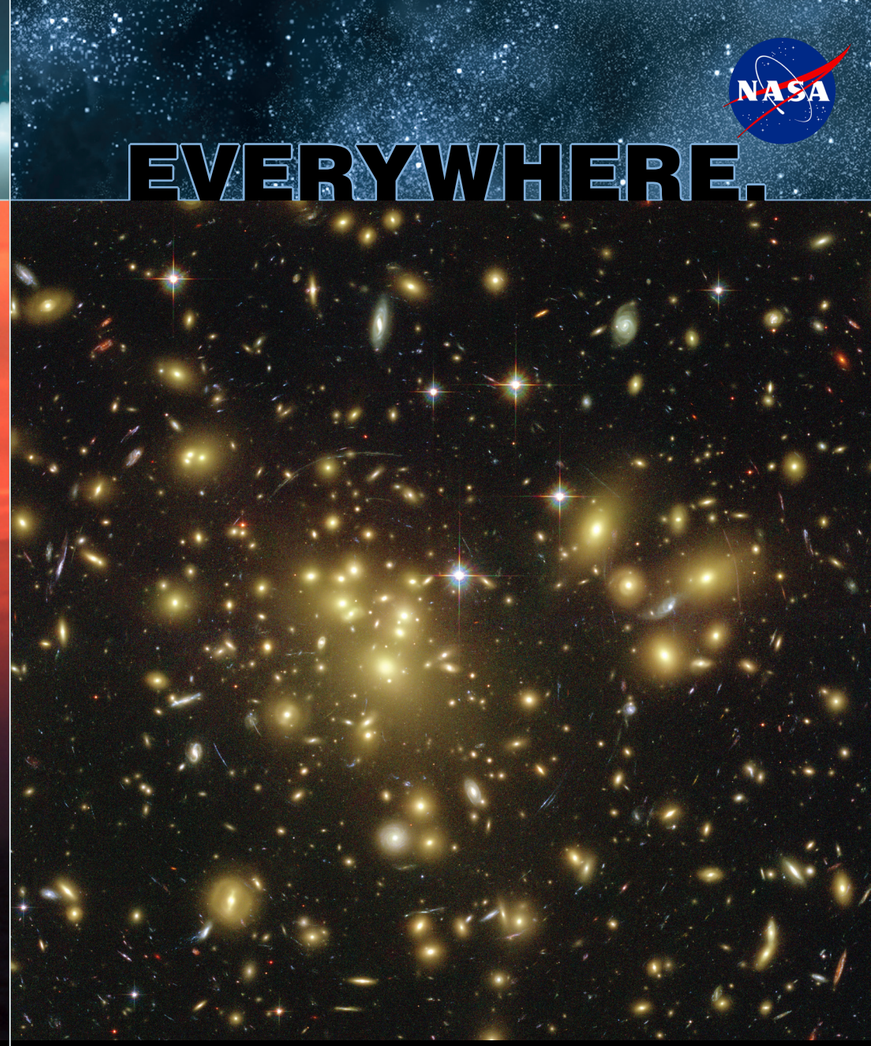

Eyeglasses.

Our eyes contain natural lenses. Sometimes, however, they do not adequately focus light onto the retina and corrections like eyeglasses or contact lenses are needed. These corrective tools are typically made of glass or plastic, which is specially shaped to bend incoming light so that it focuses properly on the retina of the eye.

(Credits: Wikimedia Commons)

Sunset.

The Sun is a sphere, not the misshapen oval that appears in this picture. The distortion happens because the Earth's atmosphere is acting as a lens. Light from the bottom of the Sun is being bent more than from the top because the light must pass through more of the atmosphere the closer we look to the horizon. The effect is that the apparent location of the bottom of the Sun is raised more than the top, making the whole Sun look oval-shaped.

(Credits: Wikimedia Commons)

Gravitational Lensing.

In the early 20th century, Albert Einstein realized that space can be significantly curved by an extremely massive object. Since light follows the curvature of space, a massive object can act as a gravitational lens. We see the effect of gravitational lensing in this image. The light from very distant galaxies has passed through a massive cluster of galaxies that acts as a lens and bends the light. The result is that the images from the galaxies are magnified and distorted into elongated and arched shapes. (Credits: NASA, N. Benitez (JHU), T. Broadhurst (Racah Institute of Physics/The Hebrew University), H. Ford (JHU), M. Clampin (STScI),G. Hartig (STScI), G. Illingworth (UCO/Lick Observatory), the ACS Science Team and ESA)

BENT LIGHT When the path of a light ray is bent, the image of the light source becomes distorted. For example, a magnified image is produced by the bending of light as it passes from the air into the lenses of eyeglasses. Likewise, the setting Sun appears flattened because sunlight is bent as it travels through the atmosphere. Light paths can also be bent through the warping of space by a massive galaxy or galaxy cluster, which acts as a gravitational lens that distorts the images of more distant background galaxies.

www.nasa.gov

http://hte.si.edu/light

BECAUSE WHAT HAPPENS HERE,

HAPPENS THERE,

HAPPENS EVERYWHERE.