

Elements Search

Find each element in the puzzle, then write the leftover letters in order, top to bottom and left to right, to complete the hidden message.

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

- ALUMINUM
- ANTIMONY
- ARGON
- ARSENIC
- BARIUM
- BERYLLIUM
- BROMINE
- CHLORINE
- CHROMIUM
- COBALT
- FLUORINE
- GOLD
- HYDROGEN
- IRON
- LEAD
- MAGNESIUM
- MANGANESE
- MERCURY
- NEON
- NITROGEN
- PHOSPHORUS
- PLATINUM
- PLUTONIUM
- POLONIUM
- POTASSIUM
- RADON
- SCANDIUM
- SELENIUM
- STRONTIUM
- TIN
- ZINC
- ZIRCONIUM

_____ is found between _____ and _____
 _____ but is a less _____,
 _____ metal with _____

thermal conductivity.

(That's a heavy metal!)



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P	A	S C A N D I U M										S									
L	H	N I T R O G E N										T									
A	B	O	S E L E N I U M										Z	R							
T	A	S	I	C H R O M I U M										O							
I	R	G	P	M A N G A N E S E										N							
N	I	R	O	N	H	O	C O B A L T										T				
U	U	P L U T O N I U M										Z	I								
M	M	D	B E R Y L L I U M										U								
		P O T A S S I U M										E	R	A	M						
		B R O M I N E										O	N	S	A	C	R	E			
		F L U O R I N E										D	D	O	S	R					
		M	C H L O R I N E										E	C							
		H Y D R O G E N										T	I	N	U						
		A R G O N										A	L	U	M	I	N	U	M	I	R
		P O L O N I U M										C	Y								

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Bismuth is found between lead and polonium but is a less toxic, brittle metal with poor thermal conductivity.



