

## WHO ARE THESE GUYS???

A fun activity to do with your folks- Instead of a “Teach a Parent”

Can you guess which element the clues match?? Have Fun!

**Directions:** Use your knowledge of the Periodic Table to match the elements listed below with each descriptive statement. Write the element next to the clue

1. What Mr. President’s speeches do. ( example: **BORON**) ☺
2. What you do when a guy bugs you to get engaged.
3. The Lone Ranger’s favorite pet.
4. Another name for a policeman.
5. Coke and Pepsi, but not water.
6. What doctors do for an ill person.
7. An evening warrior raiding Rome.
8. What body builders want to do to their muscles.
9. The unsinkable ship that did.
10. What a baby says when their bottle is empty.
11. What the police do to illegal card games.
12. A place to stash your automobiles.
13. What the police do to a robber.
14. A nice red flower.
15. This person did work in Arabia.
16. The only good thing to do to a dead skunk.
17. The place to ride a bucking bronco.
18. Someone who has no stomach.
19. What happens to your boat if it has a hole in it.
20. An old car brand.
21. A funny convict.
22. A broken leg takes time to do this.
23. What to do when a lush comes to visit.
24. What to do when your date stands you up at a restaurant.
25. Why women wear perfume.
26. You buy milk in this volume.
27. Where Superman is from.
28. A wooden one of these isn’t worth very much.
29. What to do to get a stray cattle.
30. Donny & Marie \_\_\_\_ (Think Vegas!)
31. Goofy’s friend.
32. You ride horses in this game.
33. Men or women pay this when they divorce their spouses.

### Your element choices:

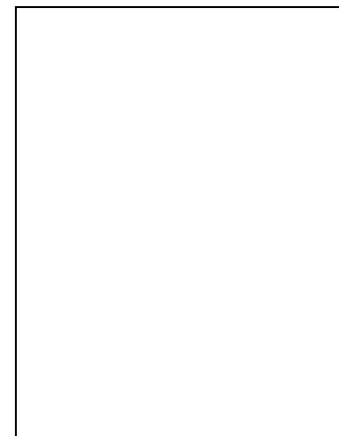
Antimony ...Fermium.... Mercury... Samarium...Argon ...Gallium ....Nickel...  
Silicon... Barium ...Germanium.... Nitrogen ....Silver...Boron ....Helium...  
Nobelium.... Sodium...Carbon ....Hydrogen.... Osmium.... Tellurium  
Cesium.... Iodine.... Plutonium.... Titanium...Copper.... Iron.... Polonium....  
Zinc..Curium.... Krypton.... Radium ...Europium ....Lawrencium.... Rhodium

My Chapter 13 Little Book on:

Sci Number

# The Periodic Table

Draw and label an example of an element’s Periodic Table Square  
Use pg 328 as a guide & as an example



Parent  
Signature:

Name: \_\_\_\_\_ Pd \_\_\_\_\_ Number: \_\_\_\_\_  
Parent Signature: \_\_\_\_\_

Definitions: From the Book / or YOUR definition

Word: Pg found	Sect 1: Arranging the Elements Pg 324-333	
Periodic	<hr/> <hr/> <hr/> <hr/>	
Periodic Law	<hr/> <hr/> <hr/> <hr/>	
Period	<hr/> <hr/> <hr/> <hr/>	
Group	<hr/> <hr/> <hr/> <hr/>	
Sect 2: Grouping the elements on pgs 334-341		
Alkali metals	<hr/> <hr/> <hr/> <hr/>	
Alkaline-earth metals	<hr/> <hr/> <hr/> <hr/>	
halogens	<hr/> <hr/> <hr/> <hr/>	
Noble gases	<hr/> <hr/> <hr/> <hr/>	

## Placing All Your Elements on the Table

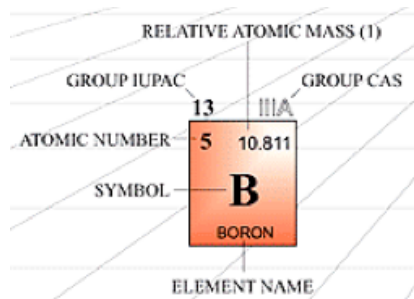
You can tell a lot about the properties of an element just by looking at the element's location on the periodic table. This worksheet will help you better understand the connection between the periodic table and the properties of the elements. Follow the directions below, and use crayons or colored pencils to color the periodic table at the bottom of the page.

