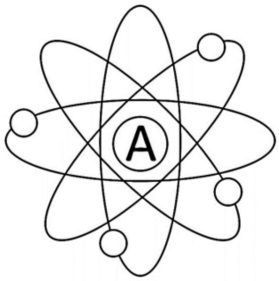
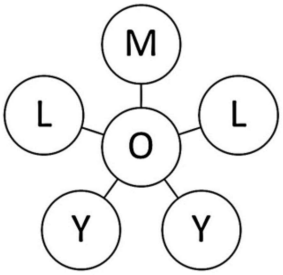
The Atom & Molly

75	57	54		9	92	7
Re	La	Xe	&	F	U	N
Rhenium	Lanthanum	Xenon		Fluorine	Uranium	Nitrogen

5	8	8	19
B	O	O	K
Boron	Oxygen	Oxygen	Potassium





Norman A. Katz

www.atomandmolly.com

The Atom & Molly

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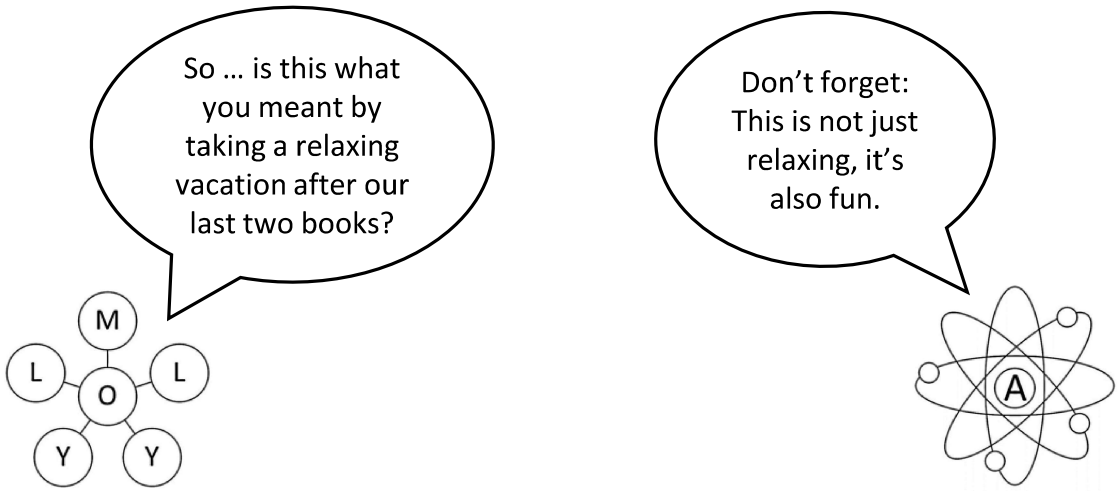
- ***The Atom & Molly ReLaXe & FUN BOOK*** – First published (2023)



The Atom & Molly

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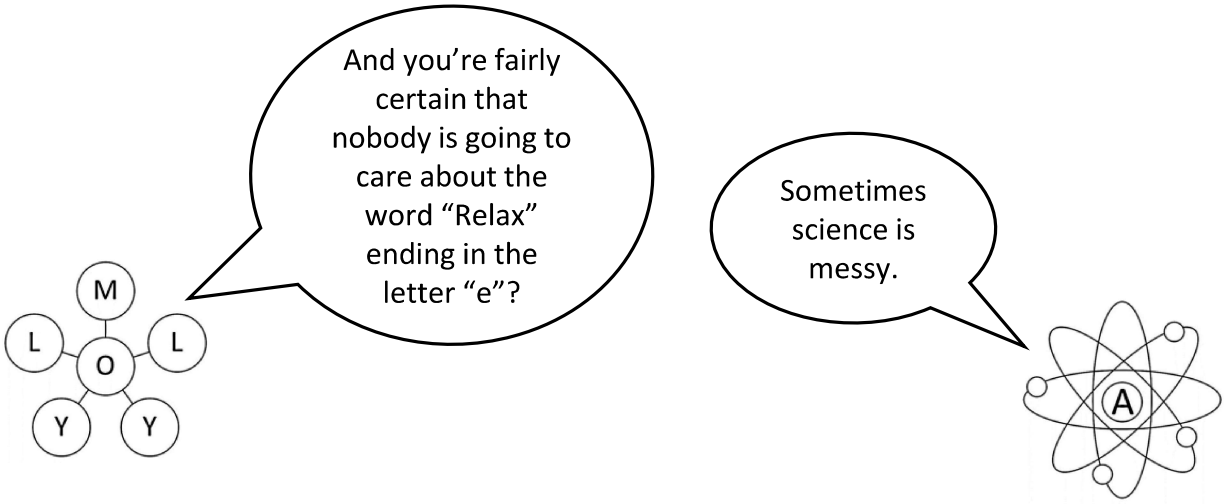
Disclaimer



The Atom & Molly

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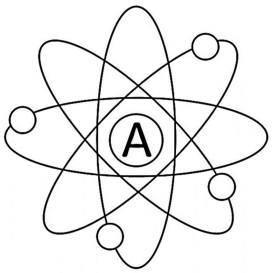
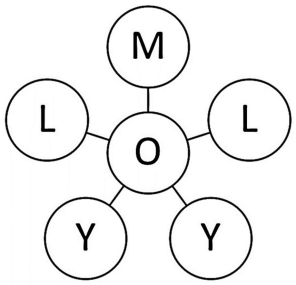


Table of Contents



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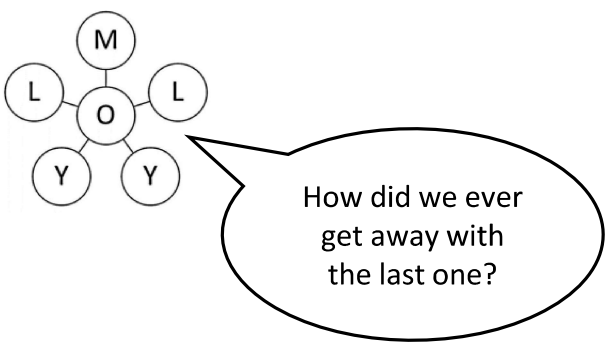
Related books in the *Atom & Molly* series

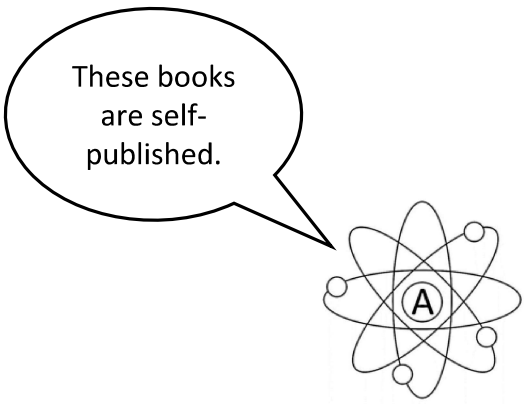
Atom & Molly present Quarky Quatrains (2023)

