

Structure of an Atom

Science Worksheet • Student Version

Name: _____ Class: _____ Date: _____

Learning Goal

Identify the three main subatomic particles, their charges and locations, and use atomic number information to describe an atom.

A. Multiple Choice

1. Which particle has a positive charge?
☐ A. Electron ☐ B. Proton ☐ C. Neutron ☐ D. Atom
2. Which particle has no electrical charge?
☐ A. Proton ☐ B. Electron ☐ C. Neutron ☐ D. Nucleus
3. Where are protons and neutrons found?
☐ A. Electron cloud ☐ B. Nucleus ☐ C. Orbit only ☐ D. Outside the atom
4. Which particle has a negative charge?
☐ A. Proton ☐ B. Neutron ☐ C. Electron ☐ D. Nucleus

B. Complete the Sentences

5. The three main subatomic particles are _____, _____, and _____.
6. A proton has a charge of _____.
7. A neutron has a charge of _____.
8. An electron has a charge of _____.
9. The number of _____ determines the element's atomic number.

C. Match the Particle to Its Description

Particle	Description
1. Proton	A. Negative charge; found in the electron cloud
2. Neutron	B. Positive charge; found in the nucleus
3. Electron	C. No charge; found in the nucleus

D. True or False

10. Protons and neutrons are located in the nucleus. ☐ True ☐ False
11. Electrons have a positive charge. ☐ True ☐ False
12. The number of neutrons can vary, forming isotopes. ☐ True ☐ False
13. Electrons are described as being in probability clouds rather than fixed paths. ☐ True ☐ False

E. Apply What You Know: Helium

A helium atom has 2 protons, 2 neutrons, and 2 electrons.

14. How many protons does helium have? _____

15. How many neutrons does helium have? _____
16. How many electrons does helium have? _____
17. What is the atomic number of helium? _____

F. Challenge

18. An atom has 8 protons, 8 neutrons, and 8 electrons. What element is it? _____
19. If an atom gains one electron, does its number of protons change? Explain briefly.
- _____
20. Why is the nucleus considered the center of the atom?
- _____

Answer Key

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Q	Answer
1	B. Proton
2	C. Neutron
3	B. Nucleus
4	C. Electron
5	Protons, neutrons, electrons
6	+1
7	0 (neutral)
8	-1
9	Protons
10	True
11	False — electrons have a negative charge.
12	True
13	True
14	2
15	2
16	2
17	2
18	Oxygen
19	No. Gaining an electron changes the number of electrons, not protons.
20	The nucleus contains the protons and neutrons and is the dense central region of the atom.

Liveworksheets tip: Upload the student page as the worksheet, then add text boxes for blanks, multiple-choice fields for checkboxes, and dropdown/matching fields for Section C.