

### Crystal ball Photography

Enchanting images from around the world.

Simon Bond

Creative photography school

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# How refraction photography works.

Refraction is an effect that happens when light passes through an object of denser mass. When this happens the light is bent, and appears to be distorted.

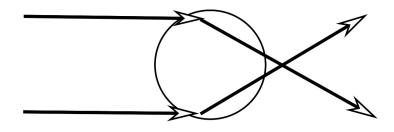
This is not to be confused with reflection, which is when light bounces off the surface of a reflective object.

Reflection can nevertheless be a useful effect to use in conjunction with refraction.

The easiest way to visualise refraction is to put a pen into a glass, which is half filled with water. When you do this you'll notice the pen appears slightly big, and shifts position a little. This effect is refraction.

When refraction
happens in a spherical
object something special
happens, and you can see
the scene behind the ball as

### Refraction



Light is bent through the glass sphere, and inverts the image

an upside down image within the glass ball!

So why is this important in photography? It's everything to

photography, the way your camera lens works relys on refraction! This is how the image reaches the film or camera sensor in

your camera body.
Now of course a
crystal ball is not a
lens, but it acts like
one. It can roughly
be described as an
external fish-eye
lens, which you can
place within your
frame.

To be successful with your photo there are a few key rules that you should apply to your photo. In the next few pages you'll get a brief overview of these.

#### 1 - The upside down image

The image inside your ball will be upside. The success of your photo will largely depend on how you deal with this. As it's desirable for the image in the ball to be the correct way up by flipping the image in post processing, the background will

then be upside down. There are various strategies for dealing with this including blurring out the background, or using a scene that has a reflection.

#### 2 - Elevate the crystal ball

In most cases you will want to elevate the crystal ball off the ground The photograph is

somehow, though there are exceptions when the ground has a point of interest. The key is to line up your subject in the centre of the ball, so that the image of the subject is clear and not distorted.

#### 3 - The main subject

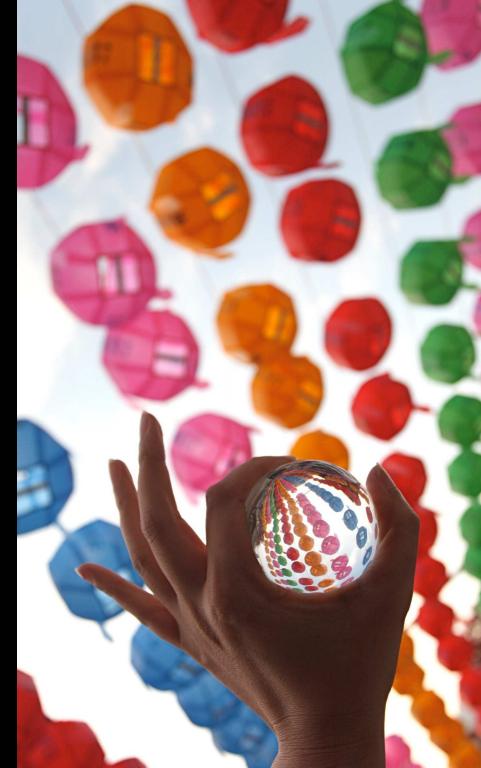


Here the reflection in the water means you don't need to rotate the image in post processing.

is of course about the subject. In refraction photography it's important to get close to this, or it will be far too small within the glass ball. As a rule of thumb if the subject fills your frame with a wide angle lens, then you are close enough and this is a good subject.

#### Do you want to learn more?

Would you like to take photos with a crystal ball? Why not buy my course at www.creative-photography-school.com





Always be on the look out for unique places to elevate the ball off the ground.



Red vs green - Bulgapsa, South Korea



Is destiny a destination? - Sangbansan, South Korea.



Chase your dream

Follow your dreams and you will have true wealth.

It's easy to lose sight of your dream.