Atom & Molly: The Wireframe Edition (2022)

Great 3's of science include:

- The three primary states of matter (solid, liquid, gas)
- The three laws of motion by Sir Isaac Newton
- The three dimensions in physics (width, length, depth)
- The three main branches of science (physical, earth, life)
- The three *Atom & Molly* books





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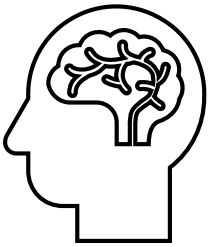
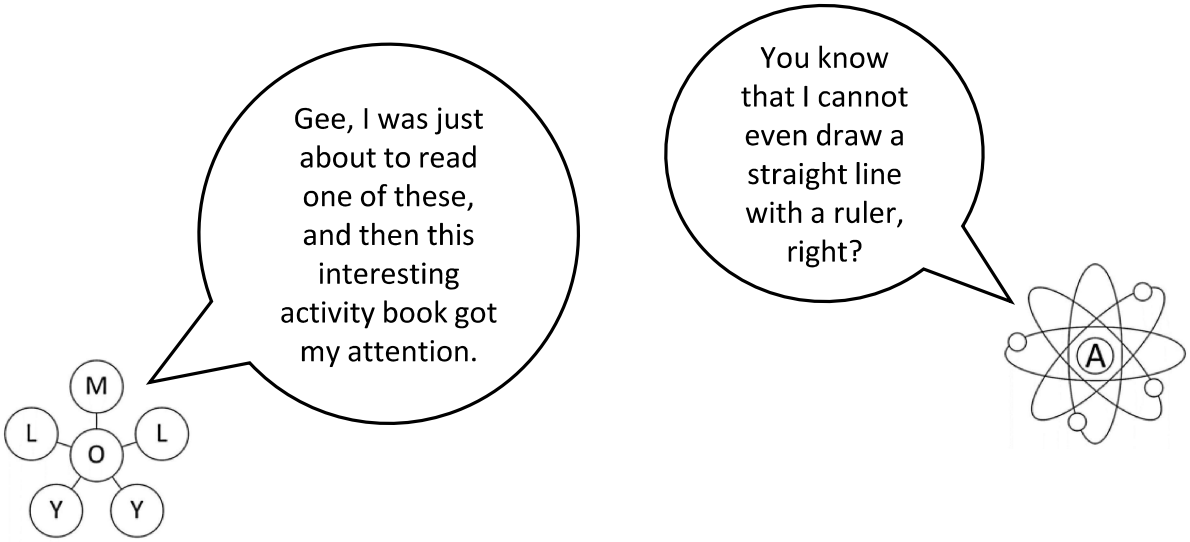
Other books by Norman A. Katz



- ***Detecting and Reducing Supply Chain Fraud*** (Gower/Routledge, 2012); www.supplychainfraud.com
- ***Successful Supply Chain Vendor Compliance*** (Gower/Routledge, 2016); www.vendorcompliance.info
- ***Attack, Parry, Riposte: A Fencer's Guide To Better Business Execution*** (Austin Macauley, 2021); www.attackparryriposte.com



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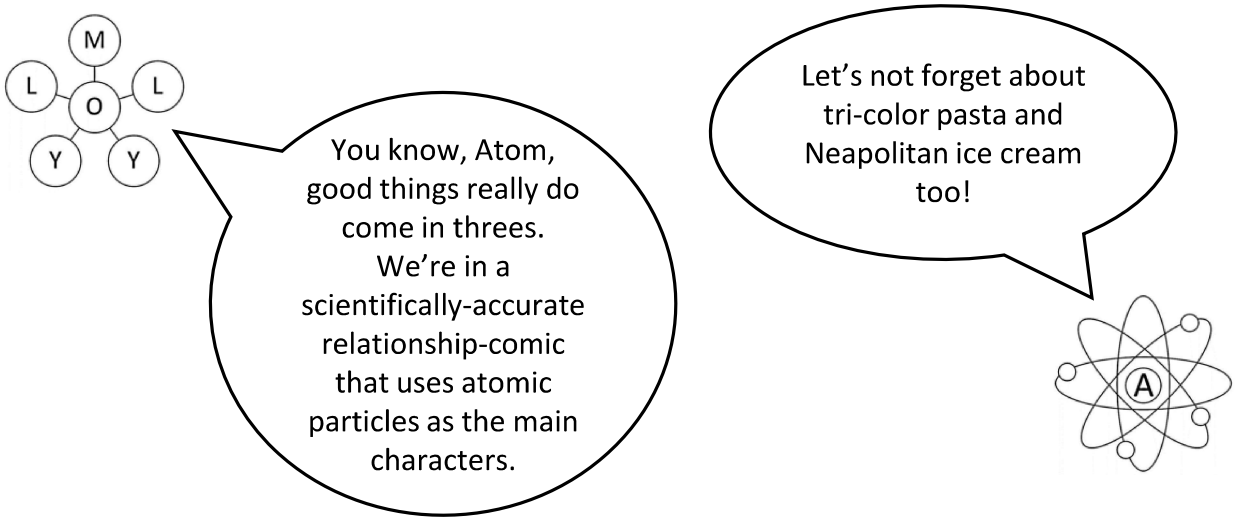
About This Book

This book is arranged as is one of the organizational attributes of the Periodic Table of Elements: by table "period" (horizontal row). Each book section offers: a word search comprised of the elements in the period; the opportunity to color the element's shells and its circulating electrons; the opportunity to color the nucleus particles (protons and neutrons); and the chance to color Atom and Molly in their standard forms. As the structure of the elements becomes increasingly complicated in traversing the Periodic Table, I had to figure out how to represent all those protons and neutrons on one page, so I hope you will appreciate the creativity. Grab your coloring pens and enjoy!



The Atom & Molly

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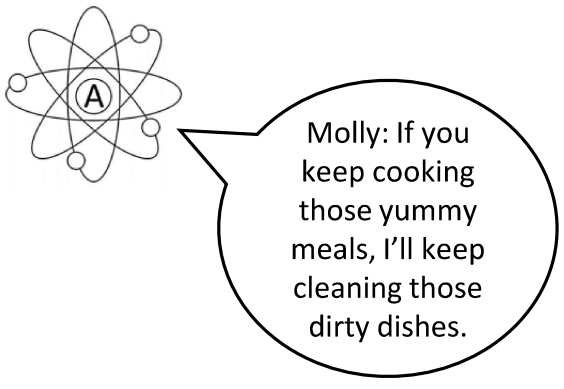
From The Desk Of The Creator

I have had some of my very best ideas at the kitchen sink while washing the dishes, music in the background, my mind focused on nothing more than the simple task of cleaning a dirty plate, utensil, or cup. Then, out of nowhere, I've solved a client's most confounded conundrum, created a clever communique, or conceived of a creative concept ... you get the idea. What I'm saying is that an idle mind is never really idle, and that sometimes giving your brain a break actually gives it time to think about what you really need it to. Enjoy this book for the entertainment that it is meant to provide and the unique humor of *Atom & Molly*. You don't need to finish this book all at once ... take your time, and take the time to enjoy each time you spend with it, learning about some science stuff along the way. And hopefully you'll get some inspirational ideas of your own as you – and we – spend time together.



