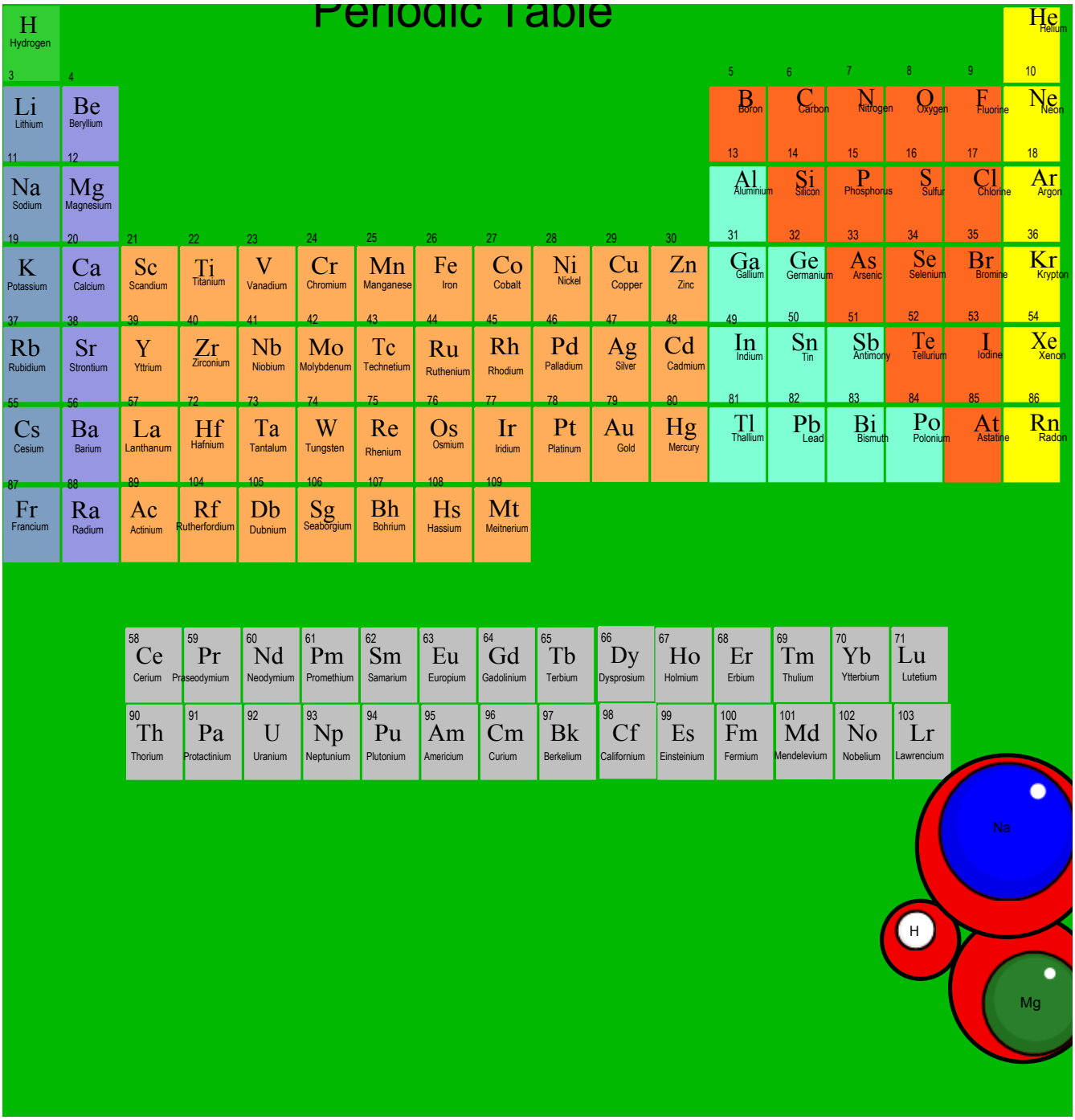
Periodic Table Orientation

1) Become familiar with the different regions of the periodic table/types of elements

2) Become familiar with the information available in each element box of the periodic table

