Illumination

Local illumination model

We treat each object in a scene separately from any other object, the reflections between objects are ignored. We will consider everything to be local in the following sections.

Global illumination model

We treat all objects together, and model the interactions between objects, this is way more realistic but highly more complex.

Diffuse reflection

A perfect diffuse surface reflects an incoming ray across all angles.

- Diffuse reflection is absorption + uniform reradiation.
- Some wavelengths are absorbed, some are reflected.
- Diffuse reflectors always absorb some specific wavelengths and reflect others which is why they have one unchanging colour.

Specular reflection

- Specular reflection is reflection at the air/surface interface
- A perfect specular surface reflects an incoming ray like a perfect mirror, i.e. the colour of the specular reflection is that of the light source.
- Examples of imperfect specular reflectors are stainless steel, glazed ceramic and lacquer-coated aluminium (e.g. a CD-ROM)