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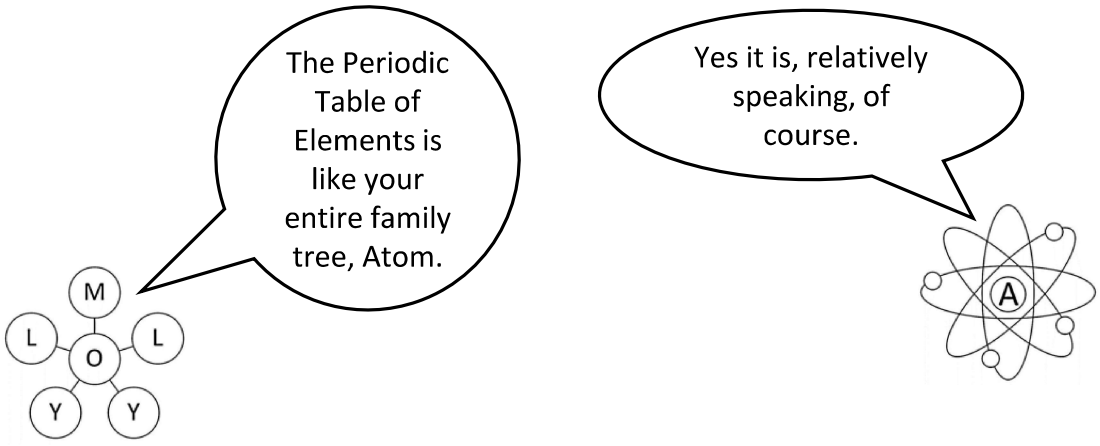
The Periodic Table of Elements

The elements on the Periodic Table are each comprised of a single type of atom; there are no molecules on the Periodic Table. In this book, you will be coloring each element's foundational particles: protons, neutrons, and electrons. An element's atomic number is the number of protons in the nucleus, which equals the number of electrons in the outer shells. At the beginning of each section, I provide a list of the elements in the Periodic Table "period" (horizontal row) with a breakdown of the number of protons, neutrons, and electrons, including the number of electrons by shell. The Table "period" (row) upon which an element resides equals the number of electron shells it has. For each element, you will find its electrons and their shells on one page, and the nucleus protons and neutrons on the following page.



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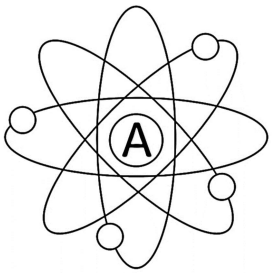
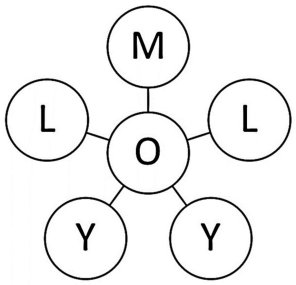
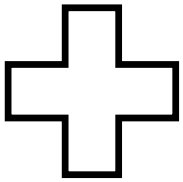


Particle Symbols Used In This Book

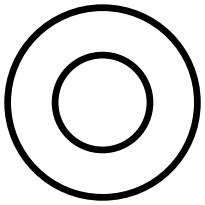


The following particle symbols are used in this book. Remember: this is entertainment, not academics, but I have made all attempts to be as accurate as possible in the depiction and description of the elements herein.

A negatively-charged electron.

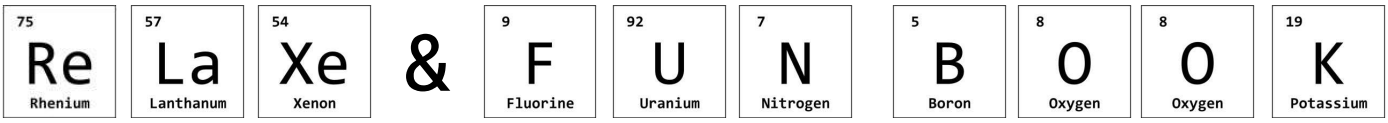


A positively-charged proton.



A neutrally-charged neutron.

The Atom & Molly



Activity: Can you personalize your book?

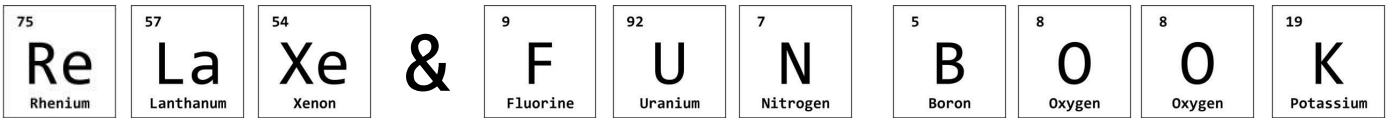
Here are two fun activities for you to get you familiar with the Periodic Table of Elements using your name.

Activity # 1: Try and write your first or last name using the element symbols from the Periodic Table of Elements.

Activity # 2: Convert your Activity #1 name attempt from element symbols to element numbers. Create a numerical sequence. Add the numbers for your own "atomic number"!

The activities with examples are on the following pages. The Periodic Table of Elements follows in alphabetical order by symbol.

The Atom & Molly



Activity # 1

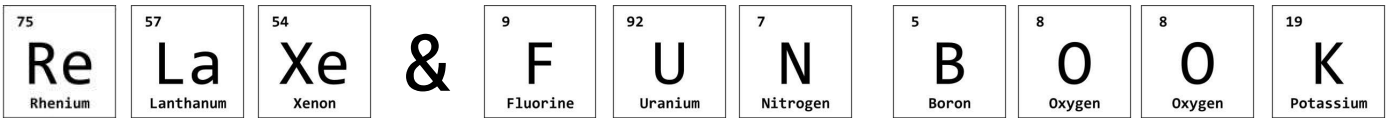
Can you write your name as a combination of element symbols from the Periodic Table of Elements?

Example: **Simon** = **Si** (Silicon) + **Mo** (Molybdenum) + **N** (Nitrogen) → **SiMoN**

Example: **Monica** = **Mo** (Molybdenum) + **N** (Nitrogen) + **I** (Iodine) + **Ca** (Calcium) → **MoNICa**

Try to write your first or last name below as a combination of element symbols:

The Atom & Molly



Activity # 2

Can you convert your name as combined element symbols into a numerical sequence and an "atomic number"?

