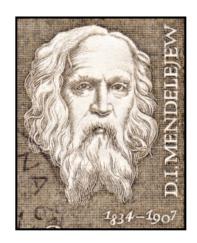


Name: Date:	Group:	

Mendeleev and His Periodic Table

Lexile 970L

- 1 Russian chemist Dmitri Mendeleev realized the need for scientists to be able to know an element's identity quickly and efficiently. Although earlier scientists had organized elements, their tables did not satisfy Mendeleev. He felt they had left out important information.
- 2 Early in his studies, Mendeleev saw patterns in the chemical and physical properties of some elements. He grouped the elements into a neat, logical manner according to these patterns. He developed the Periodic Table of Elements in 1869. This table arranged elements according to increasing atomic mass. Groups of elements which have similar physical and chemical properties are arranged into rows and columns.



- 3 The table later proved to be a bit flawed, but Mendeleev expected this. He left some blank spots on his table for undiscovered elements. These were, indeed, later discovered. His table also did not consider the importance of protons, which had not yet been identified. Protons are important in grouping elements since they strongly influence the physical and chemical properties of elements. The table also did not take into account the noble gases, which do not have properties like those near them on the table.
- 4 Today's Periodic Table looks much like Mendeleev's table of 130 years ago. More elements have been identified and classified. The inert gases now have been placed on the table. The table now is arranged according to increasing atomic number, showing each element's physical and chemical properties, rather than according to atomic mass, as Mendeleev's did. The Periodic Table of Elements remains a valuable tool for chemists and other scientists.



1		ndeleev organized his Periodic Table by in the same way that lay's Periodic Table is organized by atomic number.										
	A	protons										
	В	neutrons										
	С	atomic mass										
	D	atomic number										
2		modern Periodic Table is different from Mendeleev's in several ways. which way are the two tables the same?										
	A	The inert gases occupy one column of the table.										
	В	Elements are arranged by increasing atomic number.										
	С	There are blank spots in the middle for undiscovered elements.										
	D	Elements are put into columns based on similar chemical properties.										
3	Mer	ndeleev's Periodic Table lacked										
	A	noble gases										
	В	chemical property trends										
	С	neutrons										
	D	atomic mass										



- How does the Periodic Table used today classify elements? 4
 - according to chemical properties alone Α
 - according to atomic number В
 - C according to atomic mass
 - according to radioactive properties D



	1 1A																	18 8A
1	1 H				At	omic numbe		-14 C :]									
	1.008 Hydrogen	2 2A				Symbo Atomic mas		- Si					13 3A	14 4A	15 5A	16 6A	17 7 A	
_	3 Li	4 Be				Atomic mas		Silicon -	Nan	ne			5 B	6 C	7 N	8 O	9 F	
2	6.941 Lithium	9.012 Beryllium					_		_				10.812 Boron	12.011 Carbon	14.007 Nitrogen	15.999 Oxygen	18.998 Fluorine	
	11 Na	12 Mg											13 Al	14 Si	15 P	16 S	17 CI	
3	22.990 Sodium	24.305 Magnesium	3 3B	4 4B	5 5B	6 6B	7 7B	8	9 8B	10	11 1B	12 2B	26.982 Aluminum	28.086 Silicon	30.974 Phosphorus	32.066 Sulfur	35.453 Chlorine	
	19 K	20 Ca	4	22 Ti	23 V	24 Cr	25 Mn	26 Fe	27 Co	28 Ni	29 Cu	30 Zn	2	3	33 As	34 Se	35 Br	
4	39.098 Potassium	40.078 Calcium	-	47.867 Titanium	50.942 Vanadium	51.996 Chromium	54.938 Manganese	55.845 Iron	58.933 Cobalt	58.693 Nickel	63.546 Copper	65.38 Zinc		<u> </u>	74.922 Arsenic	78.96 Selenium	79.904 Bromine	
5	37 Rb	38 Sr	39 Y	40 Zr	41 Nb	42 Mo	1	Ru	45 Rh	46 Pd	47 Ag	48 Cd	49 In	50 Sn	51 Sb	52 Te	53 I	
J	85.468 Rubidium	87.62 Strontium	88.906 Yttrium	91.224 Zirconium	92.906 Niobium	95.96 Molybdenum	-	101.07 Ruthenium	102.906 Rhodium	106.42 Palladium	107.868 Silver	112.412 Cadmium	114.818 Indium	118.711 Tin	121.760 Antimony	127.60 Tellurium	126.904 lodine	
	55 Cs	56 Ba	71 Lu	_	73 Ta	74 W	6	76 Os	Tr	78 Pt	79 Au	80 Hg	81 TI	82 Pb	83 Bi	_	0	
6	132.905 Cesium	137.328 Barium	174.967 Lutetium	5	180.948 Tantalum	183.84 Tungsten	O	190.23 Osmium	192.217 Iridium	195.085 Platinum	196.967 Gold	200.59 Mercury	204.383 Thallium	207.2 Lead	208.980 Bismuth		8	

- The diagram shows a portion of the Periodic Table. Elements which were 5 unknown during Mendeleev's time have been removed. Using Mendeleev's rules for arranging elements, which box would contain the metal gallium, which has an atomic number of 31 and an atomic mass of 70?
 - Box 5
 - either Box 2 or Box 3
 - only Box 2 C
 - only Box 3 D

