

Sources of Light

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1. Incandescence. 'Thermal radiation'—emission of light as an effect of high temperature, e.g. sun, incandescent bulb.
2. Luminescence. Emission due to a 'low-temperature' process.
 - a. Fluorescence. Light emitted during exposure to light. Incident light excites electrons of a molecule which emits on return to a 'ground state'. Emitted light is longer in wavelength ('redder'), so can be visible in darkness after UV irradiation (eg from fluorescent or LED light). Common in animals due to 25kD fluorescent proteins.
 - b. Phosphorescence. Light emission after light stimulation; energy is 'absorbed' and released slowly by energy release from electrons. Emitted light also longer wavelength. Found in phosphorus, not in animals, and used on clock hands etc.
 - c. Chemiluminescence. Emission of light as the result of a chemical reaction, eg reaction of white phosphorus with oxygen, luciferases e.g. of firefly, glowsticks.