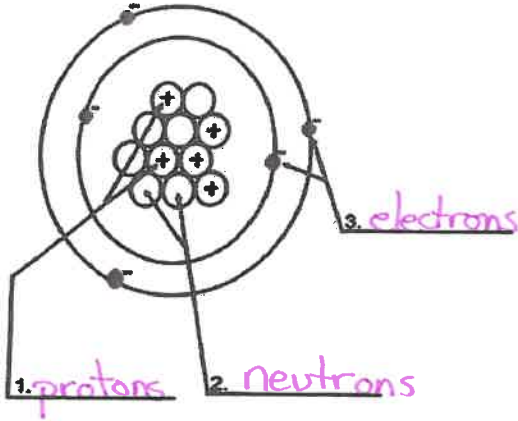


Key

## Atomic Structure Worksheet (1-15)

1. Label the 3 parts of the atom below.



4. What type of charge does a proton have?

positive

5. What type of charge does a neutron have?

neutral (none; no charge)

6. What type of charge does an electron have?

negative

7. Which 2 sub-atomic particles are in the nucleus?

protons and neutrons

8. If an atom has 35 protons in the nucleus, how many electrons will it have orbiting the nucleus?

35

9. What is the atomic number of the atom in the diagram above?

5

10. What is the atomic mass of the atom in the diagram above?

11

11. How many protons are in the nucleus of an atom with an atomic number of 15?

15

12. How many electrons are in the nucleus of an atom with an atomic number of 20?!?

0

13. How many neutrons are in the nucleus of an atom with an atomic number of 25? (use the Periodic Table for the mass)

Mn atomic mass = 55

$$\begin{aligned} \text{neutrons} &= \text{mass} - \text{atomic} \\ \# & \quad \# \\ &= 55 - 25 \rightarrow 30 \end{aligned}$$

14. What is the mass number of an atom with 3 protons, 4 neutrons, and 3 electrons?

$$3p + 4n = 7$$

15. How many neutrons are in the nucleus of an atom that has an atomic mass of 36 and an atomic number of 25?

$$\begin{aligned} \text{neutrons} &= \text{atomic mass} - \text{atomic} \# \\ &= 36 - 25 \\ &= 11 \end{aligned}$$

The Atoms Family  
Atomic Math Challenge

8	← Atomic #
O	← Symbol
Oxygen	← Name
15.999	← Mass

Atomic number equals  
the number of

+ or -

Atomic mass equals  
the number of

+ + 0

8
O
<u>Oxygen</u>
15.999

Atomic # = 8

Atomic Mass = 16

# of Protons = 8

# of Neutrons = 8

# of Electrons = 8

30
<u>Zn</u>
Zinc
65.39

Atomic # = 30

Atomic Mass = 65

# of Protons = 30

# of Neutrons = 35

# of Electrons = 30

3
Li
<u>Lithium</u>
6.941

Atomic # = 3

Atomic Mass = 7

# of Protons = 3

# of Neutrons = 4

# of Electrons = 3

14
<u>Si</u>
Silicon
28.086

Atomic # = 14

Atomic Mass = 28

# of Protons = 14

# of Neutrons = 14

# of Electrons = 14

5
B
<u>Boron</u>
10.81

Atomic # = 5

Atomic Mass = 11

# of Protons = 5

# of Neutrons = 6

# of Electrons = 5

35
<u>Br</u>
Bromine
79.904

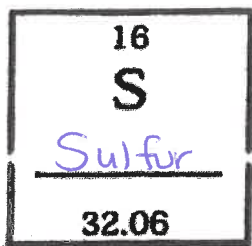
Atomic # = 35

Atomic Mass = 80

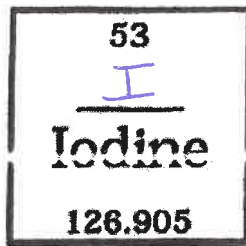
# of Protons = 35

# of Neutrons = 45

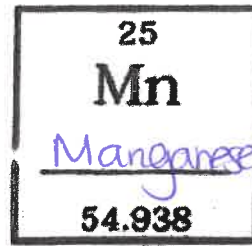
# of Electrons = 35



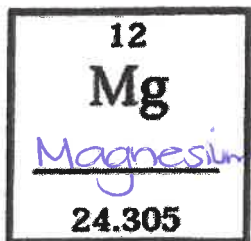
Atomic # = 16  
 Atomic Mass = 32  
 # of Protons = 16  
 # of Neutrons = 16  
 # of Electrons = 16



