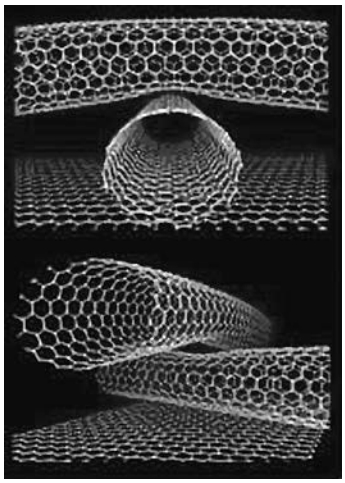
Name:…… Date:……

Nanochemistry

Carbon and its various forms

Diamond and graphite are two well-known forms of carbon. In 1985 scientists discovered a third form of carbon based on 60 atoms bonded in a football-like structure. Scientists called this 'buckminsterfullerene', or 'buckyball'. This started a search for other carbon structures. In 1991 a Japanese scientist called Sumio Iijima found carbon nanotubes. These are about 10 000 times thinner than a human hair, made from carbon atoms bonded in sheets and rolled into tubes. A carbon nanotube is about 1 nm in diameter and 1–10 µm long. The tubes are often capped at each end with a half-buckyball structure. Scientists are working to find out more about carbon nanotubes and what they could be used for.

What do nanontubes look like?



Piled high
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Questions

1. Describe the appearance of the nanotubes in the figure *Piled high*. What do they remind you of?

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2. Name the chemical element that nanotubes are made from.

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3. Name another form of this element which has a structure similar to nanotubes. How are nanotubes different from this substance?

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4. Explain in terms of chemical bonding why this chemical element exists in several different forms, each with different properties.

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