

# Atomic structure



## Task 1: The structure of the atom

a) Complete the table.

	Electron	Neutron	Proton
Charge			
Mass			
Location			

b) Answer the questions below.

i) What is the overall charge of the atom?

ii) What is the overall charge of the nucleus?

c) Describe the structure of the atom, with reference to all subatomic particles, relevant masses and charges. (6 marks)

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## Task 2: Atomic symbols

a) Complete the sentences.

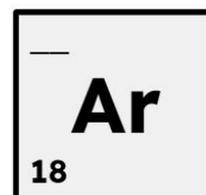
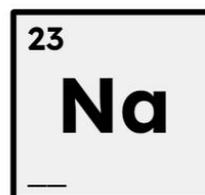
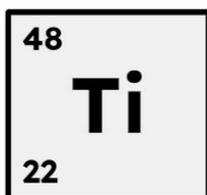
The number of protons is the \_\_\_\_\_ number.

The number of electrons is \_\_\_\_\_ to the number of \_\_\_\_\_.

The number of neutrons is the \_\_\_\_\_ number minus the \_\_\_\_\_ number.

Name \_\_\_\_\_

b) Fill the blank boxes.



<b>protons</b>	12			
<b>electrons</b>	12			
<b>neutrons</b>	12		12	22

c) Complete the table.

	Chemical symbol	Protons	Electrons	Neutrons
<b>teryllium</b>				
<b>iron</b>				
<b>bismuth</b>				
<b>caesium</b>				
<b>strontium</b>				
<b>lead</b>				

d) i) Find the element for each clue.

	Name	Symbol
<b>has 7 neutrons</b>		
<b>Its atomic number and mass number add up to 24.</b>		
<b>Its neutrons and protons add up to 85.</b>		
<b>has 20 protons</b>		

ii) Unscramble the anagram of chemical symbols to spell another element.



## Task 1: The structure of the atom

a) Complete the table.

	Electron	Neutron	Proton
Charge	-1	0	+1
Mass	0	+1	+1
Location	shells	nucleus	nucleus

b) Answer the questions below.

i) What is the overall charge of the atom?

0 or neutral

ii) What is the overall charge of the nucleus?

positive

c) Describe the structure of the atom, with reference to all subatomic particles, relevant masses and charges. (6 marks)

- The atom is made of protons, neutrons and electrons.
- Protons have positive charge; neutrons have neutral charge.
- Electrons have negative charge.
- The protons and neutrons are in the nucleus.
- The electrons are in the shells, which are round the outside of the atom.
- The rest of the atom is empty space.

Annotated diagrams are accepted too.

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## Task 2: Atomic symbols

a) Complete the sentences.

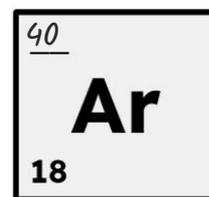
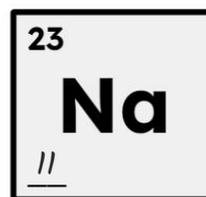
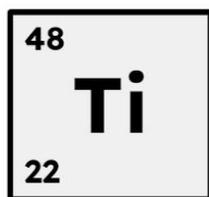
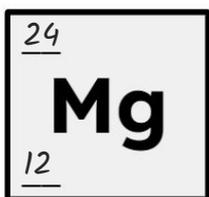
The number of protons is the atomic number.

The number of electrons is equal to the number of protons.

The number of neutrons is the atomic number minus the mass number.

Name \_\_\_\_\_

b) Fill the blank boxes.



<b>protons</b>	12	22	11	18
<b>electrons</b>	12	22	11	18
<b>neutrons</b>	12	26	12	22

c) Complete the table.

	<b>Chemical symbol</b>	<b>Protons</b>	<b>Electrons</b>	<b>Neutrons</b>
<b>teryllium</b>	<i>Te</i>	52	52	76
<b>iron</b>	<i>Fe</i>	26	26	30
<b>bismuth</b>	<i>I</i>	83	83	126
<b>caesium</b>	<i>Cs</i>	55	55	78
<b>strontium</b>	<i>Sr</i>	38	38	50
<b>lead</b>	<i>Pb</i>	82	82	125

d) i) Find the element for each clue.

	<b>Name</b>	<b>Symbol</b>
<b>has 7 neutrons</b>	<i>nitrogen</i>	<i>N</i>
<b>Its atomic number and mass number add up to 24.</b>	<i>oxygen</i>	<i>O</i>
<b>Its neutrons and protons add up to 85.</b>	<i>rubidium</i>	<i>Rb</i>
<b>has 20 protons</b>	<i>calcium</i>	<i>Ca</i>

ii) Unscramble the anagram of chemical symbols to spell another element.

*carbon*