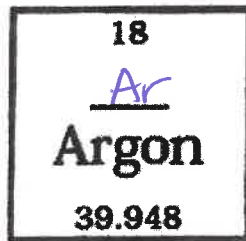
Atomic # = 53  
 Atomic Mass = 127  
 # of Protons = 53  
 # of Neutrons = 74  
 # of Electrons = 53



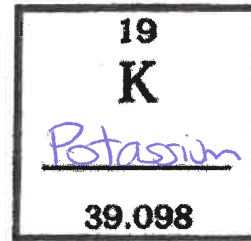
Atomic # = 25  
 Atomic Mass = 55  
 # of Protons = 25  
 # of Neutrons = 30  
 # of Electrons = 25



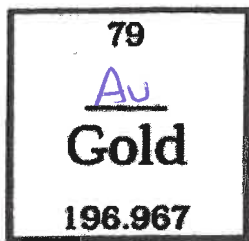
Atomic # = 12  
 Atomic Mass = 24  
 # of Protons = 12  
 # of Neutrons = 12  
 # of Electrons = 12



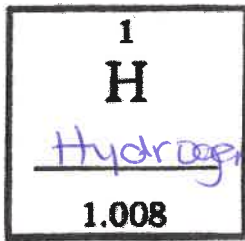
Atomic # = 18  
 Atomic Mass = 40  
 # of Protons = 18  
 # of Neutrons = 22  
 # of Electrons = 18



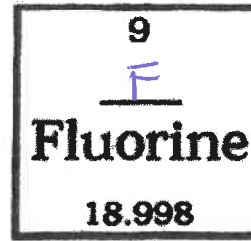
Atomic # = 19  
 Atomic Mass = 39  
 # of Protons = 19  
 # of Neutrons = 20  
 # of Electrons = 19



Atomic # = 79  
 Atomic Mass = 197  
 # of Protons = 79  
 # of Neutrons = 118  
 # of Electrons = 79



Atomic # = 1  
 Atomic Mass = 1  
 # of Protons = 1  
 # of Neutrons = 0  
 # of Electrons = 1



Atomic # = 9  
 Atomic Mass = 19  
 # of Protons = 9  
 # of Neutrons = 10  
 # of Electrons = 9

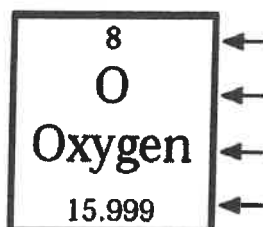
# Protons, Neutrons, and Electrons Practice Worksheet

Calculating the number of each particle in an atom:

# Protons = Atomic Number

# Electrons = Protons

# Neutrons = Atomic Mass – Atomic Number OR Big # - Small #



Use the periodic table to find the numbers of protons, neutrons, and electrons for atoms of the following elements.

Name of Element	Element Symbol	Mass Number	Atomic Number	Protons	Neutrons	Electrons
Boron	B	11	5	5	6	5
Sodium	Na	23	11	11	12	11
Yttrium	Y	89	39	39	50	39
Copper	Cu	64	29	29	35	29
Technetium	Tc	98	43	43	141	43
Lead	Pb	207	82	82	125	82
Thallium	Tl	204	81	81	123	81
Hydrogen	H	1	1	1	0	1
Carbon	C	12	6	6	6	6
Nitrogen	N	14	7	7	7	7
Barium	Ba	137	56	56	81	56
Calcium	Ca	40	20	20	20	20
Silicon	Si	28	14	14	14	14
Argon	Ar	40	18	18	22	18
Magnesium	Mg	24	12	12	12	12