

Name: \_\_\_\_\_

Date: \_\_\_\_\_

### Webquest: Allotropes

#### Activity Unit 7 - Topic 3

**First, find the wise geek site at:**

**<http://www.wisegeek.com/what-is-an-allotrope.htm>**

1. Define allotrope: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

2. Why is an allotrope not just a different phase of the element? (example: liquid vs. solid)  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

3. Do all allotropes have the same configuration (grouping) of their atoms? Do they have the same physical and chemical properties?  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

4. What are the formulas for the two allotropes of oxygen, and which form is more abundant?  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

5. How many allotropes of carbon have been discovered so far? \_\_\_\_\_

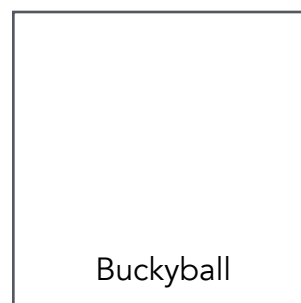
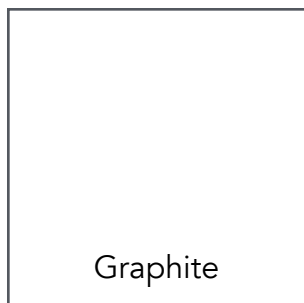
6. Name some of the property variations that carbon atoms exhibit.  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Name: \_\_\_\_\_

Date: \_\_\_\_\_

**Next, find the site with the movable models of allotropes at <http://science.marshall.edu/castella/chm212/chap22/c22pics.html>**

7. Explore the models of graphite, diamond, and buckyball. Make a sketch of each allotrope below:



8. How many bonds does the carbon atom form with itself in graphite? \_\_\_\_\_ In a diamond and buckyball? \_\_\_\_\_ How do you think the number of bonds on each carbon relates to the strength of the substance? \_\_\_\_\_

\_\_\_\_\_

9. Skip to white and red phosphorus. How many bonds do each of the phosphorus atoms make with itself in both allotropes? \_\_\_\_\_ Draw the Lewis electron dot diagram of phosphorus and try to explain why it bonds this way.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

10. Explain the main difference between how red and white phosphorus are bonded.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_