Elements Search

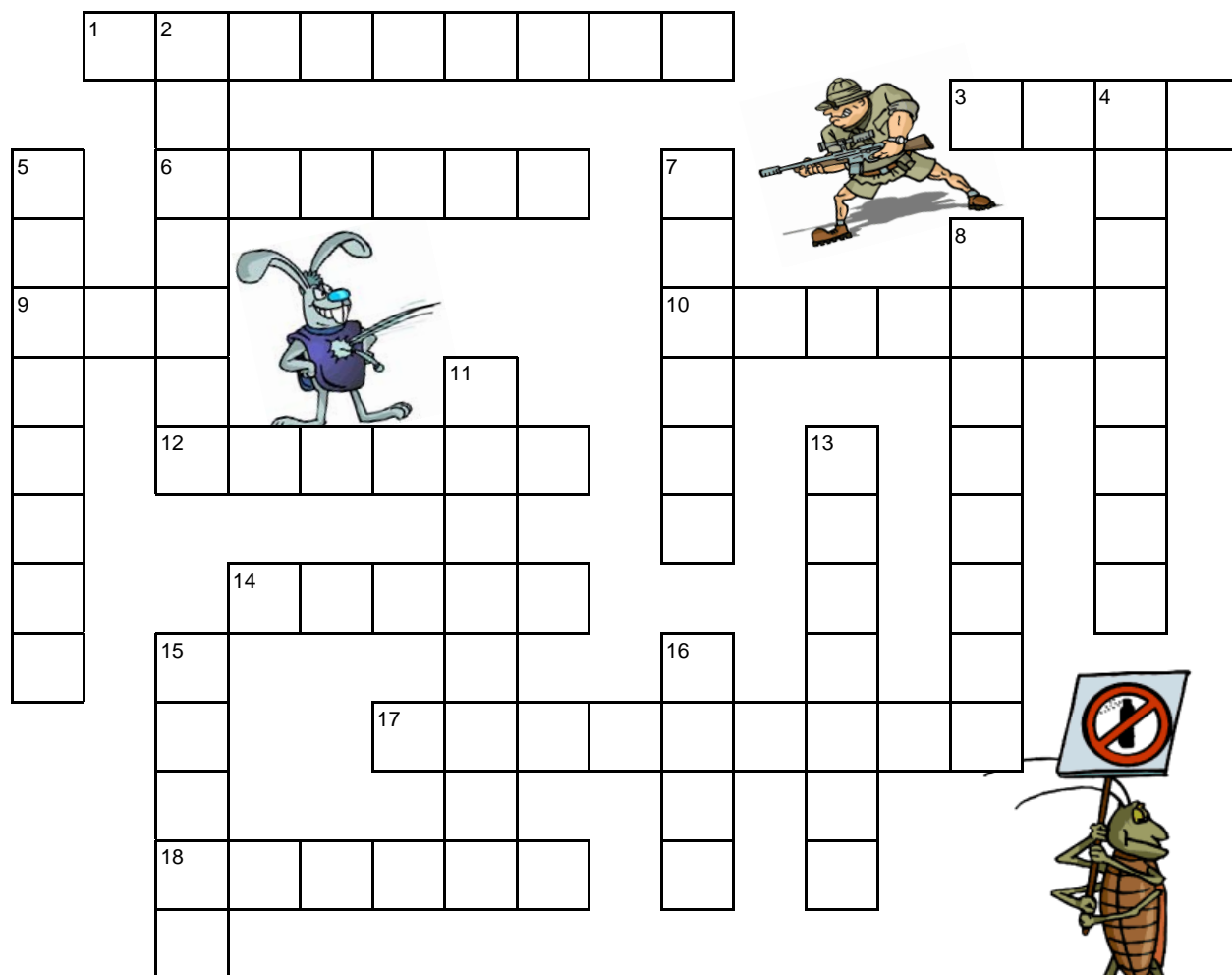
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K	R	Y	P	T	O	N	B	R	V	E	S	L	I	D
E	H	S	C	B	E	I	H	N	A	G	S	I	U	P
E	R	E	M	A	A	O	T	U	N	G	S	T	E	N
N	S	H	L	S	D	O	M	E	A	P	L	H	A	N
G	A	L	L	I	U	M	E	T	D	K	R	I	Y	P
T	O	N	U	L	U	I	I	B	I	S	M	U	T	H
S	A	M	C	I	O	M	L	U	U	O	R	M	L	E
C	C	A	L	C	I	U	M	S	M	S	S	N	S	N
O	A	B	C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

- BISMUTH
- BORON
- CADMIUM
- CALCIUM
- CARBON
- COPPER
- GALLIUM
- HELIUM
- IODINE
- KRYPTON
- LITHIUM
- NICKEL
- OXYGEN
- RADIUM
- RHODIUM
- SILICON
- SILVER
- SODIUM
- SULFUR
- TITANIUM
- TUNGSTEN
- URANIUM
- VANADIUM
- XENON



Tough Metals, Pesticides, and Other Useful Elements



Across

1. metal used in making steel, 25
3. Latin name is *plumbum*, 82
6. Latin name is *argentum*, 47
9. Latin name is *stannum*, 50
10. metal found in shells and bones, 20
12. gives blue color to glass, 27
14. noble gas used in flash lamps, 54
17. metal very resistant to corrosion, 40
18. common diatomic gas, 8

