

# Outdoor Atomic Modelling

Model atomic structures and bonding on a playground scale using loose parts

12+

Chemistry



## Hints:

Protons = atomic number

Electrons = atomic number

Neutrons = mass number - atomic number

Electrons in atoms occupy energy levels or electron shells outside the nucleus which contains the protons and the neutrons.

Shell	Maximum electrons
First	2
Second	8
Third	8

Ionic bonding involves the formation of charged ions in its simplest form the metal gives up electrons and the non-metal receives them.

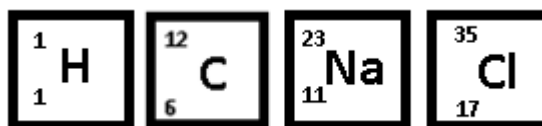
Covalent bonding involves the sharing of electron pairs between atoms to create a stable balance of charge.

## Equipment:

- Ropes or string
- Chalk
- Small loose parts such as pebbles, pine cones, shells, conkers etc.
- A camera to record learning

## Challenge

1. Can you create a model of an atom showing the position of the subatomic particles: protons, neutrons and electrons?
2. Create models of:  
Hydrogen, Carbon, Sodium and Chlorine



3. Show how the electrons are transferred in the ionic bond when the compound sodium chloride NaCl is formed.
4. Show how the electrons are shared in the covalent bond when the compound hydrogen chloride HCl is formed.



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