1. Color the square for hydrogen yellow.
2. Color the groups with very reactive metals red.
3. Color and label the noble gases orange.
4. Color the transition metals green.
5. Using black, mark the zigzag line that shows the position of the metalloids.
6. Color the metalloids purple.
7. Use blue to color all of the nonmetals that are not noble gases.
8. Color the metals in Groups 13–16 brown.
9. Circle and label the actinides in yellow.
10. Circle and label the lanthanides in red.
11. Circle and label the alkali metals in blue.
12. Circle and label the alkaline-earth metals in purple.
13. Circle and label the halogens in green.

[illegible][illegible][illegible]

## Atomic Structure Chart

An atom is made up of protons & neutrons (found in the nucleus) and electrons (in the surrounding electron cloud). The atomic number is equal to the number of protons. The mass number is equal to the number of protons PLUS neutrons. In a neutral atom, the number of protons equals the number of electrons. Complete the chart below using your periodic table!



Element Symbol	Element Name	Atomic Number	Atomic Mass	Protons	Neutrons	Electrons
H						
	Carbon					
Li						
	Chlorine					
Ne						
	Silver					
Sm						
	Chlorine					

## Bite Size Lab!!!

Go to: My web page and click on the :Bite Size Lab/ click here Wk 10  
[http://www.bbc.co.uk/schools/ks3bitesize/science/chemical\\_material\\_behaviour/atoms\\_elements/activity.shtml](http://www.bbc.co.uk/schools/ks3bitesize/science/chemical_material_behaviour/atoms_elements/activity.shtml)

### Atoms and elements - Test Bite

- Which of these is the smallest particle?  
a) an atom b) a molecule c) a speck of dust
- Which of these is the correct symbol for magnesium?  
a) MG b) mg c) Mg
- Which statement about elements is correct?  
a) most elements are metals  
b) most elements are non-metals  
c) there are about the same number of metals and non-metals
- Where are the metals found in the periodic table?  
a) on the left b) on the right c) scattered all over
- Which of the following is not a general property of metals?  
a) shiny b) good conductor of heat c) poor conductor of electricity
- Which of the following is not a general property of non-metals?  
a) brittle b) strong c) poor conductor of heat
- An element sinks in water and makes ringing sound when hit. It is most likely to be:  
a) a metal b) a non-metal c) an alloy

Additional Notes: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

## Section 1: Arranging the Elements (p 326 – 333)

1. Why do you think scientists might have been frustrated by the organization of the elements before 1869?

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2. Mendeleev spent a lot of train rides organizing the elements according to their properties. He organized the elements according to their \_\_\_\_\_. (figure 1)

3. He noticed after arranging the elements that similar \_\_\_\_\_ and \_\_\_\_\_ properties could be observed in every \_\_\_\_\_ element.

4. Mendeleev was even able to predict the properties of elements that no one knew about. How was this possible?

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5. A few elements in Mendeleev's table seemed to be mysteriously out of place according to their properties. How did Moseley solve the mystery?

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6. The \_\_\_\_\_ states that the chemical & physical properties of elements are periodic functions of their \_\_\_\_\_ numbers.

7. Which information is NOT included in each square of the periodic table in your text?

a. Atomic number b. chemical symbol c. melting point d. atomic mass

8. Rows of elements are called: \_\_\_\_\_ and columns of elements are called: \_\_\_\_\_. What page did you find this on? \_\_\_\_\_

9. Elements are classified as metals, nonmetals or metalloids, according to their \_\_\_\_\_. The number of \_\_\_\_\_ in the outer \_\_\_\_\_ level of an atom also helps determine which category an element belongs in.

