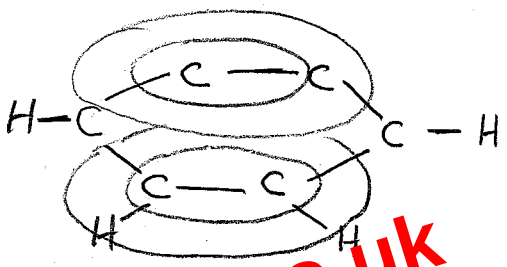
Structure of Benzene

- Benzene is a planar molecule containing a ring of six carbon atoms, each with a hydrogen atom attached.
- The 6 carbon atoms form a perfectly regular hexagon. All the carbon – carbon bonds have exactly the same lengths – somewhere between single and double bonds
- There are delocalised electrons above and below the plane of the ring.



Delocalised electrons cloud is formed by overlapping of the 6 p orbitals from the 6 carbon atoms

- The presence of the delocalised electrons makes benzene particularly stable.
- Benzene resists addition reactions because that would involve breaking the delocalisation and losing that stability.
- Benzene is represented by the symbol,  where the circle represents the delocalised electrons, and each corner of the hexagon has a carbon atom with a hydrogen attached.