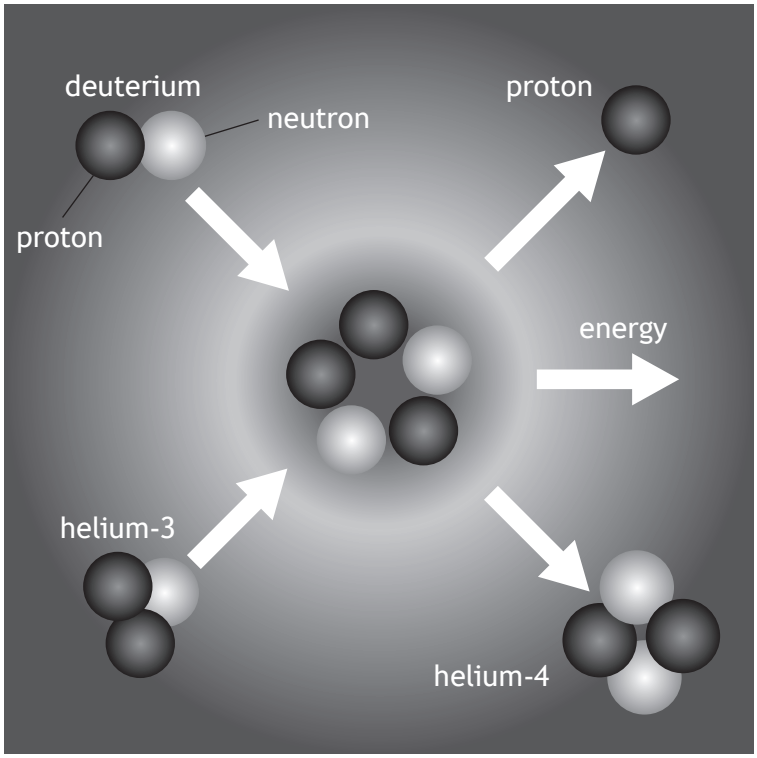
9. A diagram from a 'How Things Work' website contains information about a nuclear fusion reaction.

Reaction of helium-3 with deuterium



(a) State what is meant by the term *nuclear fusion*. **1**

9. (continued)

(b) The following statement represents this fusion reaction.

$$^{3}_{2}\text{He} + {}^{2}_{1}\text{H} \rightarrow {}^{4}_{2}\text{He} + {}^{1}_{1}\text{p}$$

The mass of the particles involved in the reaction are shown in the table.

Particle	*Mass* (kg)
$^{3}_{2}\text{He}$	$5{\cdot}008 \times 10^{-27}$
$^{2}_{1}\text{H}$	$3{\cdot}344 \times 10^{-27}$
$^{4}_{2}\text{He}$	$6{\cdot}646 \times 10^{-27}$
$^{1}_{1}\text{p}$	$1{\cdot}673 \times 10^{-27}$

(i) Explain why energy is released in this reaction. **1**

(ii) Determine the energy released in this reaction. **4**

Space for working and answer