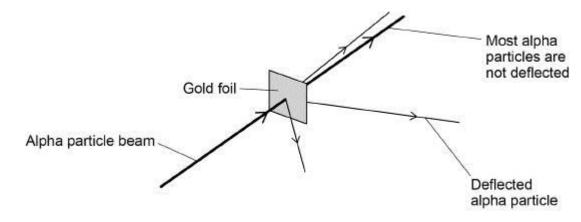
KS4 Combine Science (Trilogy) HW 5 - Atomic structure & periodic table

Q1. This question is about gold and compounds of gold.

In the alpha particle scattering experiment alpha particles are fired at gold foil.

Alpha particles are positively charged.

The diagram below shows the results.



(a) Some alpha particles are deflected.

Complete the sentence. Choose the answer from the box.

negatively charged	not charged	positively charged
Some alpha particles are	deflected because	the nucleus of the
atom is	·	

(b) Why are most alpha particles **not** deflected? Tick (✓) **one** box.

The atom is a tiny sphere that cannot be divided.	9
The atom is mainly empty space.	()
The electrons orbit the nucleus at specific distances.	29

(1)

(1)

(0)	what was one conclusion from the alpha particle scattering experiment:
	Tick (✓) one box.
	The mass is concentrated at the centre of the atom.
	The mass is concentrated at the edge of the atom.
	The mass is spread evenly throughout the atom.
Gold	I reacts with the elements in Group 7 of the periodic table.
(d)	What are Group 7 elements known as?
	Tick (✓) one box.
	Alkali metals
	Halogens
	Noble gases
(e)	Fluorine, chlorine and bromine react with gold.
	Which element will be the most reactive with gold?
	Tick (✓) one box.
	Fluorine Chlorine Bromine
(f)	3.94 g of gold reacts with chlorine to produce 6.07 g of gold chloride.
	The word equation for the reaction is:
	gold + chlorine → gold chloride
	Calculate the mass of chlorine that reacts with 3.94 g of gold.
	Mara and the state of the state
	Mass = $_{_{_{_{_{_{_{_{_{_{_{_{_{_{_{_{_{1}}}}}}}}$

(g)	Calculate the relative formula mass (M_r) of gold chloride (AuCl ₃).				
	Relative atomic masses (A_r): CI = 35.5 Au = 197				
			Relative formula mass (<i>M</i> _r) =		
			(Total 8 r		
		-	cion (Qu2) in your book		
	(IIISUIII	cient sp	pace for your response on this sheet)		
his q	uestion is	about e	lements. Caesium is in Group 1 of the periodic table.		
(a)			ppens to caesium atoms and to oxygen atoms when caesium reacts roduce caesium oxide.		
	You sho	ould ansv	ver in terms of electrons.		
(b)	Explain why caesium is more reactive than sodium.				
	You should answer in terms of electrons.				
(c)	The diagram below shows part of Mendeleev's periodic table.				
	16 O	19 F	Explain why the early periodic tables placed iodine (I) before		
	32 S	35.5 CI	tellurium (Te), but then Mendeleev placed tellurium before iodine.		
	3				
	79 Se	80 Br			
	79				

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