



Graphite forms a giant covalent structure.

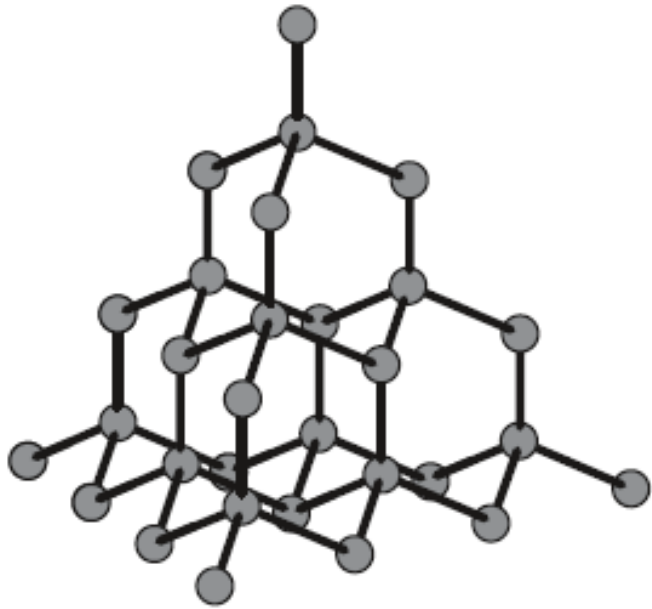
Each carbon atom is bonded to three other carbon atoms by very strong covalent bonds.

Each carbon atom has a 'spare' electron.

All the spare electrons form an 'electron cloud', which is free to move (delocalised).

Substance	Description	Picture
Diamond	A hard, clear non-metal	
Graphite	A soft, slippery, grey, solid non-metal	

Property	Diamond	Graphite
Melting point	3550°C	3652-3697°C (sublimes)
Hardness	Very hard	Very soft
Electrical conductivity	Poor	Good



Diamond forms a giant covalent structure.

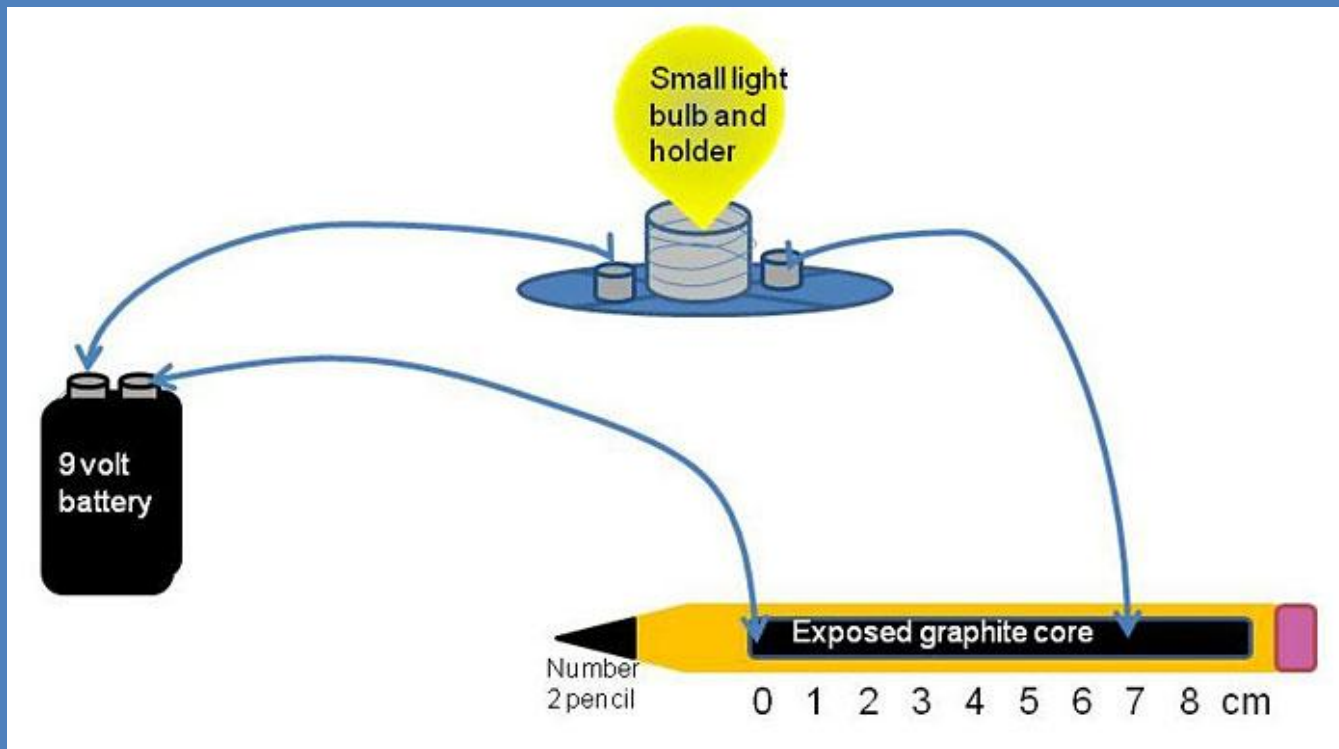
Each carbon atom is bonded to four other carbon atoms by very strong covalent bonds.

There are no 'free' electrons.

Graphite is used for pencils and as a lubricant to reduce friction on moving surfaces.



An electric current is the movement of free electrons.





Diamonds are used for jewellery and in drills for cutting through rock.

The layers in graphite are held together by weak forces.

These forces are easily broken.