Example: **Simon** (**SiMoN**) = Silicon (**Si** # 14) + Molybdenum (**Mo** # 42) + Nitrogen (**N** # 7)

Simon's numerical sequence is: **14-42-7**
Simon's "atomic number" is: **63**

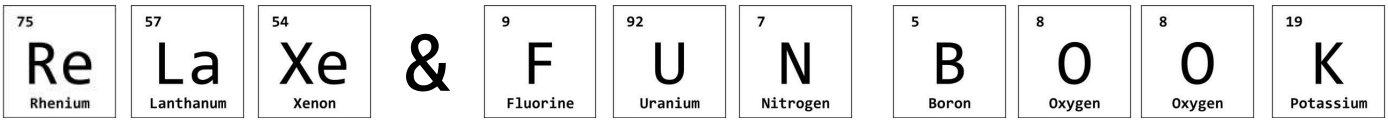
Example: **Monica** (**MoNICa**) = Molybdenum (**Mo** # 42) + Nitrogen (**N** # 7) + Iodine (**I** # 53) + Calcium (**Ca** # 20)

Monica's numerical sequence is: **42-7-53-20**
Monica's "atomic number" is: **122**

Write your numerical sequence here:

Write your "atomic number" here:

The Atom & Molly



Periodic Table of Elements *

SYMBOL	ELEMENT	NUMBER	SYMBOL	ELEMENT	NUMBER	SYMBOL	ELEMENT	NUMBER	SYMBOL	ELEMENT	NUMBER
Ac	Actinium	89	Dy	Dysprosium	66	Md	Mendelevium	101	Rf	Rutherfordium	104
Ag	Silver	47	Er	Erbium	68	Mg	Magnesium	12	Rg	Roentgenium	111
Al	Aluminum	13	Es	Einsteinium	99	Mn	Manganese	25	Rh	Rhodium	45
Am	Americium	95	Eu	Europium	63	Mo	Molybdenum	42	Rn	Radon	86
Ar	Argon	18	F	Fluorine	9	Mt	Meitnerium	109	Ru	Ruthenium	44
As	Arsenic	33	Fe	Iron	26	N	Nitrogen	7	S	Sulfur	16
At	Astatine	85	Fl	Flerovium	114	Na	Sodium	11	Sb	Antimony	51
Au	Gold	79	Fm	Fermium	100	Nb	Niobium	41	Sc	Scandium	21
B	Boron	5	Fr	Francium	87	Nd	Neodymium	60	Se	Selenium	34
Ba	Barium	56	Ga	Gallium	31	Ne	Neon	10	Sg	Seaborgium	106
Be	Beryllium	4	Gd	Gadolinium	64	Nh	Nihonium	113	Si	Silicon	14
Bh	Bohrium	107	Ge	Germanium	32	Ni	Nickel	28	Sm	Samarium	62
Bi	Bismuth	83	H	Hydrogen	1	No	Nobelium	102	Sn	Tin	50
Bk	Berkelium	97	He	Helium	2	Np	Neptunium	93	Sr	Strontium	38
Br	Bromine	35	Hf	Hafnium	72	O	Oxygen	8	Ta	Tantalum	73
C	Carbon	6	Hg	Mercury	80	Og	Oganesson	118	Tb	Terbium	65
Ca	Calcium	20	Ho	Holmium	67	Os	Osmium	76	Tc	Technetium	43
Cd	Cadmium	48	Hs	Hassium	108	P	Phosphorus	15	Te	Tellurium	52
Ce	Cerium	58	I	Iodine	53	Pa	Protactinium	91	Th	Thorium	90
Cf	Californium	98	In	Indium	49	Pb	Lead	82	Ti	Titanium	22
Cl	Chlorine	17	Ir	Iridium	77	Pd	Palladium	46	Tl	Thallium	81
Cm	Curium	96	K	Potassium	19	Pm	Promethium	61	Tm	Thulium	69
Cn	Copernicium	112	Kr	Krypton	36	Po	Polonium	84	Ts	Tennessine	117
Co	Cobalt	27	La	Lanthanum	57	Pr	Praseodymium	59	U	Uranium	92
Cr	Chromium	24	Li	Lithium	3	Pt	Platinum	78	V	Vanadium	23
Cs	Cesium	55	Lr	Lawrencium	103	Pu	Plutonium	94	W	Tungsten	74
Cu	Copper	29	Lu	Lutetium	71	Ra	Radium	88	Xe	Xenon	54
Db	Dubnium	105	Lv	Livermorium	116	Rb	Rubidium	37	Y	Yttrium	39
Ds	Darmstadtium	110	Mc	Moscovium	115	Re	Rhenium	75	Yb	Ytterbium	70
									Zn	Zinc	30
									Zr	Zirconium	40

* In the order of the element symbol.

The Atom & Molly

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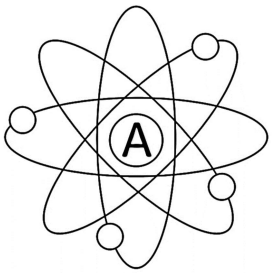
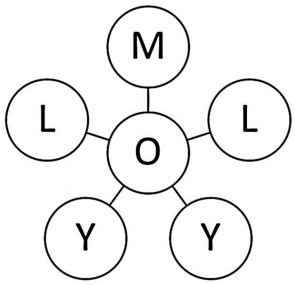


Starting Places: Colors Associated with Elements



If you need some coloring hints, there are colors that are associated with some of the Table of Elements entries. Use the chart below as a guide to help you select colors when you get to the different elements. Use your imagination throughout this book!

PERIOD/ROW	ATOMIC NUMBER	ATOMIC SYMBOL	ELEMENT NAME	COLOR
3	16	S	Sulfur	Yellow
3	17	Cl	Chlorine	Yellow-Green
4	27	Co	Cobalt	Medium Blue
4	29	Cu	Copper	Red-Brown
4	35	Br	Bromine	Red-Brown
5	37	Rb	Rubidium	Deep Red
5	44	Ru	Ruthenium	Red
5	45	Rh	Rhodium	Rosy-Red
5	47	Ag	Silver	Silver
5	49	In	Indium	Purple-Blue
5	53	I	Iodine	Violet
6	55	Cs	Cesium	Light Blue
6	68	Er	Erbium	Pink
6	79	Au	Gold	Gold
6	81	Tl	Thallium	Grass Green
7	89	Ac	Actinium	Blue
7	99	Es	Einsteinium	Blue