The dreamer

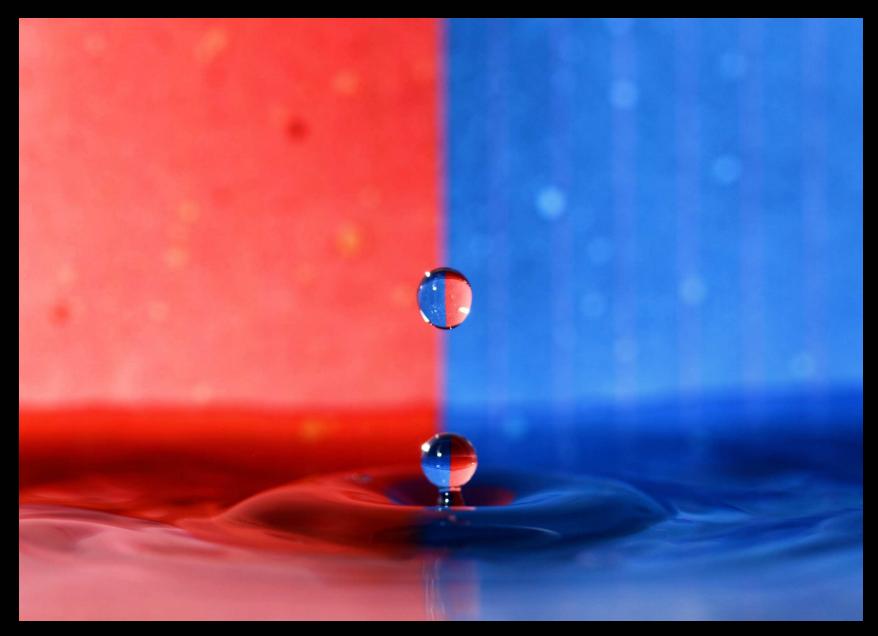
## Other kinds of refraction

The effect of the crystal ball is to refract a background image within the sphere.
Crystal balls are not the only thing that produces refraction though, and over the next few pages you'll see examples of other types of refraction.

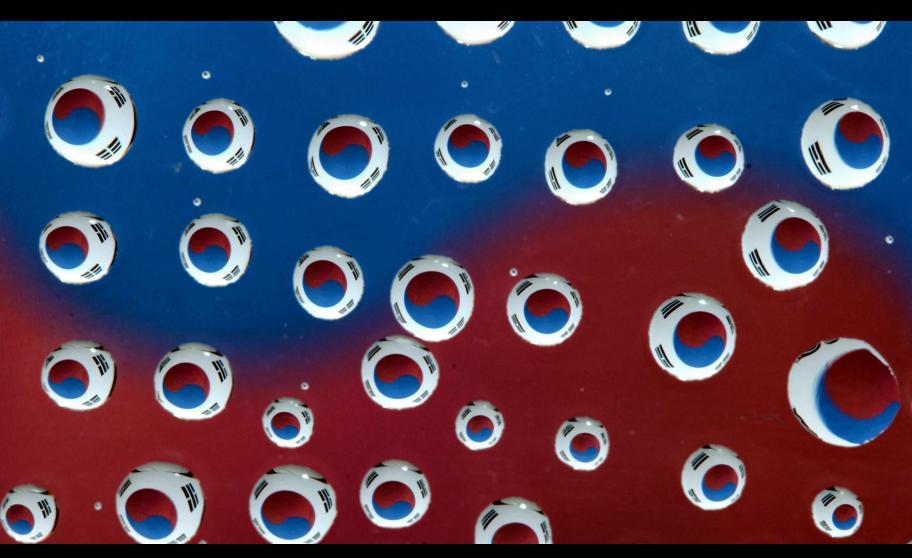
The effect of course is produced when light passes through a spherical object of denser mass, and there

are lots of ways to make these, or find them in nature.

The photos over the next few pages were produced by putting water into a wine glass, mixing oil and water, or dripping water into a tub filled with water. If you want to learn more about these techniques, and other ideas be sure to visit www.creative-photography-school.com



Red vs blue



The divide



What goes up must come down.



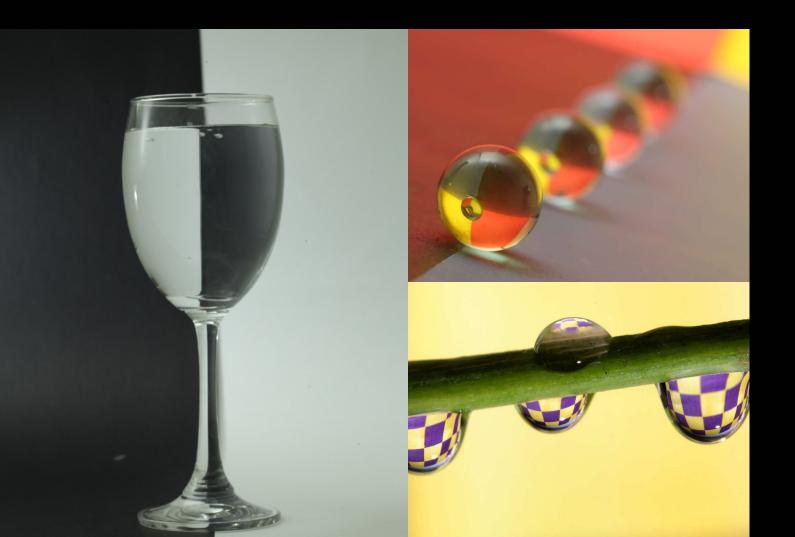


Make your world colourful.

A wine glass filled with water

Marbles in a line.

Water droplets.





Mini marble world.