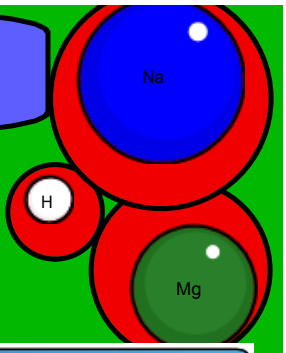
Lesson objectives | Teachers' notes


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

Skill Development

Notes

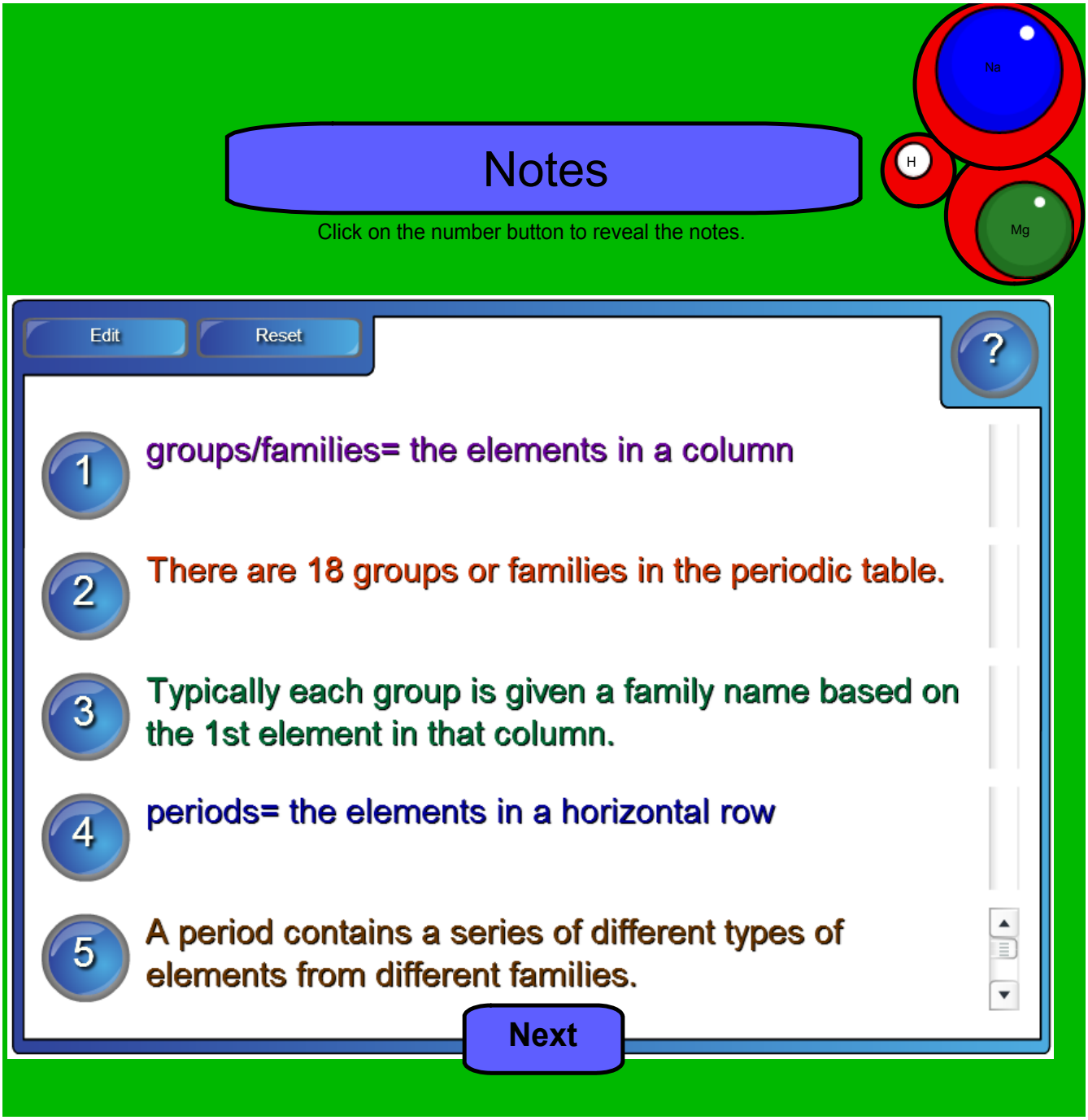
Click on the number button to reveal the notes.

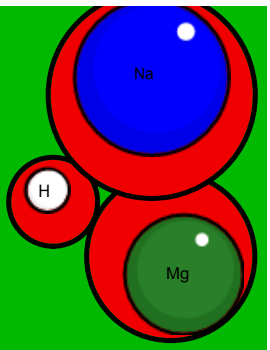


Edit Reset ?