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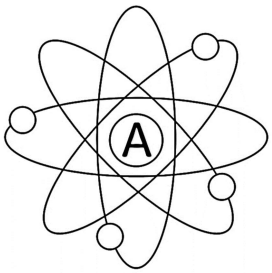
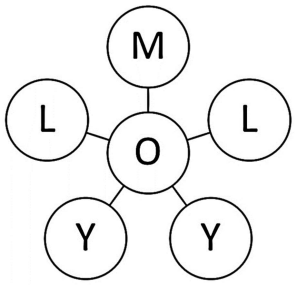
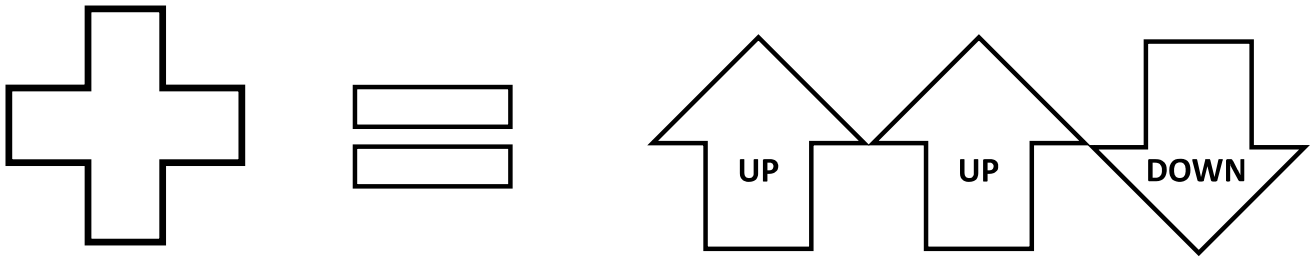
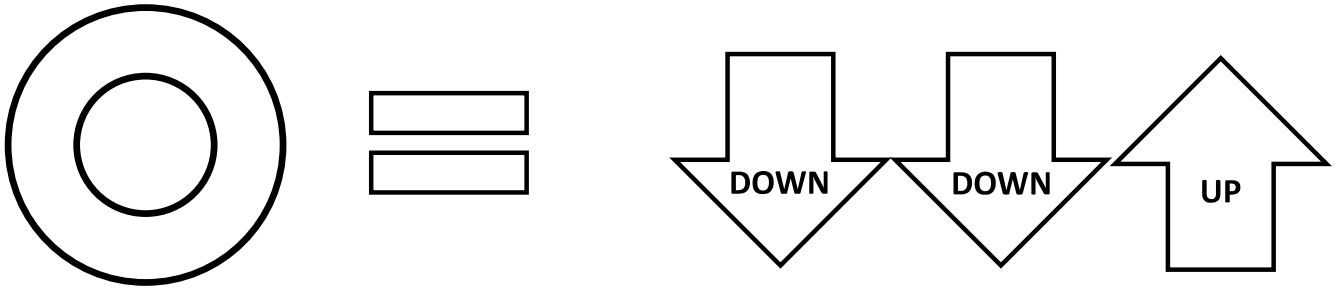


Starting Places: Quarks



Quarks are sub-atomic (meaning, smaller than an atom) particles that combine to form hadrons. Two commonly known hadrons are protons and neutrons. There are six types – also known as “flavors” – of quarks: up, down, strange, charm, top, and bottom. Quarks are currently the smallest known particle. There are three quarks each in a proton and in a neutron. Color the proton and neutron and their quarks here.





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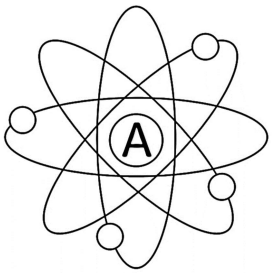
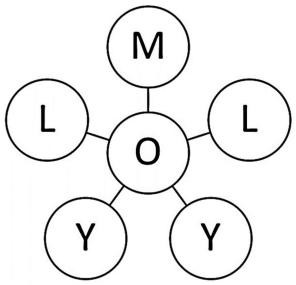


Starting Places: Word Search Instructions



The word searches in each part of this book correspond to the Table of Element periods in which they appear. The words in the word search are arranged horizontally, vertically, and diagonally from left-to-right, top-to-bottom. The words can overlap and be connected to each other.

The answer key to each word search is listed in the ***Word Search Answers*** section. If you just need a hint in finding where the words are without having the words displayed, first go to the ***Word Search Hints*** section where you will find a schematic of the location of the words in each search without revealing the words themselves.

Now go have fun.

The Atom & Molly

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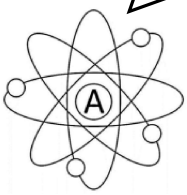
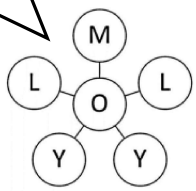
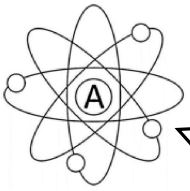
Rhenium	Lanthanum	Xenon		Fluorine	Uranium	Nitrogen		Boron	Oxygen	Oxygen	Potassium



If you can't find all of your socks after doing the laundry, you may not be able to find all of the words in the word searches in this book.

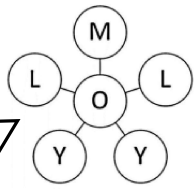
Now Atom, we all know that the issue of the missing laundry socks is still a mystery that science has yet to solve.





Maybe the rapid spin cycle causes a gravitational vortex that pulls selected socks into another place or time within our universe.

Maybe you're going to start doing your own laundry from now on.

