

# The Third Dimension..

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## What is it?

It is a three dimensional (3D) visual technology designed to give you a sense of depth when viewing a program or film. It has become very popular recently, with many cinemas offering '3D' films and televisions offering built-in 3D technology

## How does it work?

All current methods take advantage of the fact that your brain is able to combine the images from your left and right eye to give you a sense of depth.

Unfortunately, not everyone has 3d vision. The way it works is that the projection device or television sends out two images, each slightly displaced from one another. Without the right equipment, you just see a blurry pair of moving images. The trick is to make the right eye only see one image and the left eye only see the other image.

This is done by using an electronic pair of spectacles, but instead of glass lenses they have a pair of electronic shutters. The shutters are exactly synchronized with the timing of the images - When image 1 is being displayed, the right 'lens' is blocked and so only the left eye sees image 1, then an instant later image 2 is displayed and the left lens is blocked so only the right eye sees this image.

Now your brain senses two images and combines them into one solid-looking experience. This interplay between the spectacles and the film continues to the end of the film

## Are there issues?

Yes, because something has to be compromised to create the two images.

The choices are:-

1. Interleave the images in time. At one instant image 1 is present, then the next instant image 2 is displayed. But now each image is only present for half the time. You will sense this as a loss of brightness.
2. Interleave the images on the screen. With this method half the rows of pixels are used by image 1 and the other rows are used by image 2. But now you have effectively halved your resolution. Not so easy to give you a HD experience.
3. Use two projectors, or use a television with twice the resolution. Both of which are very expensive options. Only the most sophisticated cinemas can afford to do this.
4. There are different 3d technologies in use and they are not compatible.

## And the future?

The most inconvenient feature of 3d today is having to wear the specs / visor. Many companies are looking at ways of providing a 3d experience without the need to wear any special equipment on your part.

For instance, 3d holographic displays produce truly 3d images as you can literally walk around the display to see the back or the front. But these are still laboratory items at the moment.

Lenticular displays have small prism-like shapes on their surface that split the two images. If you look at it from one angle you see image 1, if you look at it from the opposite angle you see image 2. But you need to be within a short, narrow range for this to work well.

As an interesting aside, this is how it is possible for the passenger in a luxury car to view a DVD film on the dashboard screen whilst the driver can only see the boring Sat-Nav on the same display at the same time.

Perhaps eventually we will have full-colour, wide-angle, user-tech free 3d technology. But not quite yet.