1. Atoms are arranged on the periodic table by their atomic number.
2. Each element or atom is listed on the table by two things their atomic number and their symbol that is a
3. An element's properties can be predicted from its location in the periodic table. It is determined by the
4.
5.

Next


Notes
Click on the number button to reveal the notes.
Na
H
Mg
Edit
Reset
?
1
groups/families= the elements in a column
2
There are 18 groups or families in the periodic table.
3
Typically each group is given a family name based on the 1st element in that column.
4
periods= the elements in a horizontal row
5
A period contains a series of different types of elements from different families.
Next



Notes

Click on the number button to reveal the notes.

Edit Reset ?

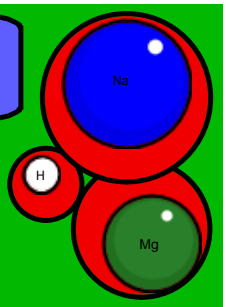
1. There are 3 division of the periodic table:
2. Metal- Generally found on the left side of the table.
3. Nonmetal- Generally found on the right side of the table
4. Metalloids- These follow the zigzag line between metals and nonmetals
5.

Next

Guided Practice

Family/Period Activity

Drag the elements into the correct family and period.



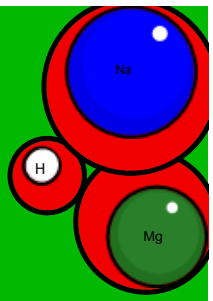
Edit | Check | Reset | Solve | ?

Family/Group	Period/Row

Rb K Pt Au Ir Li

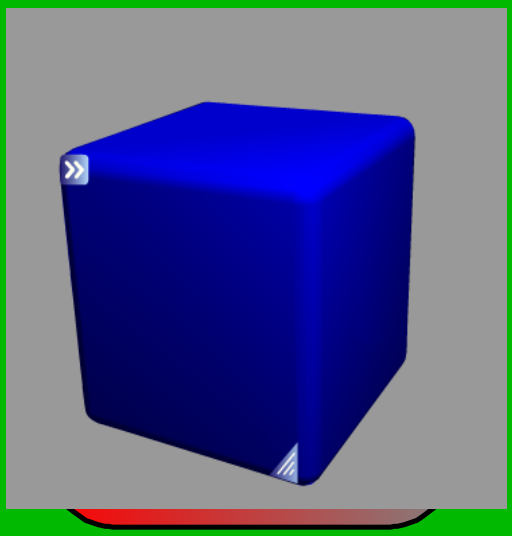
Pb H Fr Ba Rn W Hg Na

Next

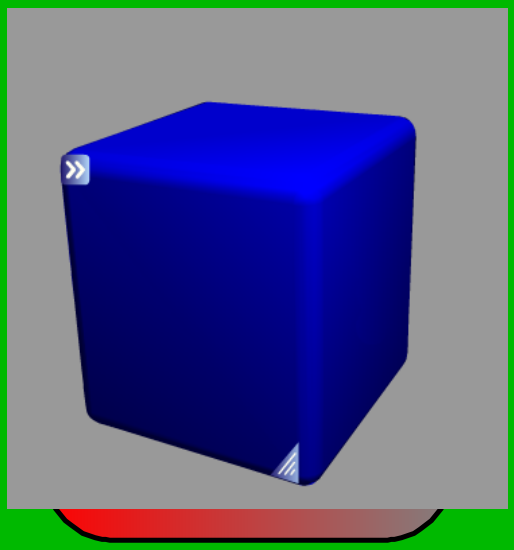


Atomic Number Activity

Click on the cube and tell the Element name based off the Atomic Number.

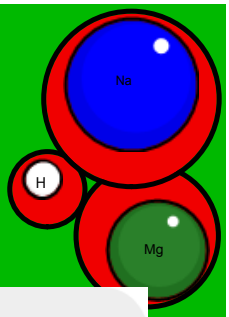


Click on the cube and tell the Atomic Number based off the Element Name.



Next

Periodic Table Activity



The Periodic Table represents elements in such a way as to highlight their similarities and differences.

INSTRUCTIONS

Explore the Periodic Table below by clicking on the elements.
You can use the '- Select Element -' drop-down menu to quickly jump straight to an element. More information can be found out about periods (rows) and groups (columns) by clicking on the relevant button along the left-hand side or along the top of the table.

There is also a game you can play to test your knowledge.

