Name:_____Date:_____Period:_____

Periodic Table Questions from Reading

1. About how many known elements are there?

2. Elements in the periodic table are arranged by...

3. Which of these things will you NOT find in the periodic table on the wall?
A. Element Name and Symbol
B. Atomic Weight
C. Atomic Orbital Radius
D. Atomic Number

4. Which scientist came up with the concept of a periodic table that included all of the known elements?

5.True or False: Rows in the periodic table are called periods.

6. Which of these choices is NOT a family of elements?
A. Halogen
B. Metal
C. Inert Gas
D. All are groups of elements.

7. The atomic number of an element tells you the number of _____ in a neutral atom.

8. True or False: The columns of the periodic table are called groups.

9. True or False: You will find metals on the right side of the periodic table.

10. True or False: Although the order of elements is based on atomic number, vertical families share similar chemical properties.

After You Read

NAME: _____

The Periodic Table

1. Fill in each blank with a word or group of words from the list.

atomic number | element | symbol | group | atom

a) The periodic table lists all the _____s in order of increasing _____s.

b) The letter "C" is the _____ for the element carbon.

c) In the periodic table, elements in the same _____ have many of the same properties.

d) Elements with the smallest _____s are near the top of the periodic table.

2. Put a check mark (✓) next to the answer that is most correct.

a) What repeats when elements are arranged in order of increasing atomic mass?

- ○ **A** size of atoms
- ○ **B** atomic numbers
- ○ **C** chemical properties
- ○ **D** number of electrons

b) What did scientists study to make the first periodic table?

- ○ **A** atomic models
- ○ **B** outer electrons
- ○ **C** each atom's nucleus
- ○ **D** properties of elements

NAME: _____




The Periodic Table

3. Tell *three* things you can learn about an element by looking at one square in the periodic table.

_____

_____

4. Explain why the scientists who made the first periodic tables didn't understand why properties of elements repeated.

_____

_____

Extensions & Applications

5. A scientist from Russia, named **Dmitri Mendeleev,** made the **first** really good periodic table. Even though he drew up his table about 150 years ago, it is a lot like the one used today. Look for things to read about Mendeleev and his periodic table. Searching for his last name on the Internet will be some help. Your teacher may also have some books to help you.

a) When did he formally present his periodic table?

_____

b) Try to find out what other scientists thought of his periodic table.

_____

_____

_____

_____

c) He left some squares in his table **blank.** Why did he do this? How did this show later that his periodic table was correct?

_____

_____

d) One story says that the periodic table came to Mendeleev in a dream. Try to find out if this story is true.

_____

_____

Before You Read

NAME: _____

Patterns In the Periodic Table

1. Circle T if the statement is TRUE or F if it is FALSE.

T F **a)** The periodic table came before the atomic model.

T F **b)** Each element in the periodic table has one more proton than the element to its left.

T F **c)** Only the most important elements are included in the periodic table.

T F **d)** The symbol "W" in the periodic table stands for water.

T F **e)** "Inert" means the same as "reactive."

2. Draw a line from each word or words on the left to its meaning on the right.

inert	a	an up-and-down row in the periodic table
bonds	b	a material made of one kind of atom
group	c	connections between atoms in a molecule
atomic number	d	almost never forms compounds with other elements
element	e	equal to the number of protons in each atom of an element

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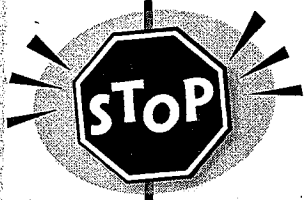
Patterns In the Periodic Table

You learned that the number of electrons increases from left to right in a row of the periodic table. The elements in group 18, at the far right, have a full set of outer electrons. These elements almost never form compounds with anything. We say these elements are **inert**. Since they are all gases, they are called the **inert gases**.

Elements in group 17 are one electron short of a full outer set. They form compounds very easily. This means that they are very **reactive**. The elements in group 1 have just one outer electron, and they are also very reactive.