10. There is a zigzag line on the periodic table. How can it help you?

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Group #	Name	Valence Electrons electrons in the outer level	Reactivity	Important Properties & Facts
15				
16				
17				
18				
Hydrogen				

Additional Notes: \_\_\_\_\_

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## Section 2: Chart: Grouping the Elements (p 334-341)

Group #	Name	Valence Electrons (electrons in the outer level)	Reactivity	Important Properties & Facts
<b>1</b>	<i>Alkali Metals</i>	<i>1</i>	<i>Very Reactive</i>	<i>Soft enough to be cut with a knife Low densities React violently with water (usually stored in oil)</i>
<b>2</b>				
<b>3-12</b>				
<b>13</b>				
<b>14</b>				

11. Some elements are named after scientists like Einstein, and places like California. True/False

12. The chemical symbol Pb comes from the \_\_\_\_\_ word plumbum, which means: \_\_\_\_\_

13. What happens as you move from left to right through each period on the periodic table?

- Elements change from having properties of nonmetals to having metal properties
- Elements change from having properties of metalloids to having metal properties
- Elements change from liquids to gases
- None of these: write what does happen:

14. Silicon is a: \_\_\_\_\_ (metal, nonmetal or metalloid)

Name 2 liquid elements: \_\_\_\_\_

Name 4 gas elements: \_\_\_\_\_

Use the pictures on pgs 330-331 to help you match the category in Column B with the description in Column A, writing the corresponding letter in the space provided. Categories may be used more than once.

Column A	Column B
15. _____ few electrons in the outer energy level	<b>a.</b> metals
16. _____ have some properties of the other two categories	<b>b.</b> nonmetals
17. _____ brittle and non-malleable solids	<b>c.</b> metalloids
18. _____ complete or almost-complete set of electrons in the outer energy level	
19. _____ conducts heat from a stovetop to your food	
20. _____ can prevent a spark from igniting gasoline in your car	
21. _____ half-complete shell of electrons in the outer energy level	
22. _____ formed into electrical wires	
23. _____ flattened into sheets of food wrap without shattering	
24. _____ border the zigzag line on the periodic table	

25. Rows of elements on the PT are called: \_\_\_\_\_

26. Columns of elements on the PT are called: \_\_\_\_\_

### Chp 13.2 Tour Through the Chapter :Grouping the Elements (p 334)

1. Why do elements in a family or group have similar properties?
  - a. They have the same atomic mass
  - b. They have the same number of protons in their nuclei
  - c. They have the same number of electrons in their outer energy level
  - d. They have the same number of total electrons

Groups 1 & 2: Very reactive metals (p 334)

2. The elements in groups 1 & 2 are very reactive. Explain.

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3. Which of the following is NOT true of alkali metals?
  - a. They can be cut with a knife
  - b. They are usually stored in water
  - c. They are the most reactive of all the metals
  - d. They can easily give away their outer electrons

4. How are the following alkali metal compounds useful?

- a. sodium chloride: \_\_\_\_\_
- b. sodium hydroxide: \_\_\_\_\_
- c. potassium bromide: \_\_\_\_\_

5. Alkaline-earth metals have \_\_\_\_\_ electrons in their outer energy level. They are less \_\_\_\_\_ and more \_\_\_\_\_ than alkali metals.

6. Calcium is the alkaline-earth metal that makes up a compound that is healthy for your teeth. True or false? (circle one)

Groups 3-12: Transition Metals (p 336)

7. Besides collectively being called transition metals, Groups 3-12 also have individual names. True or false? (circle one)

8. Which of the following characteristics describes transition metals?
  - a. good conductors
  - b. more reactive than alkali and alkaline-earth metals
  - c. 1 or 2 electrons in the outer energy level
  - d. denser than elements in Group 1 & 2

**Teach a parent: Today's concept is:**

**Explain the different Families / Groups on the Periodic Table**

This is really important! Open your Periodic Table and explain the different parts of it. What are metals, nonmetals & metalloids, and some information about each of the families.

**Help your parent become an expert !**

#### Parent Response

1. \_\_\_\_\_ I'm not sure my child really understands, therefore, I don't either. Please work with him/her and let's try again.
2. \_\_\_\_\_ The concept was explained thoroughly with effective examples he/she created.  
"By golly, I think they've got it!"
3. \_\_\_\_\_ WOW! My child did an exceptional job! It was logically explained, therefore I caught on immediately and feel confident about teaching it to others. The self-created examples were a perfect fit. My child even asked me a question at the end to make sure I understood. I believe my child could effectively teach this concept to others.

