Read it!

We all know colours are part of the rainbow. And the rainbow is made of red, orange, yellow, green, blue, violet and indigo. So where does magenta fit? It's a rather odd colour which, according to this site, doesn't really exist outside of our brains.

<http://www.null-hypothesis.co.uk/science/strange-but-true/colour_spectrum_magenta_complimentary_bizarre>

**Magenta Ain't a Color**

By **Liz Elliott**

A beam of white light is made up of all the colors in the spectrum. The range extends from red through to violet, with orange, yellow, green and blue in between. But there is one color that is notable by its absence Pink (or magenta, to use its official name) simply isn’t there. But if pink isn’t in the light spectrum, how come we can see it?

Here’s an experiment you can try: stare at the pink circle below for about one minute, and then look over at the blank white space next to the image. What do you see? You should see an afterimage. What color is it? (See original Website)

You should have seen a green afterimage, but why is this significant?

The afterimage always shows the color that is complementary to the color of the image. Complementary colors are those that are exact opposites in the way the eye perceives them.

It is a common misconception that red is complementary to green. However, if you try the same experiment as above with a red image, you will see a turquoise afterimage, since red is actually complementary to turquoise. Similarly, orange is complementary to blue, and yellow to violet.

All the colors in the light spectrum have complements that exist within the spectrum – except green. There seems to be some kind of imbalance. What is going on? Is green somehow being discriminated against?

The light spectrum consists of a range of wavelengths of electromagnetic radiation. Red light has the longest wavelength; violet the shortest. The colors in between have wavelengths between those of red and violet light.

When our eyes see colors, they are actually detecting the different wavelengths of the light hitting the retina. Colors are distinguished by their wavelengths, and the brain processes this information and produces a visual display that we experience as color.

This means that colors only really exist within the brain – light is indeed travelling from objects to our eyes, and each object may well be transmitting/reflecting a different set of wavelengths of light; but what essentially defines a ‘color’ as opposed to a ‘wavelength’ is created within the brain.

If the eye receives light of more than one wavelength, the color generated in the brain is formed from the sum of the input responses on the retina. For example, if red light and green light enter the eye at the same time, the resulting color produced in the brain is yellow, the color halfway between red and green in the spectrum.

So what does the brain do when [our eyes detect](http://www.null-hypothesis.co.uk/science/straight-talking/science-mutters/apprentice_sugar_kristina_eyes_physiognomy) wavelengths from both ends of the light spectrum at once (i.e. red and violet light)? Generally speaking, it has two options for interpreting the input data:

a) Sum the input responses to produce a color halfway between red and violet in the spectrum (which would in this case produce green – not a very representative color of a red and violet mix)
b) Invent a new color halfway between red and violet

Magenta is the evidence that the brain takes option b – it has apparently constructed a color to bridge the gap between red and violet, because such a color does not exist in the light spectrum. Magenta has no wavelength attributed to it, unlike all the other spectrum colors.

The light spectrum has a color missing because it does not feel the need to ‘close the loop’ in the way that our brains do. We need color to make sense of the world, but equally we need to [make sense of color](http://www.null-hypothesis.co.uk/science/straight-talking/item/beautiful_minds_synesthesia_perception_colour); even if that means taking opposite ends of the spectrum and bringing them together.

**Well, now we've got that sorted out, explain this: stare at the dot in the middle of the image below - you should see all the colors melt away.**