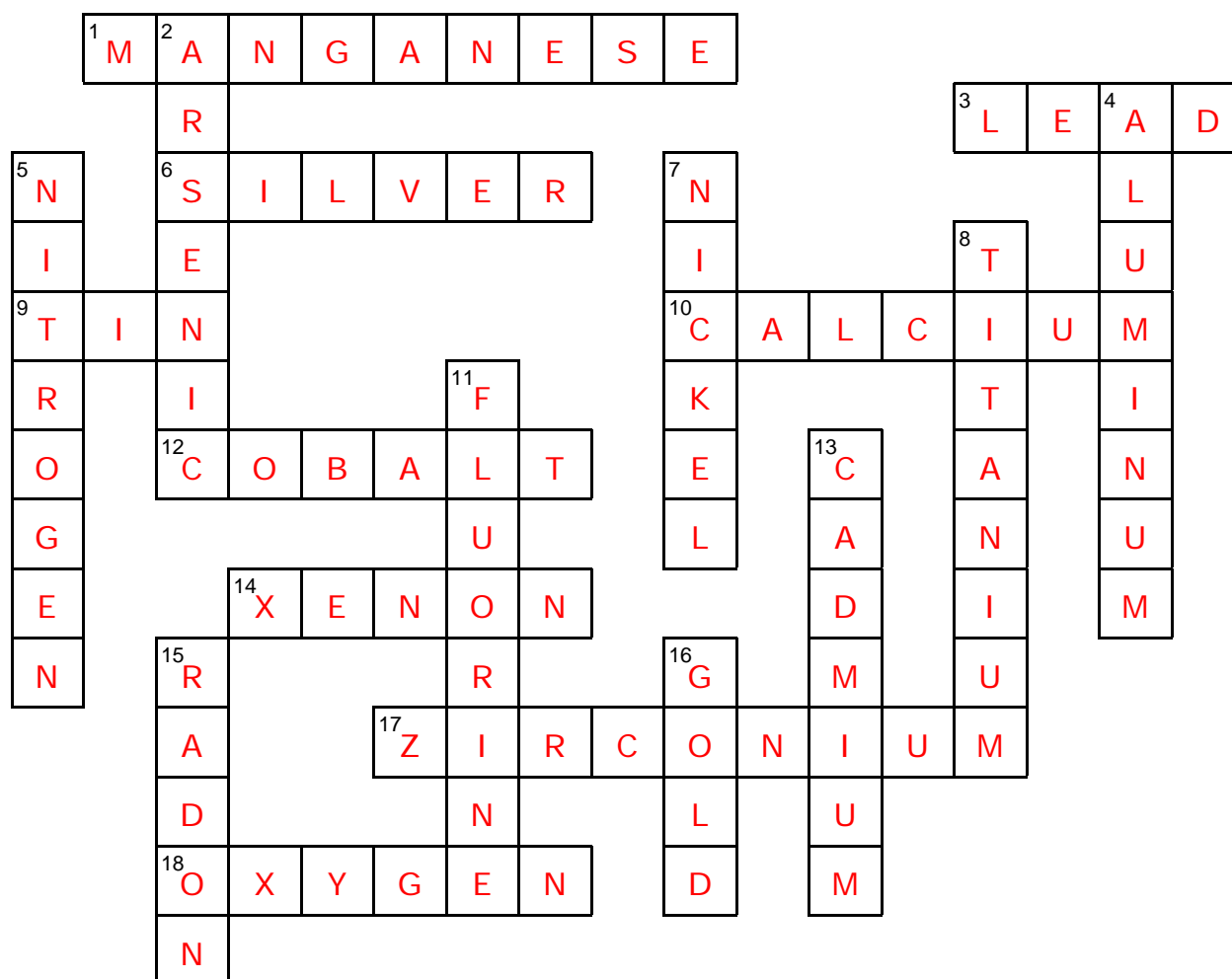
Down

2. used in pesticides and herbicides, 33
4. most abundant metal in earth's crust, 13
5. most abundant gas in atmosphere, 7
7. found in ancient Chinese "white copper", 28
8. light & strong metal used in jet engines, 22
11. diatomic, poisonous yellow-brown gas, 9
13. carcinogenic transition metal, 48
15. one of the heaviest gases, 86
16. Latin name is *aurum*, 79

(numbers following clues are atomic numbers)