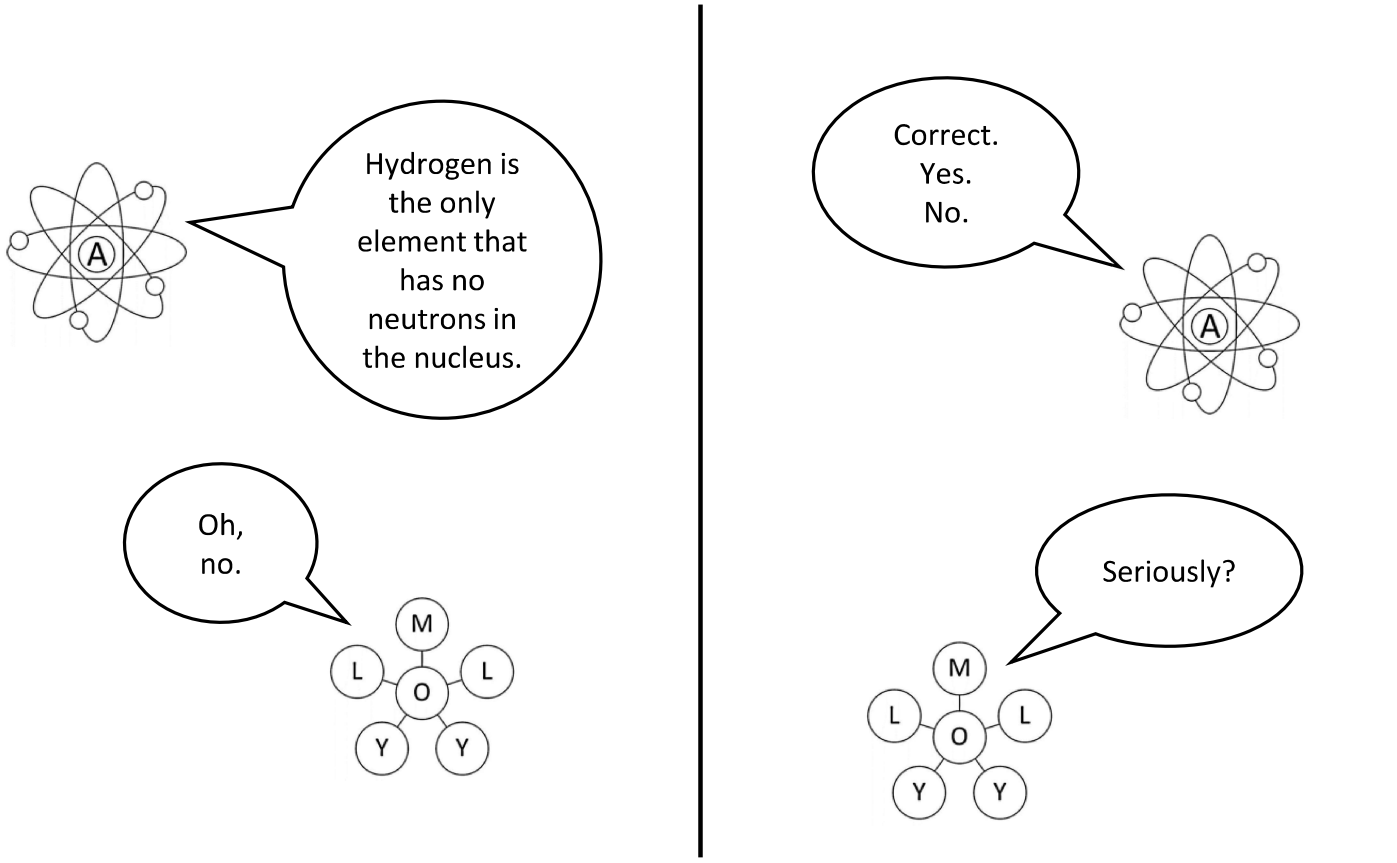


The Atom & Molly

75	57	54		9	92	7	5	8	8	19
Re	La	Xe	&	F	U	N	B	O	O	K
Rhenium	Lanthanum	Xenon		Fluorine	Uranium	Nitrogen	Boron	Oxygen	Oxygen	Potassium

Period (Row) # 1 Elements

						NUMBER OF ELECTRONS BY SHELL						
ATOMIC #	ATOMIC SYMBOL	ELEMENT NAME	PROTONS	NEUTRONS	ELECTRONS (TOTAL)	SHELL 1	SHELL 2	SHELL 3	SHELL 4	SHELL 5	SHELL 6	SHELL 7
1	H	Hydrogen	1	0	1	1	0	0	0	0	0	0
2	He	Helium	2	2	2	2	0	0	0	0	0	0



The Atom & Molly

75	57	54		9	92	7		5	8	8	19
Re	La	Xe	&	F	U	N		B	O	O	K
Rhenium	Lanthanum	Xenon		Fluorine	Uranium	Nitrogen		Boron	Oxygen	Oxygen	Potassium

Period (Row) # 1 Word Search

Hydrogen, Helium, Quark, Hadron, Atom, Molecule, Isotope, Row, Periodic , Table, Element, Dmitri , Mendeleev

Y C T A E T P W W R F W T G K F W I R M S H M A D
U Y H A D R O N N H T H I D T L A J A Z A K Z T K
J Y Y E E R J L Q F I Y G R Q T W K U C O C J W T
Z U D K L V W I Q B S N C R F Q H E V C C A E N U
K P R D P I F I K Q A M F F X Z Q U X R W N D O C
Q U O N X S U A H V O L A Z F S T K S I X B E A L
K E G F I F J M H I A Q W N N V S L R P S Q Q T W
Z K E B D G Q E F S G M Y Q J D T N S C M G L J D
S F N X S T U H A O Q H I N J R N F U G B D D V K
J O X M P R A E R T X Q E J I N V S W G N W O Y D
K G R P N S R B L O O A J D Q Z T D I L D P M K S
J A I A J C K K L P W M E N D E L E E V V P G G L
G E R U Z E L L P E E O V G S N B P O U K H B O L
B F I P D P B F T X P L J N N Z Q R D L A Y C N U
Q M H N V B F Z E X V E E C L L K A W K K B I J Z
O Q X C G W B P J O L C R M S C V C F E O Y E Q S
W F G T K E O R L L H U M I E T X Y Y Y D D H M O
Z S H F T E G N K E J L W T O N R W N L W B R C A
L P C F H F Q V A I F E H G N D T L F L J L Y A C
D W D G C K R G G U M Z H S C M I O X A W P D B Q
L L I B G L R F D Z I M F C A I D C F D U C L V G
F T C W M L C L Y C F R U T J T K U O O I Z Z F W
L W W R L J Z F Q E D H E O F R U B O J J A K F K
W T Z N W M H G N F L P P K Z I O D A B Q Q B G F
J U H K P V W B R L V S K L I D X W T Y D P E Q P

The Atom & Molly

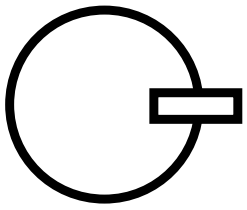
75	57	54		9	92	7	5	8	8	19
Re	La	Xe	&	F	U	N	B	O	O	K
Rhenium	Lanthanum	Xenon		Fluorine	Uranium	Nitrogen	Boron	Oxygen	Oxygen	Potassium

Hydrogen

H

1

ELECTRONS
1 shell
1 total

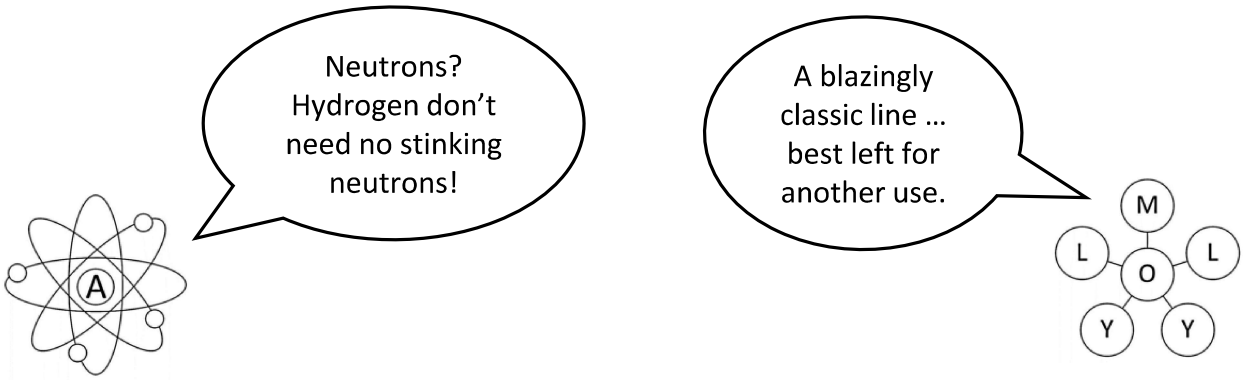


The Atom & Molly

75	57	54		9	92	7		5	8	8	19
Re	La	Xe	&	F	U	N		B	O	O	K
Rhenium	Lanthanum	Xenon		Fluorine	Uranium	Nitrogen		Boron	Oxygen	Oxygen	Potassium