	I	II											III	IV	V	VI	VII	VIII
Period 1																		He
Period 2	Li	Be											B	C	N	O	F	Ne
Period 3	Na	Mg											Al	Si	P	S	Cl	Ar
Period 4	K	Ca	Sc	Ti	V	Cr	Mn	Fe	Co	Ni	Cu	Zn	Ga	Ge	As	Se	Br	Kr
Period 5	Rb	Sr	Y	Zr	Nb	Mo	Tc	Ru	Rh	Pd	Ag	Cd	In	Sn	Sb	Te	I	Xe
Period 6	Cs	Ba	La	Hf	Ta	W	Re	Os	Ir	Pt	Au	Hg	Tl	Pb	Bi	Po	At	Rn
Period 7	Fr	Ra	Ac															

H — Transition metals

Ce	Pr	Nd	Pm	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu
Th	Pa	U	Np	Pu	Am	Cm	Bk	Cf	Es	Fm	Md	No	Lr

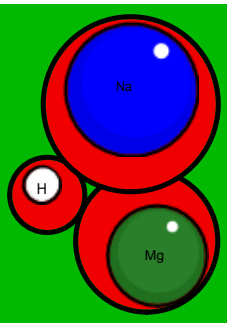
Metals | Non-metals

- Select Element - | Instructions | Find the Elements | Unlock the Code

ClickScience

Next

Assessment

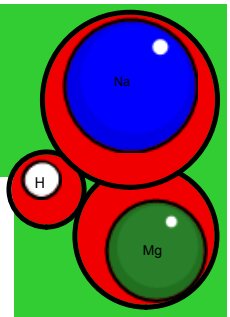


On your own sheet of paper you will make up your own questions for the following topics, please include your answer.

1. Family/group
2. Period/Row
3. Name of a family
4. Number of a family
5. Number of a period
6. Atomic Number and or name
7. Metal/Nonmetal/Metalloid

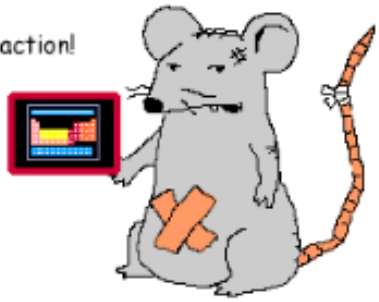
Next

Lab



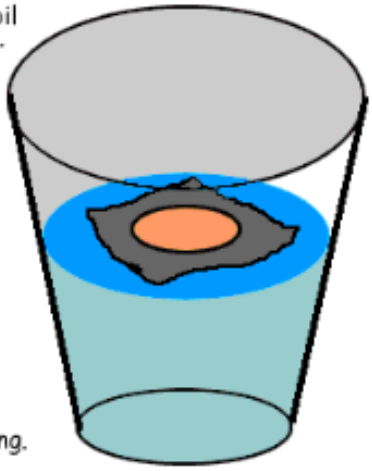
Those elements on the Periodic Table like to react.

Try this experiment to see a reaction!



You will need:
aluminum foil
a copper coin
a glass full of water

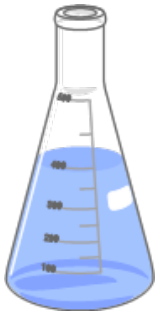
STEP 1
Place the coin on your aluminum foil and sink it into the glass of water.



STEP 2
Let the glass stand over night and check on it in the morning.

Did your water turn out cloudy like mine?
And was the foil bumpy near the coin?
Write in and tell me why you think this happened!

Next

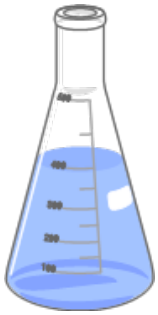


One of the most important and versatile tools you will use in chemistry is...

