Beta + Decay
Questions for GCSE Physics

1. What type of particle is emitted during beta-plus decay?

A positron (an anti-electron)

2. Describe the change that occurs to a proton in the nucleus during beta-plus decay.

A proton turns into a neutron and emits a positron

3. State the relative charge of a beta-plus particle.

+ 1

4. State how the atomic number changes during beta-plus decay.

The atomic number decreases by one (it loses a proton)

5. Explain why the mass number remains unchanged during beta-plus decay.

The nucleus loses a proton but gains a neutron so mass stays the same

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6. Magnesium-23 (atomic number 12 and symbol Mg) decays by beta-plus emission into sodium (Na). Write a balanced nuclear equation for this decay.

$$^{23}_{12}Mg \rightarrow {}^{23}_{11}Na + {}^{0}_{+1}e$$

(or $^{23}_{12}Mg \rightarrow {}^{23}_{11}Na + {}^{0}_{+1}\beta$ *)*

7. Flourine-18 (atomic number 9 and symbol F) decays by beta-plus emission into oxygen (O). Write a balanced nuclear equation for this decay.

$$^{18}_{9}F \rightarrow {}^{18}_{8}O + {}^{0}_{+1}e$$

(or $^{18}_{9}F \rightarrow {}^{18}_{8}O + {}^{0}_{+1}\beta$ *)*

8. Carbon-11 (atomic number 6 and symbol C) decays by beta-plus emission into boron (B). Write a balanced nuclear equation for this decay.

$$^{11}_{6}C \rightarrow {}^{11}_{5}B + {}^{0}_{+1}e$$

(or $^{11}_{6}C \rightarrow {}^{11}_{5}B + {}^{0}_{+1}e$ *)*

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