

Name:

Periodic Table and Atomic Structure	Objectives
3. Arrangement of Electrons in the Atom	-define and explain energy levels in atoms -use flame tests to provide evidence that energy is absorbed or released in discrete units when electrons move from one energy level to another -relate energy levels in atoms to everyday applications such as sodium street lights and fireworks

Metal salts can be used in fireworks to give different colours. For example:

### Flame Tests

Method:

1. Dip damp wooden splint into sample of salt.
2. Place sample into blue Bunsen flame.
3. Record the colour of the flame.

Metal Present	Colour
Lithium	Crimson
Potassium	Lilac
Barium	Green
Strontium	Strontium
Copper	Blue-Green
Sodium (street lights)	Yellow

*Def<sup>n</sup>*: An **energy level** (or **shell**) is defined as the fixed energy value that an electron in an atom may have. The first energy level is called  $n=1$ , the second is called  $n=2$ , etc.

1. When atoms are hit with light, the electrons can absorb energy from the light and jump to higher energy levels.
2. The atom is now in its **excited state**.
3. The electrons then fall back to their original positions, this is called the **ground state**.
4. When electrons fall back to the ground state they give off light of a particular colour, depending on what element the atom is.