The Periodic Table

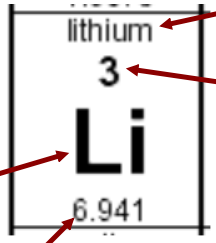
hydrogen 1 H 1.0079																	helium 2 He 4.0026
lithium 3 Li 6.941	beryllium 4 Be 9.0122											boron 5 B 10.811	carbon 6 C 12.011	nitrogen 7 N 14.007	oxygen 8 O 15.999	fluorine 9 F 18.998	neon 10 Ne 20.180
sodium 11 Na 22.990	magnesium 12 Mg 24.305											aluminium 13 Al 26.982	silicon 14 Si 28.086	phosphorus 15 P 30.974	sulfur 16 S 32.065	chlorine 17 Cl 35.453	argon 18 Ar 39.948
potassium 19 K 39.098	calcium 20 Ca 40.078		scandium 21 Sc 44.956	titanium 22 Ti 47.867	vanadium 23 V 50.942	chromium 24 Cr 51.996	manganese 25 Mn 54.938	iron 26 Fe 55.845	cobalt 27 Co 58.933	nickel 28 Ni 58.693	copper 29 Cu 63.546	zinc 30 Zn 65.39	gallium 31 Ga 69.723	germanium 32 Ge 72.61	arsenic 33 As 74.922	selenium 34 Se 78.96	bromine 35 Br 79.904	krypton 36 Kr 83.80
rubidium 37 Rb 85.468	strontium 38 Sr 87.62		yttrium 39 Y 88.906	zirconium 40 Zr 91.224	niobium 41 Nb 92.906	molybdenum 42 Mo 95.94	technetium 43 Tc [98]	ruthenium 44 Ru 101.07	rhodium 45 Rh 102.91	palladium 46 Pd 106.42	silver 47 Ag 107.87	cadmium 48 Cd 112.41	indium 49 In 114.82	tin 50 Sn 118.71	antimony 51 Sb 121.76	tellurium 52 Te 127.60	iodine 53 I 126.90	xenon 54 Xe 131.29
caesium 55 Cs 132.91	barium 56 Ba 137.33	57-70 *	lutetium 71 Lu 174.97	hafnium 72 Hf 178.49	tantalum 73 Ta 180.95	tungsten 74 W 183.84	rhenium 75 Re 186.21	osmium 76 Os 190.23	iridium 77 Ir 192.22	platinum 78 Pt 195.08	gold 79 Au 196.97	mercury 80 Hg 200.59	thallium 81 Tl 204.38	lead 82 Pb 207.2	bismuth 83 Bi 208.98	polonium 84 Po [209]	astatine 85 At [210]	radon 86 Rn [222]
francium 87 Fr [223]	radium 88 Ra [226]	89-102 **	lawrencium 103 Lr [262]	rutherfordium 104 Rf [261]	dubnium 105 Db [262]	seaborgium 106 Sg [266]	bohrium 107 Bh [264]	hassium 108 Hs [269]	meitnerium 109 Mt [268]	ununnilium 110 Uun [271]	unununium 111 Uuu [272]	ununbium 112 Uub [277]		ununquadium 114 Uuq [289]				

*Lanthanide series	lanthanum 57 La 138.91	cerium 58 Ce 140.12	praseodymium 59 Pr 140.91	neodymium 60 Nd 144.24	promethium 61 Pm [145]	samarium 62 Sm 150.36	europium 63 Eu 151.96	gadolinium 64 Gd 157.25	terbium 65 Tb 158.93	dysprosium 66 Dy 162.50	holmium 67 Ho 164.93	erbium 68 Er 167.26	thulium 69 Tm 168.93	ytterbium 70 Yb 173.04
**Actinide series	actinium 89 Ac [227]	thorium 90 Th 232.04	protactinium 91 Pa 231.04	uranium 92 U 238.03	neptunium 93 Np [237]	plutonium 94 Pu [244]	americium 95 Am [243]	curium 96 Cm [247]	berkelium 97 Bk [247]	californium 98 Cf [251]	einsteinium 99 Es [252]	fermium 100 Fm [257]	mendelevium 101 Md [258]	nobelium 102 No [259]



Individual Elements

Each box contains information about an individual element:



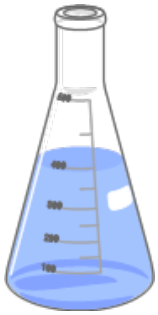
Element Name

Atomic Number

Element Symbol

Atomic Mass

Click on the labels with this symbol for more information



Let's check your understanding... grab a periodic table!

How many protons does an atom of nitrogen have?

