Seen individually, different wavelengths appear as different colors of light. This fact can be demonstrated by using a prism. A prism is a tool that uses refraction to spread out the different wavelengths that make up white light. The prism bends some of the wavelengths more than others. The lightwaves, bent at slightly different angles, form a color spectrum. The color spectrum could be divided into countless individual wavelengths, each with its own color. However, the color spectrum is usually divided into seven named color bands. In order of decreasing wavelength, the bands are red, orange, yellow, green, blue, indigo, and violet. You see a color spectrum whenever you see a rainbow.

**Color Reflection and Absorption**

The color of an object or material is determined by the wavelengths it absorbs and those it reflects. An object has the color of the wavelengths it reflects. A material that reflects all wavelengths of visible light appears white. A material that absorbs all wavelengths of visible light appears black. A green lime absorbs most wavelengths but reflects green, so the lime looks green, as shown below.

1. In this simplified diagram, light of all colors strikes the lime.
2. The lime absorbs all wavelengths except green.
3. The lime reflects mostly green, so it appears green.

The color that an object appears to the eye depends on another factor besides the wavelengths the object absorbs and reflects. An object can reflect only wavelengths that are in the light that shines on it. In white light, a white object reflects all the wavelengths of visible light and appears white. If you shine only red light on a white piece of paper, however, the paper will appear red, not white, because only red light is available to be reflected.

In summary, two factors determine the color of an object: first, the wavelengths that the object itself reflects or absorbs, and second, the wavelengths present in the light that shines on the object.

**CHECK YOUR READING**

What color band or bands does a red apple absorb? a white flower?