Parent Signature: \_\_\_\_\_ Date: \_\_\_\_\_

**Mom or Dad Comments: Please explain how your student taught you this concept and \* what you learned in 3-5 sentences! \***

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**Space for any additional notes from this section:**

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### Groups 17 and 18: Nonmetals Only (pg 340)

22. Which of the following statements is true?  
a. Group 17 elements are the most reactive metals  
b. Group 18 elements are the least reactive metals  
c. Group 18 elements are the least reactive nonmetals
23. What does Fig 12 show about the physical properties of halogens?

24. Halogens are very reactive because of the number of electrons in their outer energy level. True/false

25. What important use do the halogens iodine & chlorine have in common?

26. Which of the following statements are true of noble gases. (circle all that apply)  
a. they are colorless & odorless at room temperature  
b. They normally react with other elements  
c. They are metals  
d. They have a complete set of electrons in their outer energy level

27. Take a moment to look at Fig 13.(pg341) Why do neon signs contain other noble gases besides neon? Give an example.

### Hydrogen Stands Apart (pg 341)

Mark each of the following statements True or false

28. \_\_\_\_\_ Hydrogen is useful as rocket fuel  
29. \_\_\_\_\_ Hydrogen has 2 electrons in its outer energy level  
30. \_\_\_\_\_ Hydrogen is the most abundant element in the universe  
31. \_\_\_\_\_ The physical properties of hydrogen are close to those of nonmetals than to those of metals.

additional notes

### Groups 1 & 2.

9. Mercury is different from other transition metals in Fig 7. how?

10. Two rows of \_\_\_\_\_ are placed at the bottom of the periodic table to save space. Elements in the \_\_\_\_\_ row are called lanthanides and are shiny, \_\_\_\_\_ metals.

11. Which lanthanide forms a compound that makes you see red on a computer screen like the one in Fig 8? \_\_\_\_\_

12. All actinides are radioactive. True or false? (circle one)

13. Which actinide is used in some smoke detectors? \_\_\_\_\_

Groups 13-16: Groups that Include metalloids (p 338)

14. Look at Fig 9. The most common element of Group 13, aluminum, was once considered so valuable that Napoleon III used it as dinnerware. True or false? (circle one)

15. What do diamonds, crayons and proteins have in common?

16. Phosphorous, which makes up about 80% of the air you breathe, is used in fertilizers. True / false?

17. All substances need the element oxygen to : \_\_\_\_\_

Complete the following section after you finish reading about Groups 13-16. **Each of the following statements are false.** Change the underlined word to make the statement true. Write the new word in the space provided.

18. Oxygen group elements contain 5 electrons in the outer energy level.

19. The carbon group contains no nonmetals. \_\_\_\_\_

20. The Nitrogen and boron groups have the same number of electrons in the outer energy level which is: \_\_\_\_\_

21. **Not all** carbon group and oxygen group elements are solid at room temperature. \_\_\_\_\_



# PERIODIC TABLE OF THE ELEMENTS

<http://www.ktf-split.hr/periodni/en/>

GROUP	1	2	13	14	15	16	17	18
PERIOD	1	2	3	4	5	6	7	8
1	1 1.0079 <b>H</b> HYDROGEN							
2	3 6.941 <b>Li</b> LITHIUM	4 9.0122 <b>Be</b> BERYLLIUM						
3	11 22.990 <b>Na</b> SODIUM	12 24.305 <b>Mg</b> MAGNESIUM						
4	19 39.098 <b>K</b> POTASSIUM	20 40.078 <b>Ca</b> CALCIUM	21 44.956 <b>Sc</b> SCANDIUM	22 47.867 <b>Ti</b> TITANIUM	23 50.942 <b>V</b> VANADIUM	24 51.996 <b>Cr</b> CHROMIUM	25 54.938 <b>Mn</b> MANGANESE	26 55.845 <b>Fe</b> IRON
5	37 85.468 <b>Rb</b> RUBIDIUM	38 87.62 <b>Sr</b> STRONTIUM	39 88.906 <b>Y</b> YTTRIUM	40 91.224 <b>Zr</b> ZIRCONIUM	41 92.906 <b>Nb</b> NIOBIUM	42 95.94 <b>Mo</b> MOLYBDENUM	43 (98) <b>Tc</b> TECHNETIUM	44 101.07 <b>Ru</b> RUTHENIUM
6	55 132.91 <b>Cs</b> CAESIUM	56 137.33 <b>Ba</b> BARIUM	57-71 <b>La-Lu</b> Lanthanide	72 178.49 <b>Hf</b> HAFNIUM	73 180.95 <b>Ta</b> TANTALUM	74 183.84 <b>W</b> TUNGSTEN	75 186.21 <b>Re</b> RHENIUM	76 190.23 <b>Os</b> OSMIUM
7	87 (223) <b>Fr</b> FRANCIUM	88 (226) <b>Ra</b> RADIUM	89-103 <b>Ac-Lr</b> Actinide	104 (261) <b>Rf</b> RUTHERFORDIUM	105 (262) <b>Db</b> DUBNIUM	106 (266) <b>Sg</b> SEABORGIUM	107 (264) <b>Bh</b> BOHRIUM	108 (277) <b>Hs</b> HASSIUM
								109 (268) <b>Mt</b> MEITNERIUM

