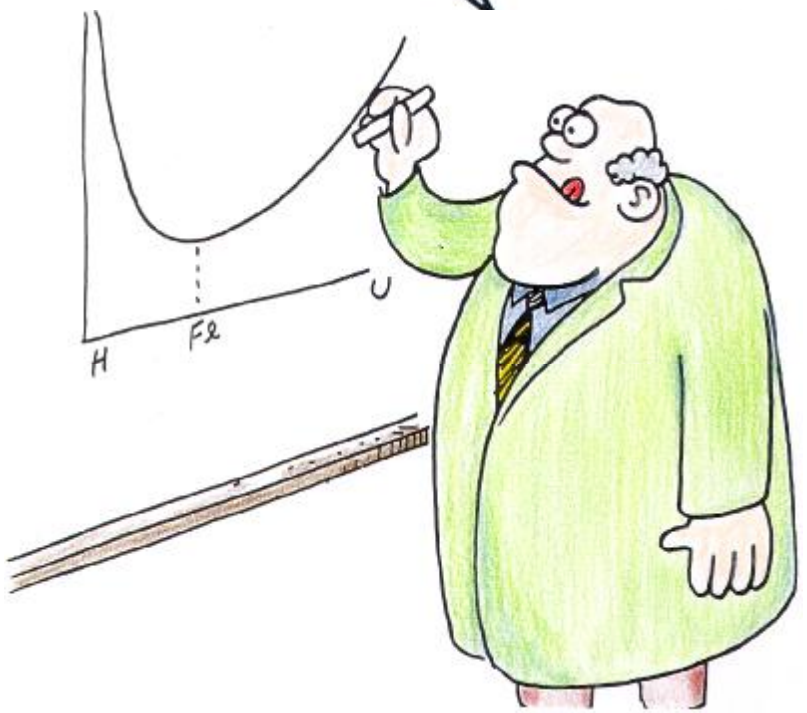
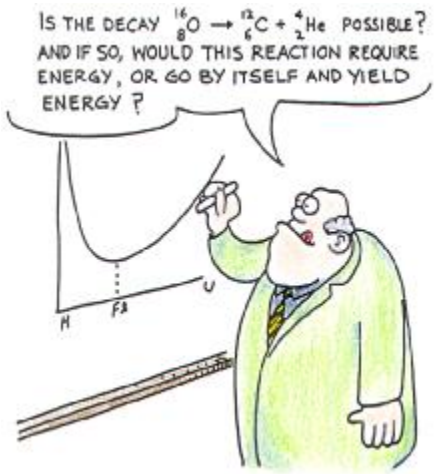
NEXT-TIME QUESTION

IS THE DECAY $^{16}_{8}O \rightarrow {}^{12}_{6}C + {}^{4}_{2}He$ POSSIBLE? AND IF SO, WOULD THIS REACTION REQUIRE ENERGY, OR GO BY ITSELF AND YIELD ENERGY ?



Hewitt Drew-it!

NEXT-TIME QUESTION



Answer: yes and require energy

The decay is possible, for both charge and mass number are conserved (the numbers on left = the total numbers on the right). Inspection of the mass/nucleon-vs-atomic-number curve shows that the reaction "climbs" the hill, so there is more mass after the reaction than before. This means the reaction will require an input of energy. How much? An amount equal to the the gain in mass multiplied by the speed of light squared!