Tough Metals, Pesticides... KEY



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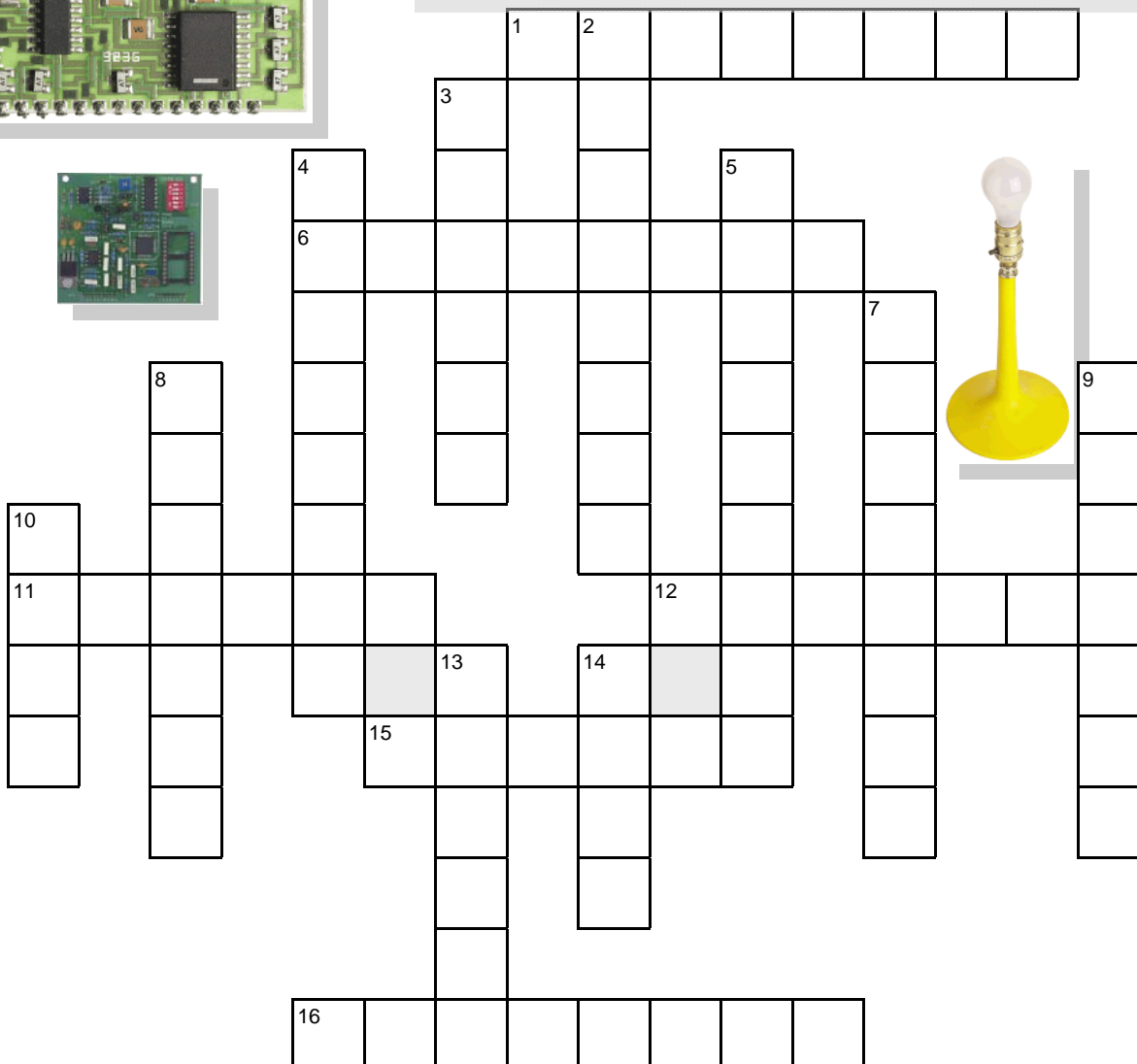
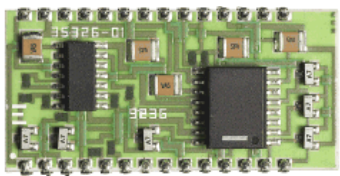
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Lightbulbs and Microchips