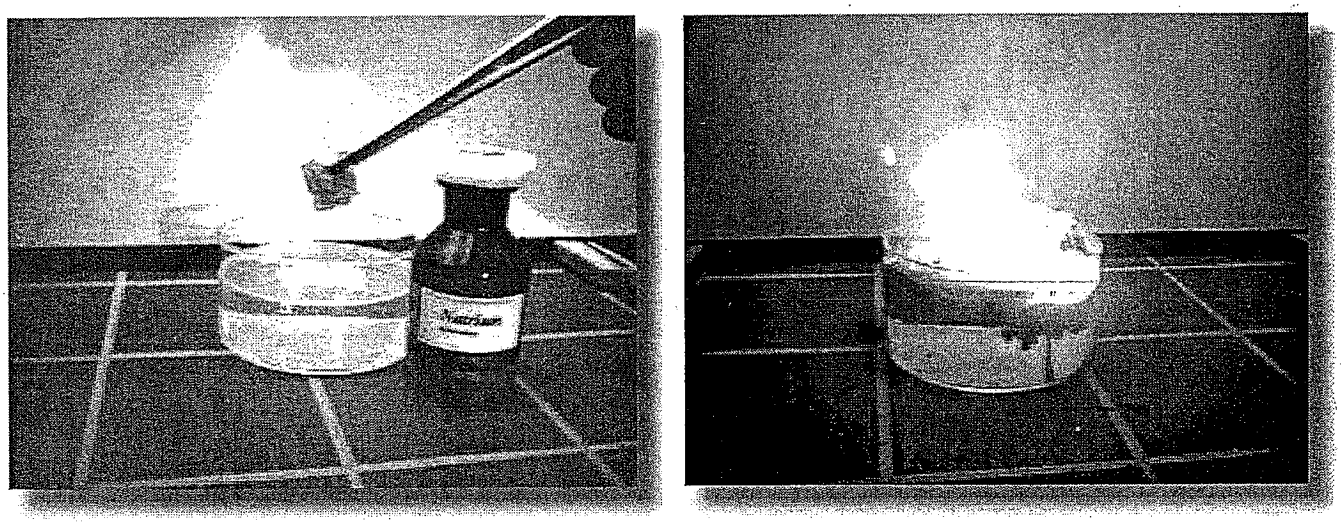
You wouldn't think that a metal would react with water. But sodium metal (Na) from group 1 reacts with water very quickly. In fact, flames appear when the two materials are put together! Elements in group 1 are most reactive with elements in group 17. Sodium reacts with the element chlorine (Cl) in group 17 to form sodium chloride. Sodium chloride is the scientific name for table salt.



Name an element with ONE outer electron. Name an element with TWO outer electrons. Use the periodic table to help you choose your answers.

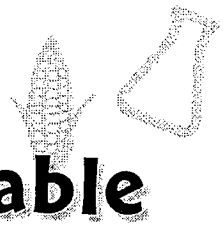
_____

_____



Pictures of sodium reacting with water

NAME: _____

Patterns In the Periodic Table

Except for group 18, the most reactive elements are in the groups to the far left and far right. Elements in the top rows are also more reactive than elements in lower rows. So what does it mean when we put these two rules together? We see that the most reactive elements are in the top left and top right parts of the periodic table. When elements from these two parts of the periodic table react with each other, they react very easily and give off a lot of energy.

The periodic table shows other patterns of properties, too. Here is one of the most important things it shows: Elements in each group have very similar properties. For example, as we said, group 18 elements are all gases; these gases are all inert.

The numbers of electrons, protons, and neutrons in atoms all get larger from left to right and from top to bottom. This means the mass of atoms also gets greater in the same directions. So the atoms with the least mass are in the top left of the periodic table. Those atoms with the most mass are in the bottom right.

The size of atoms also gets larger from top to bottom. This is because there are more electrons and they are farther and farther from the nucleus. Changes in size from left to right do not follow a simple rule.

NAME: _____

Patterns In the Periodic Table

Look at the periodic table to help you answer these questions.

1. Number the elements from 1 to 5 in the order of **most** reactive (1) to **least** reactive (5).

☐	**a)** silver (Ag)
☐	**b)** arsenic (As)
☐	**c)** fluorine (F)
☐	**d)** krypton (Kr)
☐	**e)** nitrogen (N)

2. Put a check mark (✓) next to the answer that is most correct.

a) Lithium (Li) forms a compound most easily with

- ○ **A** beryllium (Be)
- ○ **B** fluorine (F)
- ○ **C** neon (Ne)
- ○ **D** sodium (Na)

b) Where are the *most* reactive elements in the periodic table?

- ○ **A** far right row
- ○ **B** top and bottom rows
- ○ **C** lower left and lower right
- ○ **D** upper left and upper right

c) Which of these elements has properties *most* like those of sodium (Na)?

- ○ **A** argon (Ar)
- ○ **B** chlorine (Cl)
- ○ **C** magnesium (Mg)
- ○ **D** potassium (K)

NAME: _____

Patterns In the Periodic Table

3. Explain why elements in the same group have many of the same chemical properties.

_____

_____

4. Explain why atoms of elements in the bottom rows of the periodic table are larger than those in the top rows.

_____

_____

Extensions & Applications

Find calcium (Ca), chlorine (Cl), and helium (He) in the periodic table. For each of these elements answer the questions below.

5. Calcium (Ca):

a) Name the two elements with properties most like calcium.

_____

b) How many electrons and protons does an atom of calcium have?

_____

c) Is calcium more reactive than potassium (K)? _____

d) Is a calcium atom larger than a magnesium (Mg) atom? _____

6. Chlorine (Cl):

a) Name the two elements with properties most like chlorine.

_____

b) How many electrons and protons does an atom of chlorine have?

_____

c) Is chlorine more reactive than sulfur (S)? _____

d) Is a chlorine atom larger than a bromine (Br) atom? _____

7. Helium (He):

a) Name the two elements with properties most like helium.

_____

b) How many electrons and protons does an atom of helium have?

_____

c) Is helium more reactive than hydrogen (H)? _____

d) Is a helium atom larger than a neon (Ne) atom? _____