

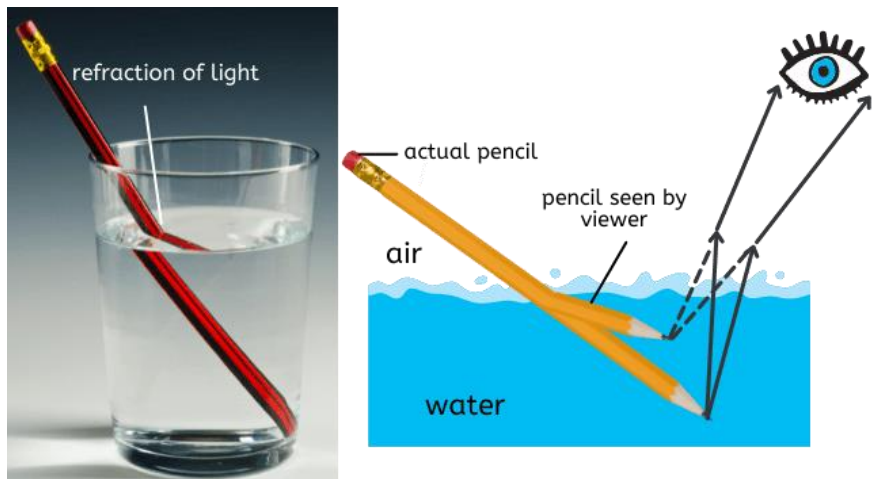
# Floating Marbles

## Try It Out

Pick up the tube of marbles, which are submerged in water. Turn it over. Shake it. What do you see? What do you *expect* to see when you see glass marbles in a tube of water?

## What's going on?

Have you ever noticed how a straw in a glass of water looks bent or broken? This is an example of **refraction**, which is the bending of light when it travels from one material to another. Different materials have different abilities to bend light. In this example, clear water beads are in between the marbles in the container. These beads have the exact same refraction properties as water, which mean the light doesn't really bend at all when travelling through them, so they look just like the water that surrounds them.



An example of refraction. (Image: smartclass4kids)

## What's the big deal?

The index of refraction is useful for understanding how lenses work, such as eyeglasses or cameras. Lenses are made of materials that have different indices of refraction and different shapes. By bending light in different ways, lenses can make objects appear bigger, smaller, closer or farther than they really are.

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