Down

2. poisonous gas found in bleach, 17
3. heaviest element required for life, 53
4. ancient Chinese coating for bronze, 24
5. toxic alkaline earth metal, 4
7. precious "little silver" metal, 78
8. precious metal in catalytic converter, 45
9. radioactive fuel for nuclear reactors, 92
10. Latin name is *ferrum*, 26
13. basic element present in all life, 6

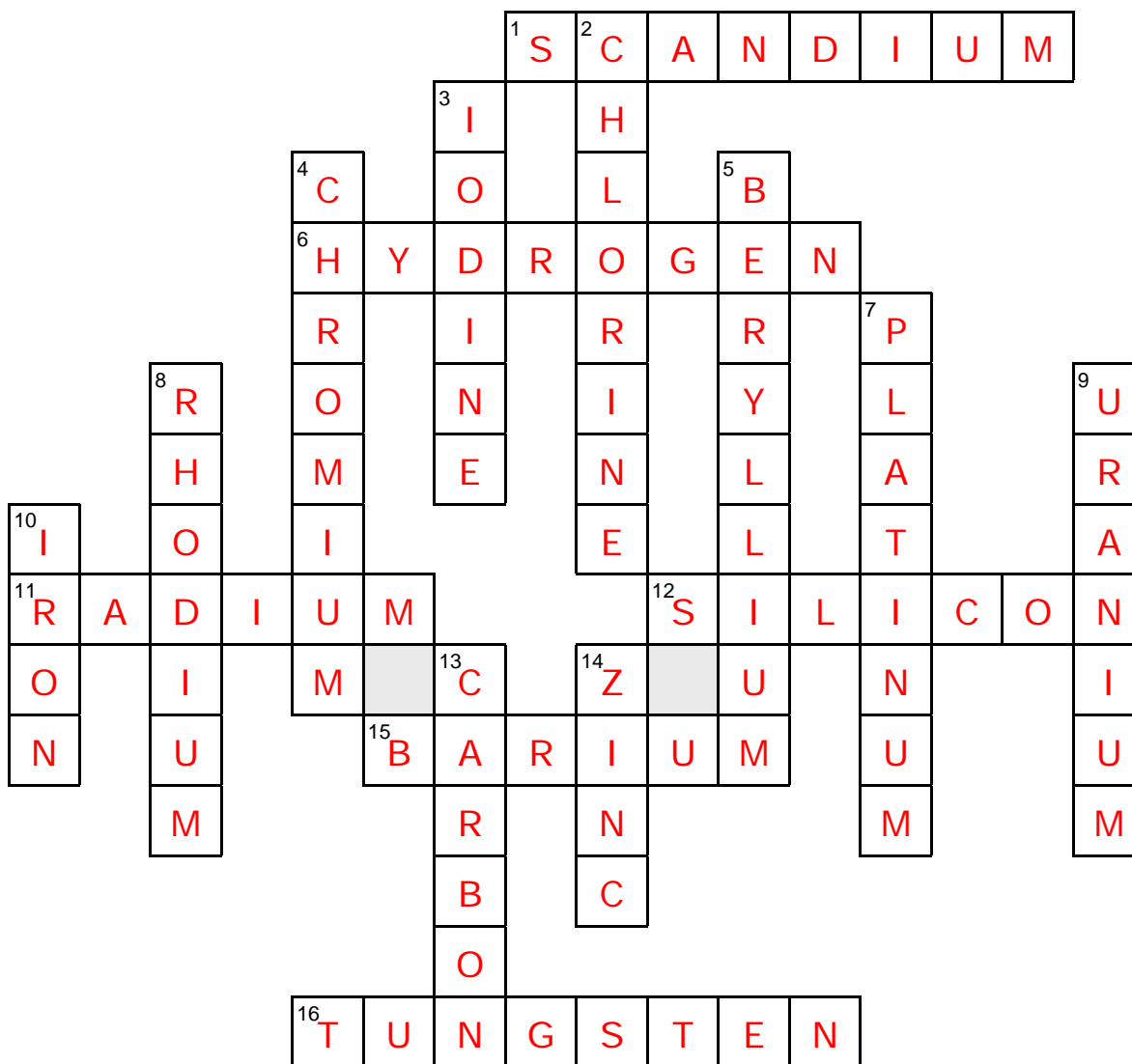
14. "spelter" used to coat metals, 30

