The RGB Colour Model

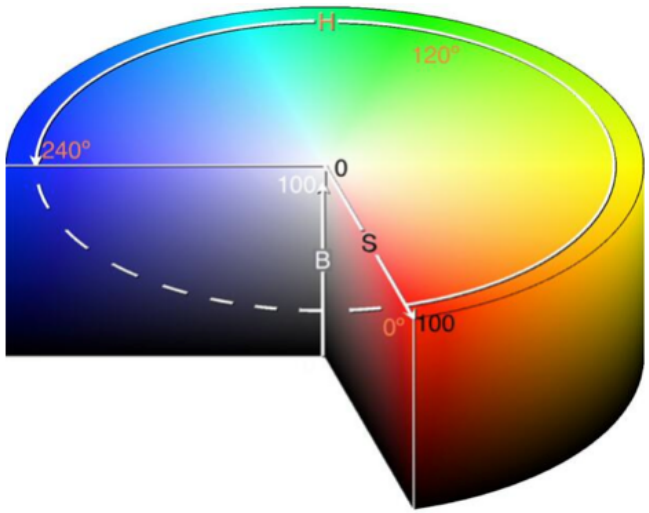
(red, green, blue)

What's wrong with RGB?

Red	Green	Blue	
80	60	100	
?	?	?	More Saturated
?	?	?	Complementary

The HSB Colour Model

(hue, saturation, brightness)



Hue — Position on colour wheel in degrees

Saturation — Colour intensity. Expressed as %.
0% = grey, 100% = fully saturated

Brightness — How bright the colour is. Expressed as %.
0% = black, 50% = "true", 100% = very bright

Try it out…

http://russellgordon.ca/lcs/c3d.zip

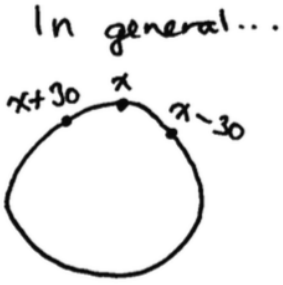
Working with the HSB Colour Model

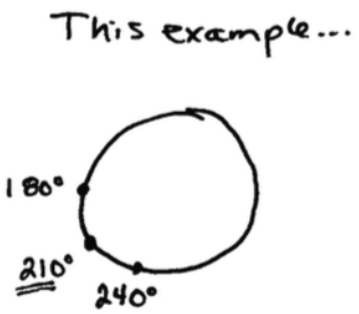
```swift
import Cocoa
import PlaygroundSupport
import CanvasGraphics

// Create canvas
let canvas = Canvas(width: 300, height: 100)

// Show the canvas in the playground's live view
PlaygroundPage.current.liveView = canvas

// Set colour and draw first square (at left)
// NOTE: Alpha refers to level of transparency. 0 = transparent, 100 = opaque
canvas.fillColor = Color(hue: 0, saturation: 100, brightness: 75, alpha: 100)
canvas.drawRectangle(at: Point(x: 0, y: 0), width: 100, height: 100)

// Set and draw second square (middle)
canvas.fillColor = Color(hue: 0, saturation: 100, brightness: 50, alpha: 100)
canvas.drawRectangle(at: Point(x: 100, y: 0), width: 100, height: 100)

// Set and draw third square (at right)
canvas.fillColor = Color(hue: 0, saturation: 100, brightness: 25, alpha: 100)
canvas.drawRectangle(at: Point(x: 200, y: 0), width: 100, height: 100)
```

Program produces this output…

Analogous colour

Colours are near each other on the colour wheel.





Advantages of HSB Colour

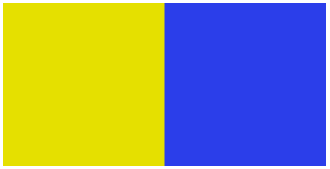
We can easily find pleasing colour combinations. Simple mathematical relationships on colour wheel.

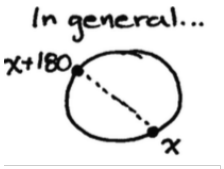
Monochromatic colour

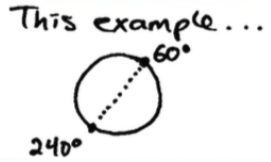
Same hue, vary the brightness. See example at left.

Complementary colour

Complementary colour is directly across the colour wheel.







Triadic colour

Second and third colours form base of triangle across from starting hue.