7 **11** **14**

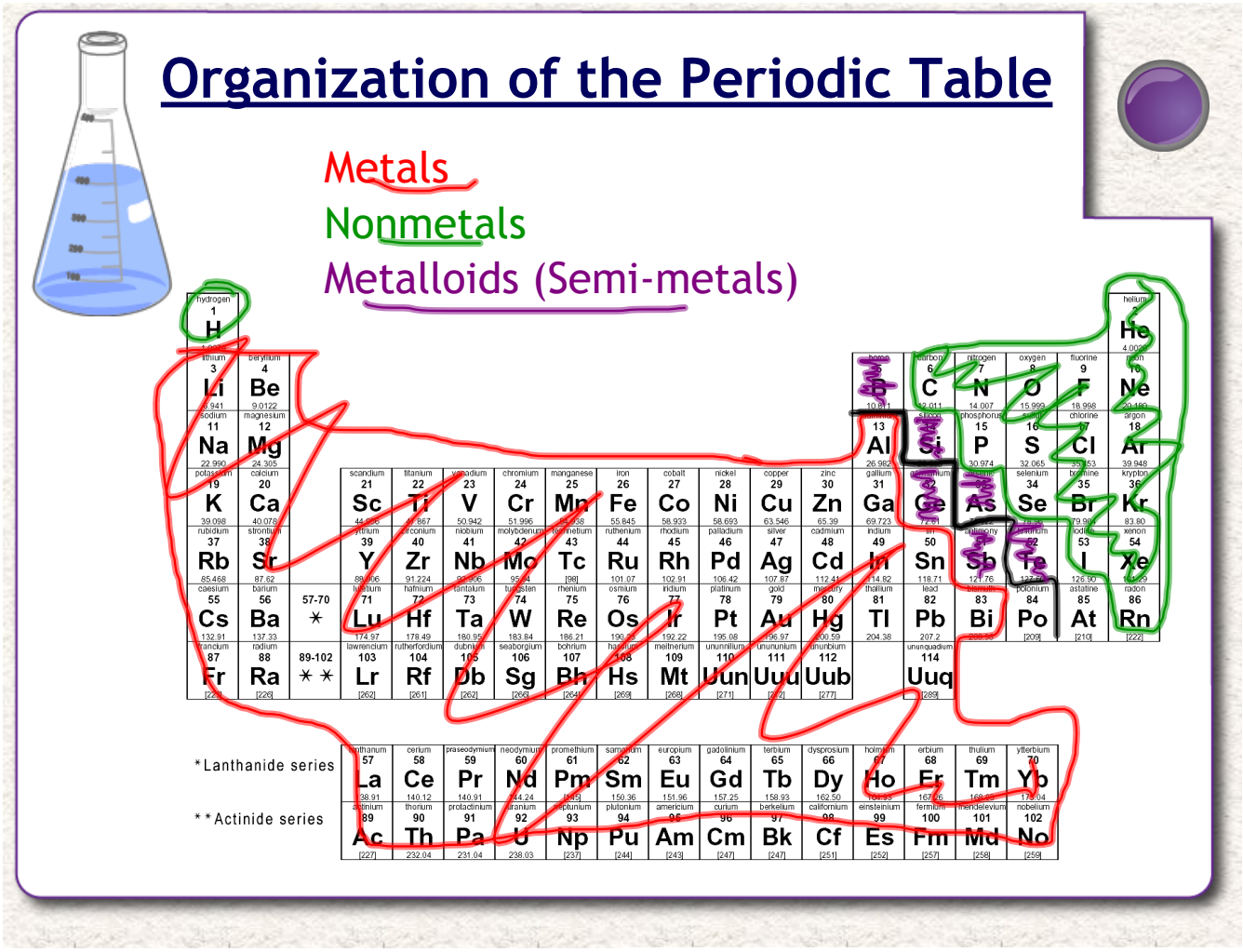
What is the element symbol for sodium?

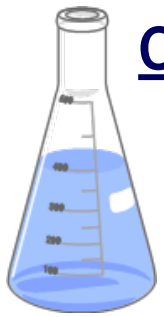
S **Na** **Sd**

CHALLENGE:

How many neutrons does an average atom of Be have?

4 **5** **9**


Organization of the Periodic Table
Metals
Nonmetals
Metalloids (Semi-metals)
*Lanthanide series
**Actinide series



Organization of the Periodic Table

The 3 large categories (metal, nonmetal, metalloid) can be broken down into smaller subcategories...