Across

1. rare earth element mixed with Al, 21
6. most abundant element, 1
11. radioactive element forming radon, 88
12. metalloid used in microchips, 14
15. alkaline earth metal used for x-rays, 56
16. *wolfram* used in light bulbs, 74



Lightbulbs and Microchips KEY



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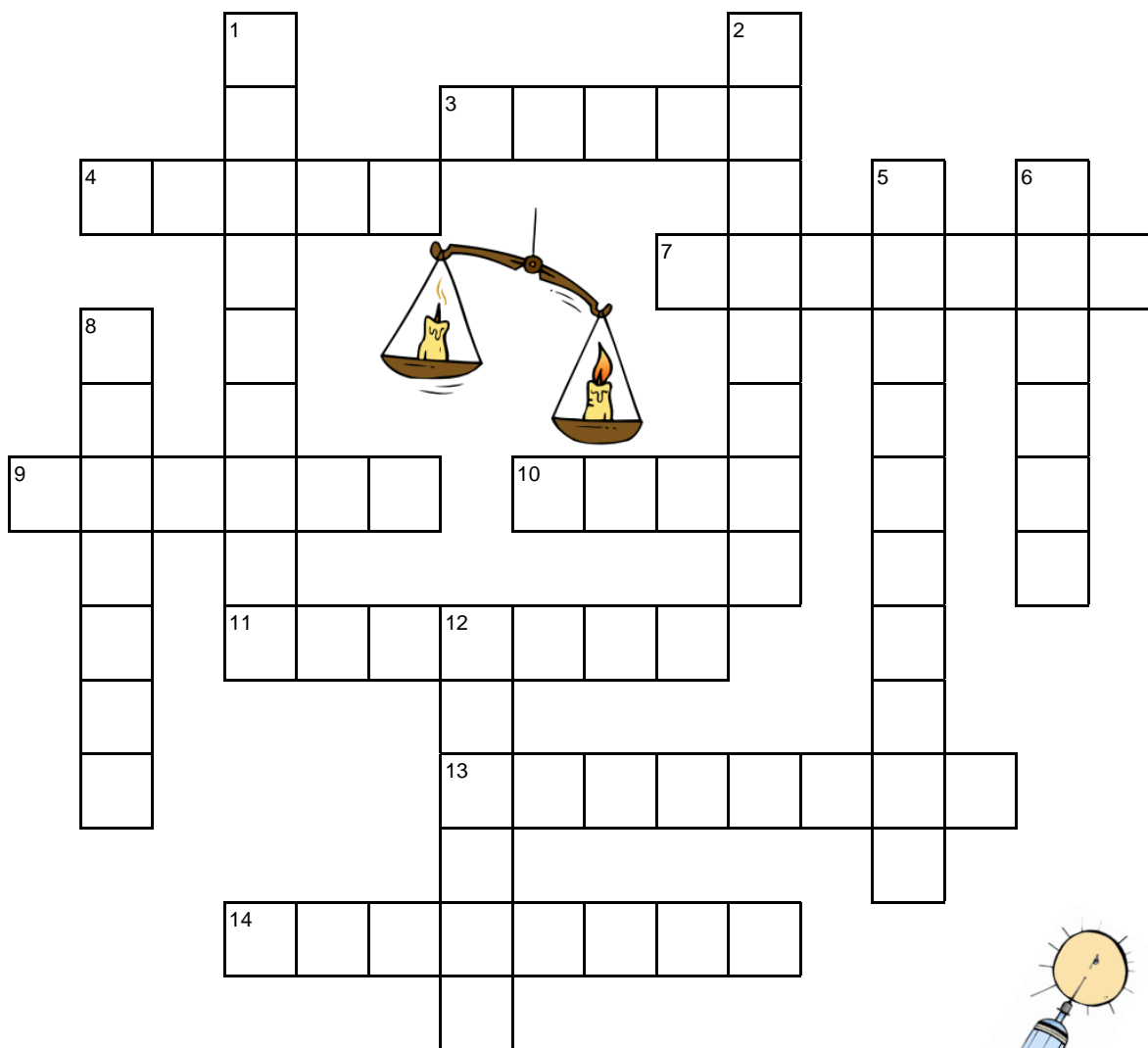
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Light & Lightest



