

Molecular Models

Apparatus

ball and stick models of atoms.

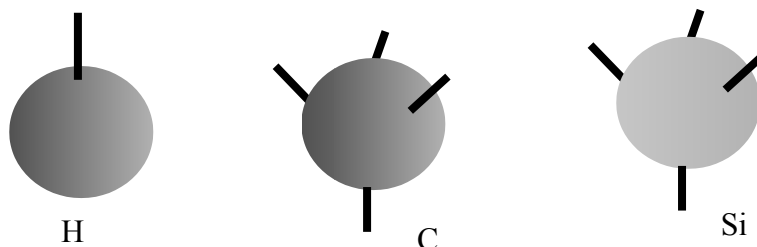
Polystyrene balls with sticks representing the outer shell electrons available for bonding. The balls could be coloured for quick identification. There should be more than one atomic species from at least a couple of periods, for example carbon and silicon or hydrogen and lithium.

Action

The students examine the models and try to match atoms from the same period. They should also try to explain what determines the chemical behaviour of the species.

The Physics

The chemical properties are determined by the number of outer shell electrons, which is determined by the quantum numbers, (n , l and m) and the Pauli exclusion principle. Hence atoms from the same period, which have the same number of outer-shell electrons, will have similar chemical properties.



Accompanying sheet:

Molecular Models

Examine the ball and stick models of the atoms.

Can you group them according to period?

What determines the bonding behaviour of the atoms?