



EXERCISE 21

MATTER AND MATERIALS

PAGE 224



1 Answer the following questions about an atom:

1.1 Which particle is neutral?

Neutron

1.2 Which particles have a mass of 1 u?

A proton and a neutron

1.3 Which particle is negative?

Electron

1.4 Which particles contribute to the volume of an atom?

Electrons





1.5 Which particles contribute to the mass of an atom?

Protons and neutrons/nucleons



1.6 Which particle is positive?

Proton

1.7 What are protons and neutrons collectively known as?

Nucleons

1.8 What is the mass of one proton in atomic mass units?

1 u ($= 1,7 \times 10^{-27}$ kg)



1.9 What is the mass of one neutron in atomic mass units?

1 u



1.10 What is the mass of one electron in atomic mass units?

$\frac{1}{1840} \text{ u}$



2 A certain element (represented by X) has the following nuclear notation:

127

X

52



2.1 How many protons does this atom have? 52

2.2 How many neutrons does this atom have? 75

2.3 How many electrons does a neutral atom of this element have? 52



2.4 How many nucleons does this atom have?

127

2.5 Which particles give this atom its volume?

Electrons

2.6 What makes up the mass of this atom?

Nucleus/nucleons/protons and neutrons

2.7 What is the atomic number?

52





2.8 What is the mass number?

127

3. Complete the following table:

Atom/ion	Symbol	Mass number	Nucleons	Protons	Atomic number	Electrons	Neutrons
Sodium	a. Na	b. 23	23	11	c. 11	d. 11	e. 12
f. Carbon	C	12	g. 12	h. 6	i. 6	j. 6	k. 6
Swawel	l. S	m. 32	32	n. 16	16	o. 16	p. 16
q. Sulfur	Mg	24	r. 24	12	s. 12	12	t. 12
Argon	u. Ar	40	40	v. 18	18	w. 18	x. 22



4. What are isotopes?

**Atoms of the same element with:
the same atomic number;
the same number of protons;
different atomic mass;
different number of neutrons.**



5. Which one of the following is not an isotope of the other three examples?

35	36	35	34
X	X	X	X
17	17	16	17



35

X

16