Across

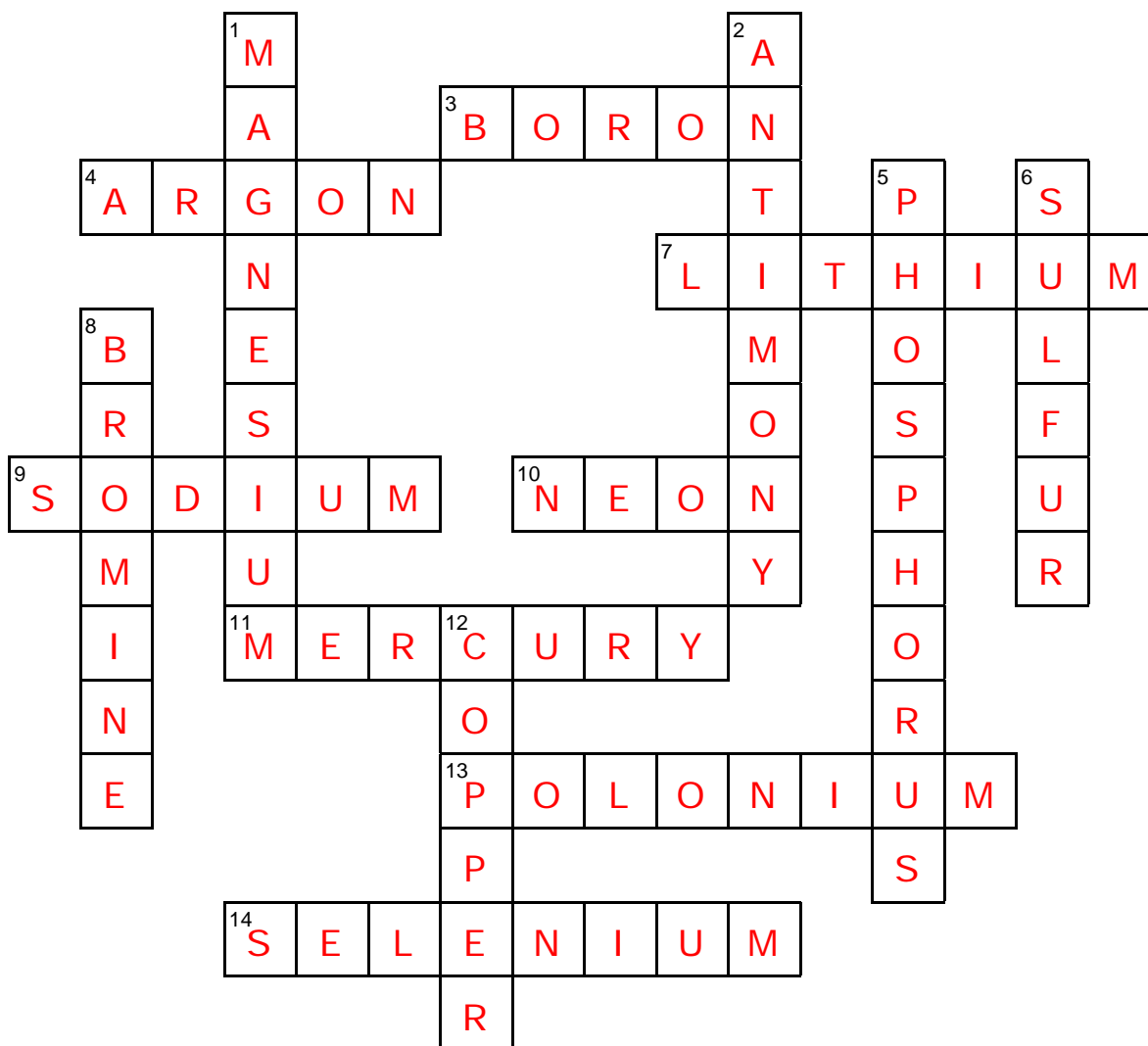
3. metalloid transmitting infrared light, 5
4. most abundant noble gas, 18
7. lightest, least dense metal, 3
9. Latin name is *natrium*, 11
10. common in universe; rare on Earth, 10
11. Latin name is *hydrargyrum*, 80
13. rare, unstable, radioactive metalloid, 84
14. essential nutrient for animals, 34

