



The National
Orthodox School
Shmaisani

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Subject: Science/ Chemistry

Name:

Title: Atomic structure Activity Booklet

Date:

Grade-Section: 8CS

Objective: To be able to describe an element by its atomic structure.

To be able to draw the atomic structure of the first twenty elements.

To describe patterns in the atomic structure of the first twenty elements.

To compare between atoms and ions.

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(Activity 1) Fill in the table below.

Element	Symbol	Atomic number	Atomic mass	Number of electrons	Number of protons	Number of neutrons
Potassium	K	19	39	19	19	20
Neon	Ne	10	20	10	10	10
Magnesium	Mg	12	24	12	12	12
Fluorine	F	9	19	9	9	10

(Activity 2) Fill in the table below to show the atomic configuration, group number and period number of each element.

Element	Atomic number	Atomic configuration	Group number	Period number
Beryllium	4	2,2	2	2
Argon	18	2,8,2	2	3
Fluorine	9	2,7	7	2
Sulfur	16	2,8,6	6	3

- ✓ Elements are more stable when they have full outer shells (orbits).
- ✓ When an element loses or gains electrons, then it is an ION.
- ✓ An element has a positive ion when it loses electrons.

K¹⁹ 2,8,8,1 it will lose will electron **K⁺¹ 2,8,8**

- ✓ An element has a negative ion when it gains electrons.

Cl¹⁷ 2,8,7 it will gain an electron **Cl⁻¹ 2,8,8**

(Activity 3) Complete the table below, then answer the following questions.

Element	Atom			Ion			
	Atomic number	Number of protons	Number of electrons	Does it gain or lose electrons?	Number of protons	Number of electrons	Atomic charge
Ca	20	20	20	Lose 2e	20	18	+2
N	7	7	7	Gain 3e	7	10	-3
Ne	10	10	10	Noble gases will not form ions			
Mg	12	12	12	Lose 2e	12	10	+2
P	15	15	15	Gain 3e	15	18	-3

