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HSB: hue, saturation, and brightness

This scheme provides a device-independent way to describe color. HSB may be the most complex scheme to visualize, especially since color selection software has to reduce its three descriptive dimensions to two dimensions on the monitor screen. But once learned, it can be useful in many instances.

The easiest way to visualize this scheme is to think of the H, S, and B values representing points within an upside-down cone. At the edge of the cone base, think of the visible light spectrum (preceeding page), cut from the page and pasted into a circle with shading added to smooth the transition between the (now joined) red and magenta ends.



- **Hue** is the actual color. It is measured in angular degrees counter-clockwise around the cone starting and ending at red = 0 or 360 (so yellow = 60, green = 120, etc.).
- **Saturation** is the purity of the color, measured in percent from the center of the cone (0) to the surface (100). At 0% saturation, hue is meaningless.
- **Brightness** is measured in percent from black (0) to white (100). At 0% brightness, both hue and saturation are meaningless.

Brightness as it is described here refers only to *relative* values within a source that we are looking at (for example, a display screen or printed document). It is also called *value* or *luminance*. The distinction between levels of brightness is actually logarithmic, not linear as the HSB scale would imply.