## LANTHANIDE

57 138.91 <b>La</b> LANTHANUM	58 140.12 <b>Ce</b> CERIUM	59 140.91 <b>Pr</b> PRASEODYMIUM	60 144.24 <b>Nd</b> NEODYMIUM	61 (145) <b>Pm</b> PROMETHIUM	62 150.36 <b>Sm</b> SAMARIUM
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## ACTINIDE

89 (227) <b>Ac</b> ACTINIUM	90 232.04 <b>Th</b> THORIUM	91 231.04 <b>Pa</b> PROTACTINIUM	92 238.03 <b>U</b> URANIUM	93 (237) <b>Np</b> NEPTUNIUM	94 (244) <b>Pu</b> PLUTONIUM
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16 32.06 <b>S</b> SULPHUR	17 35.453 <b>Cl</b> CHLORINE	18 39.948 <b>Ar</b> ARGON
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13 26.982 <b>Al</b> ALUMINIUM	14 28.086 <b>Si</b> SILICON	15 30.974 <b>P</b> PHOSPHORUS
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10 58.693 <b>Ni</b> NICKEL	11 63.546 <b>Cu</b> COPPER	12 65.39 <b>Zn</b> ZINC
----------------------------------	----------------------------------	-------------------------------

46 106.42 <b>Pd</b> PALLADIUM	47 107.87 <b>Ag</b> SILVER	48 112.41 <b>Cd</b> CADMIUM
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78 195.08 <b>Pt</b> PLATINUM	79 196.97 <b>Au</b> GOLD	80 200.59 <b>Hg</b> MERCURY
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110 (281) <b>Uun</b> UNUNNIUM	111 (272) <b>Uuu</b> UNUNUNIUM	112 (285) <b>Uub</b> UNUNBIUM
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114 (289) <b>Uuq</b> UNUNQUADIUM		
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110 (281) <b>Uun</b> UNUNNIUM	111 (272) <b>Uuu</b> UNUNUNIUM	112 (285) <b>Uub</b> UNUNBIUM
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63 151.96 <b>Eu</b> EUROPIUM	64 157.25 <b>Gd</b> GADOLINIUM	65 158.93 <b>Tb</b> TERBIUM
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66 162.50 <b>Dy</b> DYSPROSIUM	67 164.93 <b>Ho</b> HOLMIUM	68 167.26 <b>Er</b> ERBIUM
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69 168.93 <b>Tm</b> THULIUM	70 173.04 <b>Yb</b> YTTERIUM	71 174.97 <b>Lu</b> LUTETIUM
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95 (243) <b>Am</b> AMERICIUM	96 (247) <b>Cm</b> CURIUM	97 (247) <b>Bk</b> BERKELIUM
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98 (251) <b>Cf</b> CALIFORNIUM	99 (252) <b>Es</b> EINSTEINIUM	100 (257) <b>Fm</b> FERMIUM
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101 (258) <b>Md</b> MENDELEVIUM	102 (259) <b>No</b> NOBELIUM	103 (262) <b>Lr</b> LAWRENCIUM
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(1) Pure Appl. Chem., 73, No. 4, 667-683 (2001)  
Relative atomic mass is shown with five significant figures. For elements having no stable nuclides, the value enclosed in brackets indicates the mass number of the longest-lived isotope of the element.  
However three such elements (Th, Pa, and U) do have a characteristic terrestrial isotopic composition, and for these an atomic weight is tabulated.

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