2.1: Absorptance, and the Definition of a Black Body

If a body is irradiated with radiation of wavelength λ, and a fraction $a(\lambda)$ of that radiation is absorbed, the remainder being either reflected or transmitted, $a(\lambda)$ is called the *absorptance* at wavelength λ. Note that λ is written in parentheses, to mean "at wavelength λ", not as a subscript, which would mean "per unit wavelength interval". The fractions of the radiation reflected and transmitted are, respectively, the *reflectance* and the *transmittance*. The sum of the absorptance, reflectance and transmittance is unity, unless you can think of anything else that might happen to the radiation.

A body for which $a(\lambda) = 1$ for all wavelengths is a black body.

A body for which *a* has the same value for all wavelengths, but less than unity, is a grey body.

(Caution: We may meet the word "absorbance" later. It is not the same as absorptance.)