Down

1. essential element for all living cells, 12
2. Latin name is *stibium*, 51
5. Greek word for "light bearer", 15
6. yellow solid used in ancient matches, 16
8. reddish-brown liquid halogen, 35
12. Latin name is *cuprum*, 29



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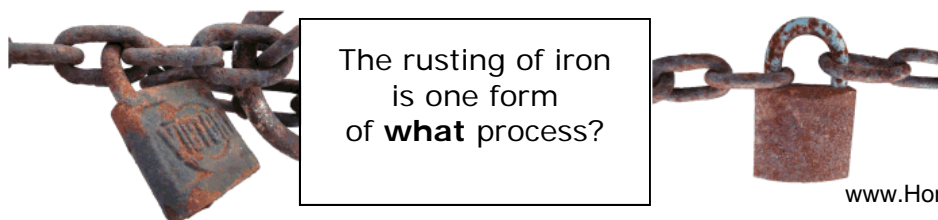


Elemental Terms

Complete each sentence below with words from the box. Not all words will be used.

alchemy	ions	molecules
atoms	isotopes	orbitals
compound	metallurgy	oxidation
electrons	mixture	reduction

1. The most basic units of any element are its _____.
2. When a chemical reaction occurs, we often get a combination of two or more elements called a _____. These are found in units called _____.
3. Chemistry grew out of an ancient study called _____.
4. Charged particles, which have lost or gained one or more _____, are called _____.
5. Atoms of a single element having different numbers of neutrons are called _____.
6. In a chemical reaction, the loss of electrons and resulting gain of oxygen is called _____, while the gain of electrons and loss of oxygen is called _____.
7. Substances that combine but do not result in a chemical reaction and may still be separated rather easily form a _____.



The rusting of iron is one form of **what** process?



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1. The most basic units of any element are its **atoms** .
2. When a chemical reaction occurs, we often get a combination of two or more elements called a **compound** . These are found in units called **molecules** .
3. Chemistry grew out of an ancient study called **alchemy** .
4. Charged particles, which have lost or gained one or more **electrons**, are called **ions**.
5. Atoms of a single element having different numbers of neutrons are called **isotopes** .
6. In a chemical reaction, the loss of electrons and resulting gain of oxygen is called **oxidation** , while the gain of electrons and loss of oxygen is called **reduction** .
7. Substances that combine but do not result in a chemical reaction and may still be separated rather easily form a **mixture** .