Hydrogen
H
1

NUCLEUS
1 proton
0 neutrons



The Atom & Molly

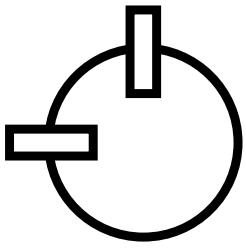
75	57	54		9	92	7		5	8	8	19
Re	La	Xe	&	F	U	N		B	O	O	K
Rhenium	Lanthanum	Xenon		Fluorine	Uranium	Nitrogen		Boron	Oxygen	Oxygen	Potassium

Helium

He

2

ELECTRONS
1 shell
2 total



The Atom & Molly

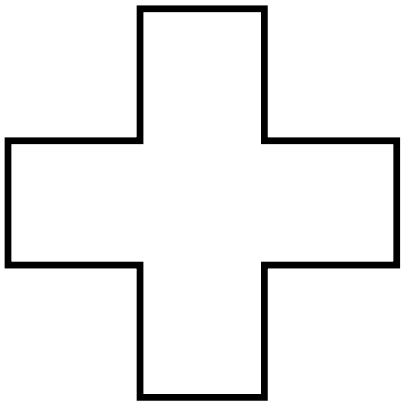
75	57	54		9	92	7		5	8	8	19
Re	La	Xe	&	F	U	N		B	O	O	K
Rhenium	Lanthanum	Xenon		Fluorine	Uranium	Nitrogen		Boron	Oxygen	Oxygen	Potassium

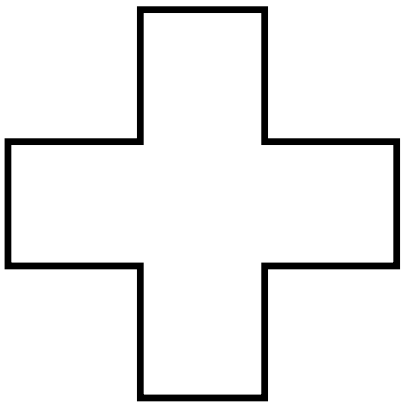
Helium

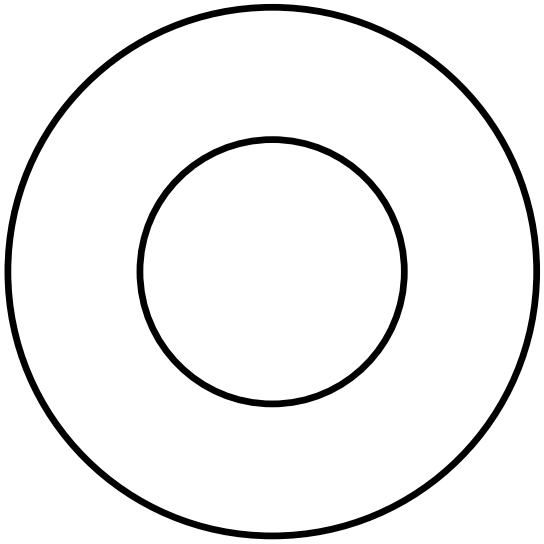
He

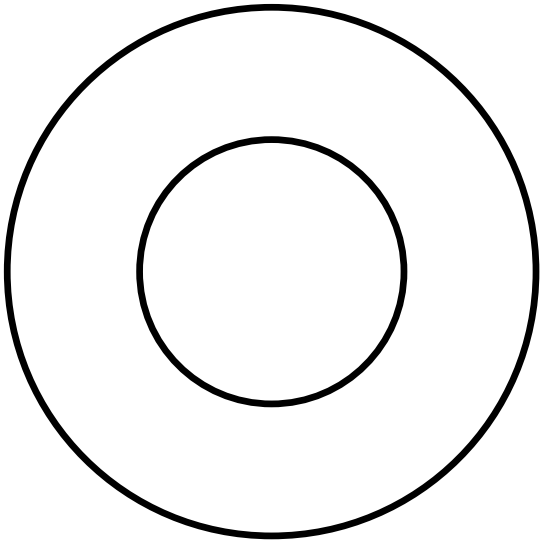
2

NUCLEUS
2 protons
2 neutrons









The Atom & Molly

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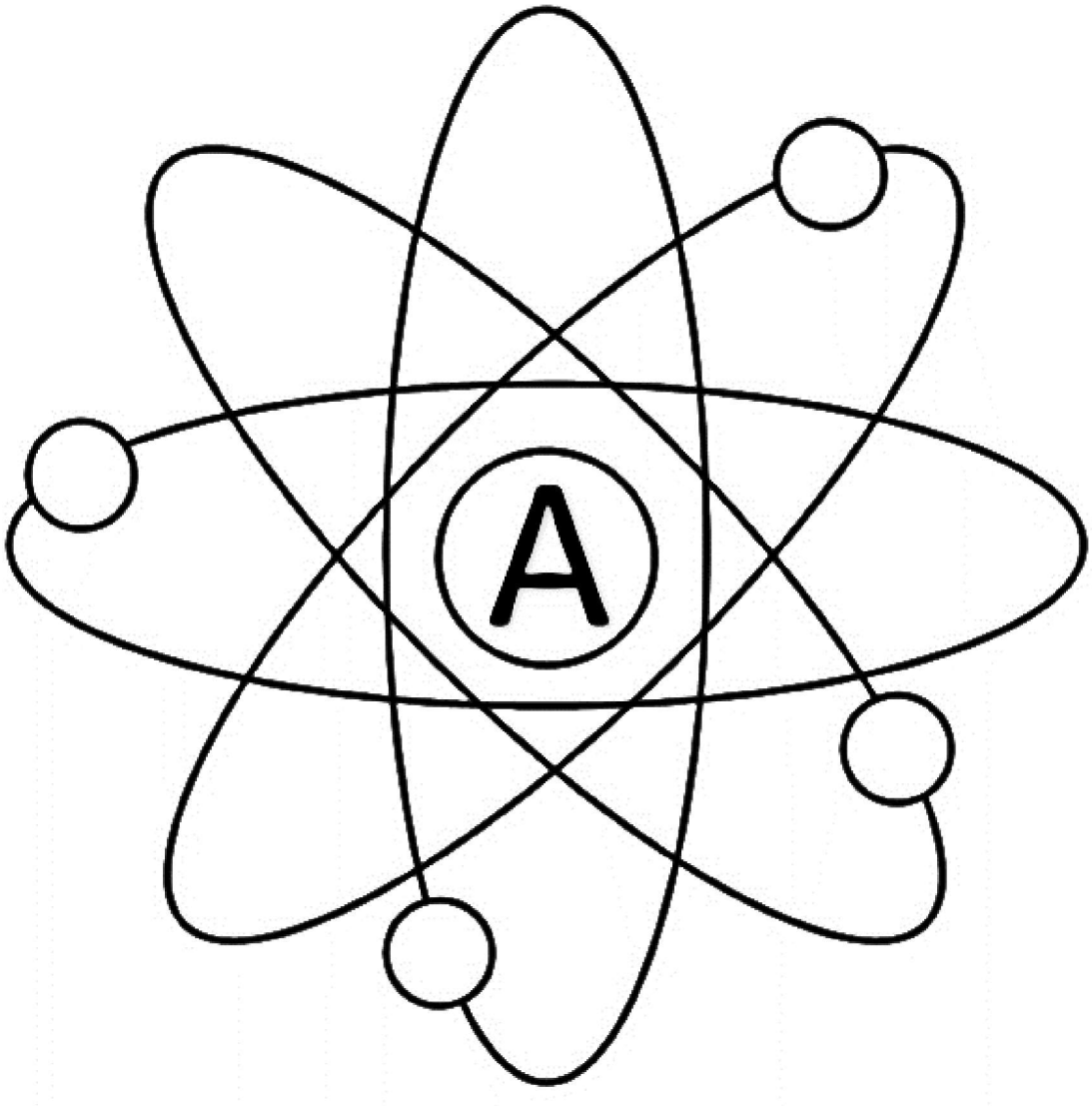
Re	La	Xe	&	F	U	N		B	O	O	K
Rhenium	Lanthanum	Xenon		Fluorine	Uranium	Nitrogen		Boron	Oxygen	Oxygen	Potassium

