Name: _____ Period: ____

Interpreting the Periodic Table – Teacher Page

TEKS

8.5 Matter and energy. The student knows that matter is composed of atoms and has chemical and physical properties. The student is expected to:

> (C) interpret the arrangement of the Periodic Table, including groups and periods, to explain how properties are used to classify elements;

Pre-Teach

This is an activity designed to help students demonstrate an understanding of the arrangement of the periodic table. Students should be familiar with how the periodic table is arranged by atomic number, mass, energy levels, groups, periods, reactivity, valence electrons, reactivity etc. through other forms of presentation before completing this activity. A good activity to help construct this information for students would be the Mr. X activity.

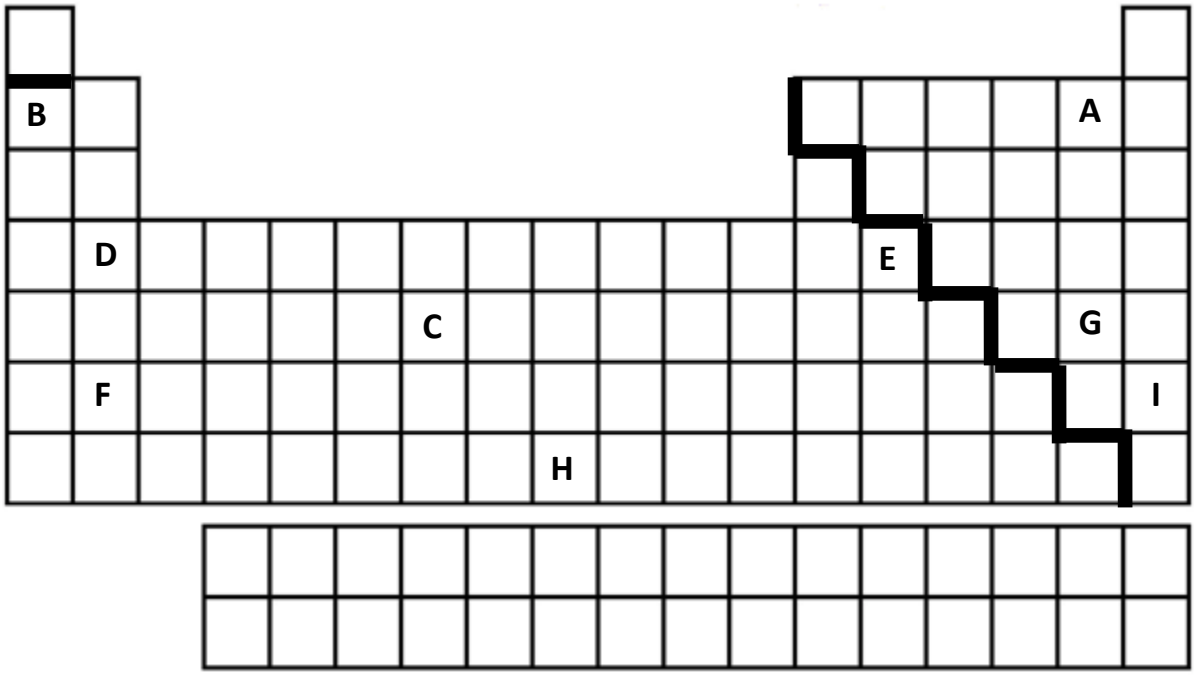
Differentiation

Having students work together on this activity can be beneficial in some instances, but can also hinder student's recall of the information. This is intended to be a summative assessment for this particular TEK before moving on to another concept. It is recommended that the assignment be modified so that the patterns could be easier to identify by reducing the number of letters on the "hypothetical periodic table" and strategically placing them on the table so they are closer together.

Name: _____ Period: ____

Interpreting the Periodic Table

Examine the hypothetical periodic table shown below. Use this periodic table to answer the questions that follow.