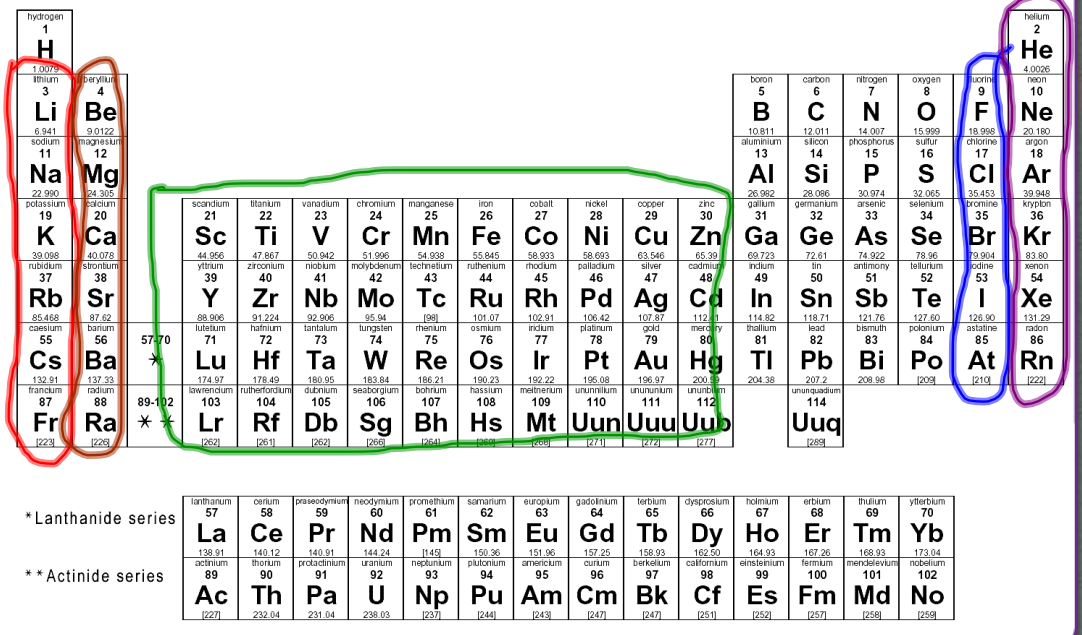
Alkali Metals

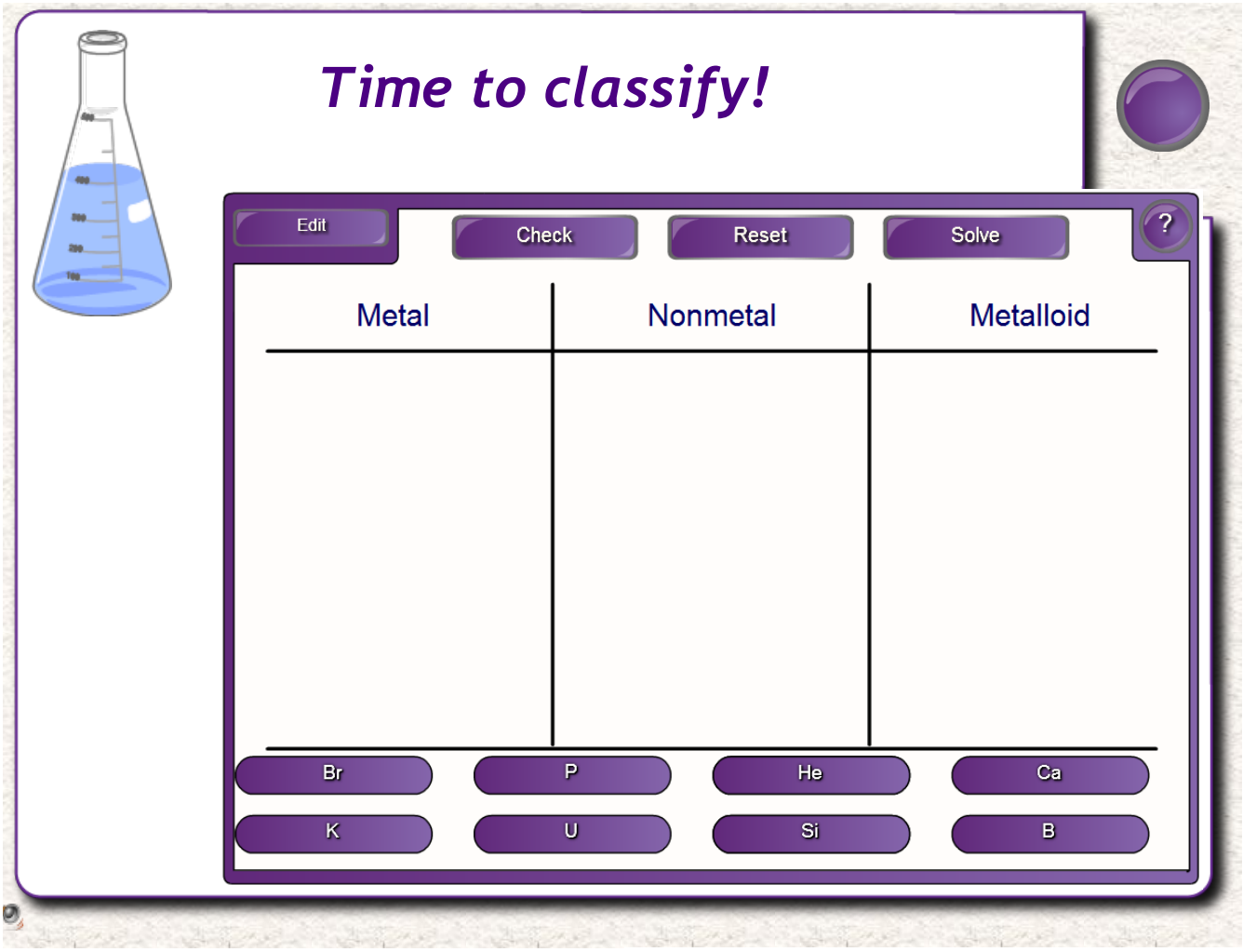
Alkaline Earth Metals

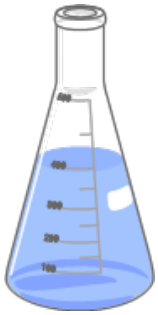
Transition Metals

Halogens

Noble Gases




Time to classify!
Edit
Check
Reset
Solve
?
Metal
Nonmetal
Metalloid
Br
P
He
Ca
K
U
Si
B



Let's check your understanding... grab a periodic table!

Barium is a(n):

nonmetal **metalloid** **metal**

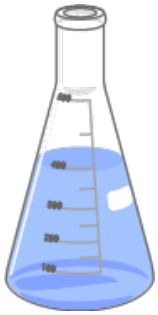
Which of these is a transition metal?

Cu **S** **Rn**

CHALLENGE:

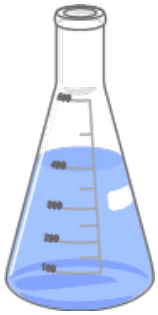
Halogens are all examples of:

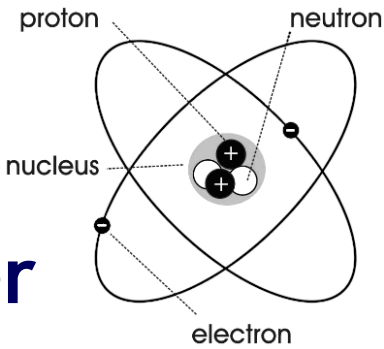
metals **nonmetals** **metalloids**



All done!

GOOD JOB!



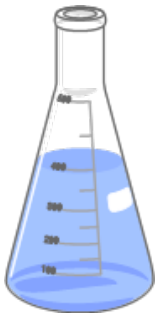


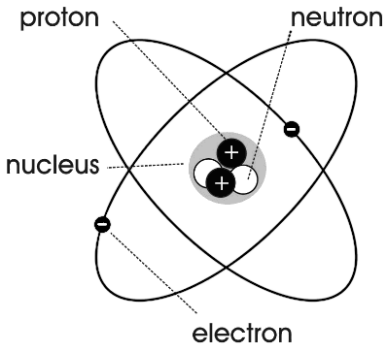
Back

Atomic Number

- *This represents the number of protons each atom of this element contains*

- *This defines the element*
  - Anything else about an atom can be changed without making it a different element (electrons, mass, neutrons...)





Back

Atomic Mass

- *This represents the average atomic mass of the element*
- *It is equal to the number of protons + the number of neutrons*

Pull

Why is it not a whole number?
Each element has different isotopes (versions) that naturally exist. These have different numbers of neutrons & therefore different masses. For example, most carbon atoms have a mass of 12 (6 protons + 6 neutrons). But there is a small percentage that have a mass of 14 (6 protons + 8 neutrons). The average atomic mass for carbon is 12.01, because it is the weighted average of LOTS of C-12 atoms and a few C-14 atoms.

Attachments

Identify It.docx

Periodic Table KWL.docx