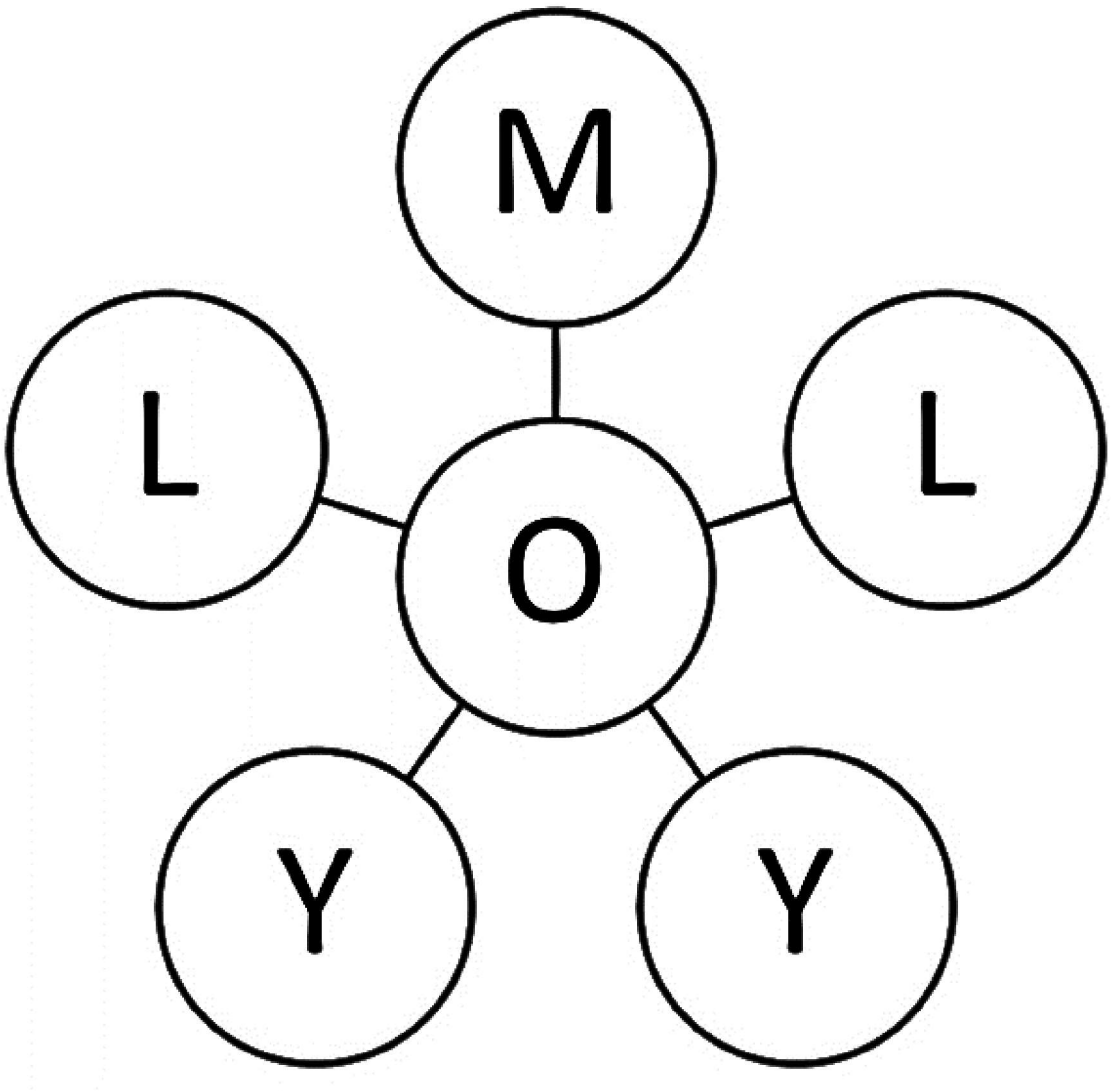
Color Atom!



The Atom & Molly

75	57	54		9	92	7		5	8	8	19
Re	La	Xe	&	F	U	N		B	O	O	K
Rhenium	Lanthanum	Xenon		Fluorine	Uranium	Nitrogen		Boron	Oxygen	Oxygen	Potassium

Color Molly!



The Atom & Molly

75	57	54		9	92	7		5	8	8	19
Re	La	Xe	&	F	U	N		B	O	O	K
Rhenium	Lanthanum	Xenon		Fluorine	Uranium	Nitrogen		Boron	Oxygen	Oxygen	Potassium

Period (Row) # 2 Elements

						NUMBER OF ELECTRONS BY SHELL						
ATOMIC #	ATOMIC SYMBOL	ELEMENT NAME	PROTONS	NEUTRONS	ELECTRONS (TOTAL)	SHELL 1	SHELL 2	SHELL 3	SHELL 4	SHELL 5	SHELL 6	SHELL 7
3	Li	Lithium	3	4	3	2	1	0	0	0	0	0
4	Be	Beryllium	4	5	4	2	2	0	0	0	0	0
5	B	Boron	5	6	5	2	3	0	0	0	0	0
6	C	Carbon	6	6	6	2	4	0	0	0	0	0
7	N	Nitrogen	7	7	7	2	5	0	0	0	0	0
8	O	Oxygen	8	8	8	2	6	0	0	0	0	0
9	F	Fluorine	9	10	9	2	7	0	0	0	0	0
10	Ne	Neon	10	10	10	2	8	0	0	0	0	0