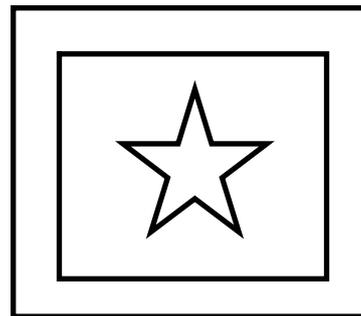
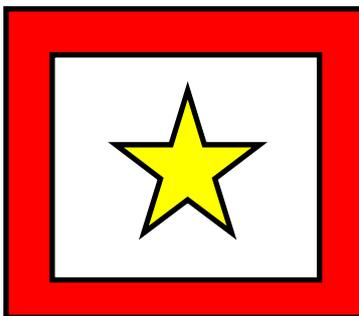


# Afterimages: change how you see colour

**Step 1:** Stare at centre of the star on the left-side image for 30 seconds. Keep your gaze steady.

**Step 2:** Now stare at the centre of the star on the right-side image. Relax and wait, while continuing to stare at the star. What do you notice?



If you saw the right-side star turn blue/purple and the border turn green, then you observed an afterimage.

**The Science:** There are three visual channels which convey information to the brain from the eye: one for lightness/darkness, one for red/green colour and one for blue/yellow colour.

When you look at the star on the left, the Yellow (ON)/Blue (OFF) (Y+/B-) channel is stimulated, and your brain perceives the star as “yellow”. As you continue to stare at the star, the Y+/B- channel becomes less responsive as it adapts to the yellow colour stimulus.

When you transfer your gaze to the star on the right, the Y+/B- channel continues to under-respond, whereas the opposing Yellow (OFF)/Blue (ON) (Y-/B+) channel increases its activity, and you perceive the star as “blue”. With time, the channels return to their normal activity, the afterimage fades and you perceive the star as “white”. A similar process occurs for the red/green (R+/G- and R-/G+) channels, making the border of the right-side image appear green instead of red. This is called Colour Opponency.

## Did you know?

Early computers didn't have the colour variety that we enjoy on today's digital devices. The colour was usually static (e.g. dark background with green text) and sometimes workers who spent long periods viewing the display saw red/pink afterimages when they looked away from their work.

Afterimages rarely occur with digital devices today because the displays are multi-coloured. As our eyes move across the screen page when reading from the display, there is insufficient time to overstimulate the colour channels and thus create an afterimage.



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