

## Review

1. Dalton's Atomic Theory said
  - Every element is made of atoms that cannot be divided
  - Atoms of an element are exactly alike
  - Atoms of different elements can join to form \_\_\_\_\_.
2. What particles are found in the nucleus and what is the charge on the nucleus?
3. What is the charge on a proton?  
an electron?  
neutron?
4. Why are atoms electrically neutral?
5. How do electrons travel according to the Bohr model?
6. Can we determine an electron's exact location?
7. Who developed the modern day periodic table and how did he organize the periodic table?
8. Since elements in the same group on the periodic table have the same number of valence electrons, then they also have similar \_\_\_\_\_.
9. \_\_\_\_\_?
10. \_\_\_\_\_?
11. If you know the atomic number, what other information do you know about an atom?
12. Complete the equation                      mass number = \_\_\_\_\_ + neutrons
13. What is the atomic mass unit equal to?
14. Where are the alkali metals located on the periodic table?
15. What are some properties of semiconductors?
16. What are some properties of noble gases?
17. How do halogens form compounds? (do they gain or lose electrons)
18. Why do noble gases not react? (hint: energy level)

19. How many electrons are in the 1<sup>st</sup> energy level?  
2<sup>nd</sup> energy level?  
3<sup>rd</sup> energy level?

20. What part of the atom has the mass of the atom?

21. Where are the nonmetals on the periodic table?

22. What are the noble gases?

23. What are columns on the periodic table called?  
rows on the periodic table called?

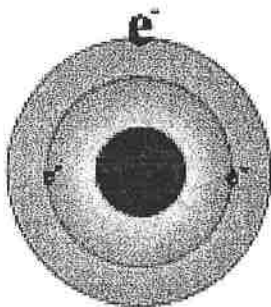
24. What are the alkali metals?  
What are the halogens?

25. Which likes to accept electrons metals or nonmetals? *don't think about which "gain" & which "lose"*

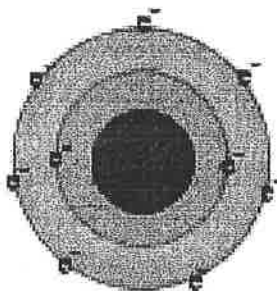
26. Do groups or periods have similar properties?

27. What is the periodic law?

### Bohr Models



Lithium's electrons



Fluorine's electrons

28. How many valence electrons does Li have? Will it gain or lose electrons? *Change after*

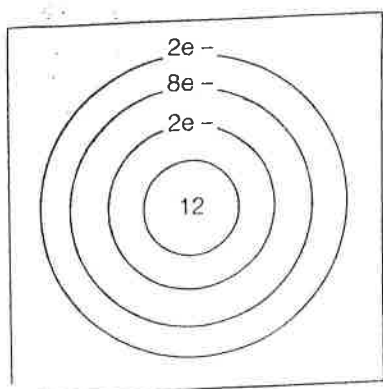
29. How many valence electrons does F have? Will it gain or lose electrons? *Change after*

30. How many electrons need to be in the outer shell for an ion to be stable?

# Skills

## Analyze

Study the mystery element in Figure 1. Use Figure 1 and the periodic table on pages 186–187 to answer these questions and identify the element.



e 1 Mystery Element

1. Which ring refers to the nucleus of the element?  
\_\_\_\_\_
2. The number in the nucleus tells how many protons are in the nucleus. What else does it tell you about the element?  
\_\_\_\_\_
3. The three largest rings represent electron paths. How many electrons travel in the middle ring?  
\_\_\_\_\_
4. Do the elements above and below this one in the periodic table have similar properties? Explain your answer.  
\_\_\_\_\_  
\_\_\_\_\_
5. To which period does the element belong?  
\_\_\_\_\_
6. To which group does the element belong?  
\_\_\_\_\_

7. Name two other elements with similar properties.

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8. Give the symbol and name of the element in Figure 1.

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9. Is this element a metal, a metalloid, or a nonmetal? How do you know?

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10. What is the atomic number of the element just to the left of the element in Figure 1?

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11. How many electrons does the element just to the right of this one have?

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12. Is the element to the right of this one a metal, a metalloid, or a nonmetal?

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Atomic Model Review  
(Match Theory to Scientist)

1. Atoms are solid spheres.
2. Electrons move around the nucleus in specific levels.
3. Protons are concentrated in the center.
4. Electrons move in ever-changing paths within certain energy levels.
5. Electrons are stuck in the atom's surfaces.

- A. Thomson
- B. Dalton
- C. Bohr
- D. Rutherford
- E. Electron cloud model

## Chapter Review (continued)

### Part B. Concept Review

Directions: Complete the table below by writing the correct information in the blank spaces.

| Element         | Chemical symbol | Atomic number | Number of protons | Number of neutrons | Mass number |
|-----------------|-----------------|---------------|-------------------|--------------------|-------------|
| 1. Sodium       |                 | 11            | 11                | 12                 | 23          |
| 2. Carbon       | C               |               | 6                 | 6                  | 12          |
| 3.              | Fe              | 26            | 26                | 30                 | 56          |
| 4. Sulfur       | S               | 16            |                   | 16                 | 32          |
| 5. Nitrogen     | N               | 7             | 7                 |                    | 14          |
| 6. Oxygen       | O               | 8             | 8                 | 8                  |             |
| 7.              | He              | 2             | 2                 | 2                  | 4           |
| 8. Chlorine-35  | Cl              | 17            | 17                |                    | 35          |
| 9. Copper       | Cu              | 29            | 29                | 35                 |             |
| 10. Chlorine-37 | Cl              |               | 17                | 20                 | 37          |

Directions: Refer to the periodic table below and the boxes at the right of the table to answer questions 11–15.

|   |   |   |   |   |   |   |   |    |   |    |    |    |  |  |  |  |  |  |  |    |  |
|---|---|---|---|---|---|---|---|----|---|----|----|----|--|--|--|--|--|--|--|----|--|
|   | 1 |   |   |   |   |   |   |    |   |    |    |    |  |  |  |  |  |  |  | 18 |  |
|   |   | 2 |   |   |   |   |   |    |   |    |    |    |  |  |  |  |  |  |  |    |  |
|   |   |   |   |   |   |   |   |    |   |    |    |    |  |  |  |  |  |  |  |    |  |
|   |   |   | 3 | 4 | 5 | 6 | 7 | 8  | 9 | 10 | 11 | 12 |  |  |  |  |  |  |  |    |  |
| A |   |   |   |   |   |   |   | Fe |   |    |    |    |  |  |  |  |  |  |  |    |  |
|   |   |   |   |   |   |   |   |    |   |    |    |    |  |  |  |  |  |  |  |    |  |
|   |   |   |   |   |   |   |   |    |   |    |    |    |  |  |  |  |  |  |  |    |  |
|   |   |   |   |   |   |   |   |    |   |    |    |    |  |  |  |  |  |  |  |    |  |
| B |   |   |   |   |   |   |   |    |   |    |    |    |  |  |  |  |  |  |  |    |  |



- \_\_\_\_\_ 11. Which element has a greater atomic mass, A or B?
- \_\_\_\_\_ 12. Which element is a metal, B or C?
- \_\_\_\_\_ 13. In which group is gold?
- \_\_\_\_\_ 14. What is the average atomic mass of iron?
- \_\_\_\_\_ 15. What is the atomic number of sodium?

