

Name: \_\_\_\_\_  
Hour: \_\_\_\_\_ Date: \_\_\_\_\_

## Chemistry: *Buckyballs Article*

1. What does the device developed by Curl and Smalley do?
2. What did Kroto want to use the device for?
3. What are the Diffuse Interstellar Bands?
4. At first, what was the Rice University team more interested in than interstellar molecules?
5. What 2 species of carbon showed up in the mass spectrometer?
6. What must geometrical closed structures consist of?
7. What is the technical name for a buckyball?
8. Why is it possible to trap metal ions inside a buckyball?
9. Even though he had helped discover buckyball, why was Kroto somewhat disappointed?
10. Scientists from what institutions found a way to produce a large number of fullerenes?
11. In a solid crystal, how fast does a buckyball rotate?
12. How is buckyball like a major league baseball player?
13. In what 2 areas have buckyballs shown promise?
14. What has Fred Wudl's group at the University of California, Santa Barbara created?

15. What does the author mean when he says that buckyball is “doped” with potassium atoms?
16. A. What group is currently in the lead in the “superconductivity race?”  
B. What did they “dope” buckyball with?  
C. At what temperature does their doped buckyball become superconducting?
17. What has Robert Whetten of UCLA done with buckyballs?
18. What might  $C_{60}F_{60}$  be useful for?
19. What might “buckytubes” be able to do?
20. When gases collide with a buckyball crystal, describe how “large” gases, “medium” gases, and “small” gases are affected by the buckyball.
21. What can be grown on the fullerene C-70?
22. List 4 products that would be better than ever if they were coated with a thin layer of diamond.
23. Briefly describe the following...  
A. “fuzzyballs”  
B. “buckybabies”  
C. “bunnyballs”
24. What are metallofullerenes?

**STUDENT RESPONSE:** Our government, industries, and universities are spending large sums of money researching buckyball. There is **no guarantee** that buckyball will prove to be a useful substance. Should we continue to spend millions of dollars every year to learn more about buckyball? Or is there a better use for that money? If so, what?

**Please respond to the above issue by writing a short paragraph explaining your position.**