1. Which pair(s) of elements has the same number of valence electrons?

   _____

2. How many valence electrons do they have?

   _____

3. How can you tell the number of valence electrons for those elements?

   _____

4. Which pair of elements is in the same period?

   _____

5. If they are in the same period, what do they have in common?

   _____

6. Which pair(s) of elements have very similar properties?

   _____

7. Which element has the smallest atomic number?

   _____

8. Which element has the largest atomic number?

   _____

9. Which element(s) would be classified as a metal?

   _____

10. Which element(s) would be classified as a nonmetal?

    _____

11. Which element(s) would be classified as a metalloid?

    _____

12. Which element would be classified as a noble gas?

    _____

Name: _____ Period: ____

13. What is the family name for element B?

    _____

14. How many energy levels does element E have?

    _____

15. If the atomic number of Element D is 20, what is the atomic number of Element E?

    _____

16. Label the element in group 17, period 6 with the letter "J". Is it a metal, nonmetal, or metalloid?

    _____

17. Label the element in group 15, period 4 with the letter "K". Is it a metal, nonmetal, or metalloid?

    _____

18. Could the element A and I ever bond to create a molecule? Why or why not?

    _____

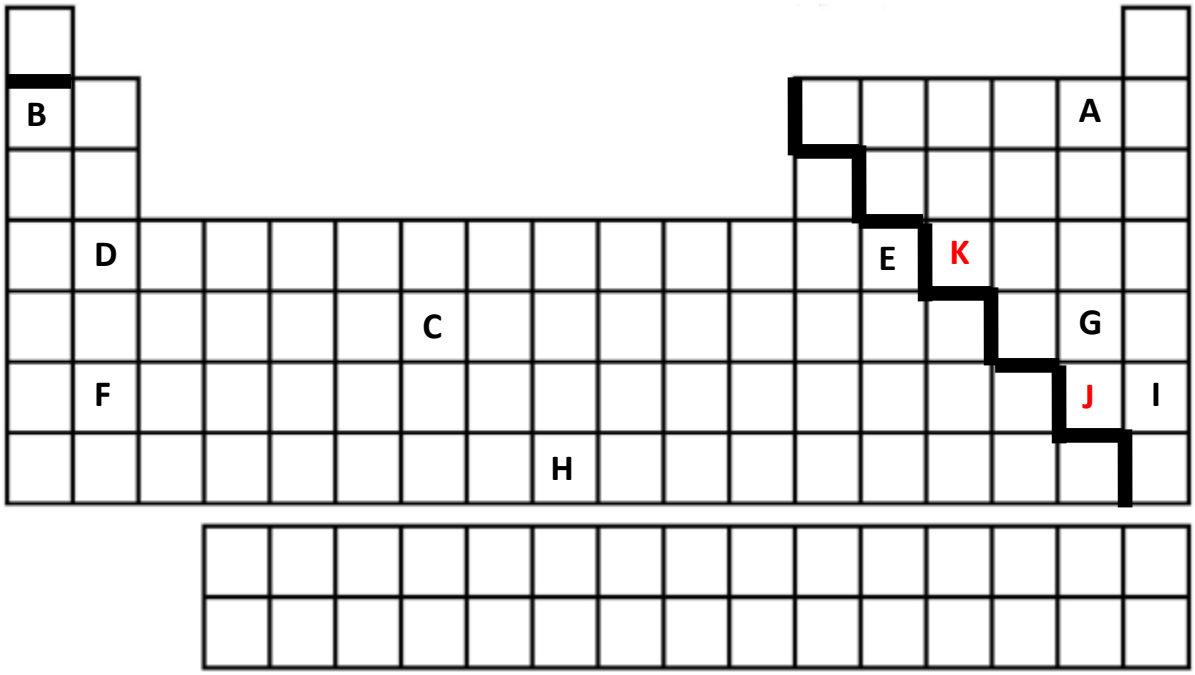
19. Complete the comparisons with a <, >, or = sign.
    a. Mass of Element D ___ Mass of element A
    b. Group # of element B ___ Group # of element F
    c. Valence electrons in A ___ Valence electrons in G
    d. Period # of element I ___ Period # of element C
    e. # of energy levels in C ___ # of energy levels in G
    f. Atomic # of element H ___ Atomic # of element

20. Color code the metals, nonmetals, and metalloids. Create a key below.

Name: _____ Period: ____

Interpreting the Periodic Table - KEY

Examine the hypothetical periodic table shown below. Use this periodic table to answer the questions that follow.



1. Which pair(s) of elements has the same number of valence electrons?
   __D&F, A&G_____
2. How many valence electrons do they have?
   __D&F have 2, A&G have 7_____
3. How can you tell the number of valence electrons for those elements?
   __The group number tells the number of valence electrons._____
4. Which pair of elements is in the same period?
   __B&A, D&E, C&G, F&I_____
5. If they are in the same period, what do they have in common?
   __Elements in the same period have the same number of energy levels or electron shells.
6. Which pair(s) of elements have very similar properties?
   __D&F, A&G_____
7. Which element has the smallest atomic number?
   __B_____
8. Which element has the largest atomic number?
   __H_____
9. Which element(s) would be classified as a metal?
   __B, D, C, F, and H_____
10. Which element(s) would be classified as a nonmetal?
    __A, G, and I_____
11. Which element(s) would be classified as a metalloid?
    __E_____
12. Which element would be classified as a noble gas?
    __I_____

Name: _____ Period: ____

13. What is the family name for element B?
    __Alkali Metals_____
14. How many energy levels does element E have?
    __4_____
15. If the atomic number of Element D is 20, what is the atomic number of Element E?
    __32_____
16. Label the element in group 17, period 6 with the letter "J". Is it a metal, nonmetal, or metalloid?
    __Metalloid_____
17. Label the element in group 15, period 4 with the letter "K". Is it a metal, nonmetal, or metalloid?
    __Metalloid_____
18. Could the element A and I ever bond to create a molecule? Why or why not?
    __Element A and I could not ever bond to make a molecule because element I is a noble gas. It cannot accept or donate any electrons for bonding._____
19. Complete the comparisons with a <, >, or = sign.
    a. Mass of Element D _>_ Mass of element A
    b. Group # of element B _<__ Group # of element F
    c. Valence electrons in A _=__ Valence electrons in G
    d. Period # of element I _>__ Period # of element C
    e. # of energy levels in C _=__ # of energy levels in G
    f. Atomic # of element H _>__ Atomic # of element J

20. Color code the metals, nonmetals, and metalloids. Create a key below.
    Answers vary according to chosen colors. The left side should be one color, the elements touching the staircase should be one color, and the right of the staircase should be another. Hydrogen on the top left should be the same color as the nonmetals on the right.