

Parallax

Parallax is one of those ideas that is hard to wrap your head around. It just doesn't stick with most people. However, the activity in your mirror tutorial has demonstrated over and over that folks who try this activity are able to remember parallax and apply it with ease. Unfortunately simply reading the activity and imagining does not work.

Close one eye and lean down in your chair so that your open eye is at table level. Have your partner drop a very small piece of paper (about 2 mm square) onto the table.

Hold one finger above the table and then move your finger until you think it is directly above the piece of paper. Move your finger straight down to the table and check whether your finger is in fact directly above the paper.

Try this exercise several times, with your partner dropping the piece of paper at different locations.

Keep your open eye at table level. After several tries, exchange roles with your partner.

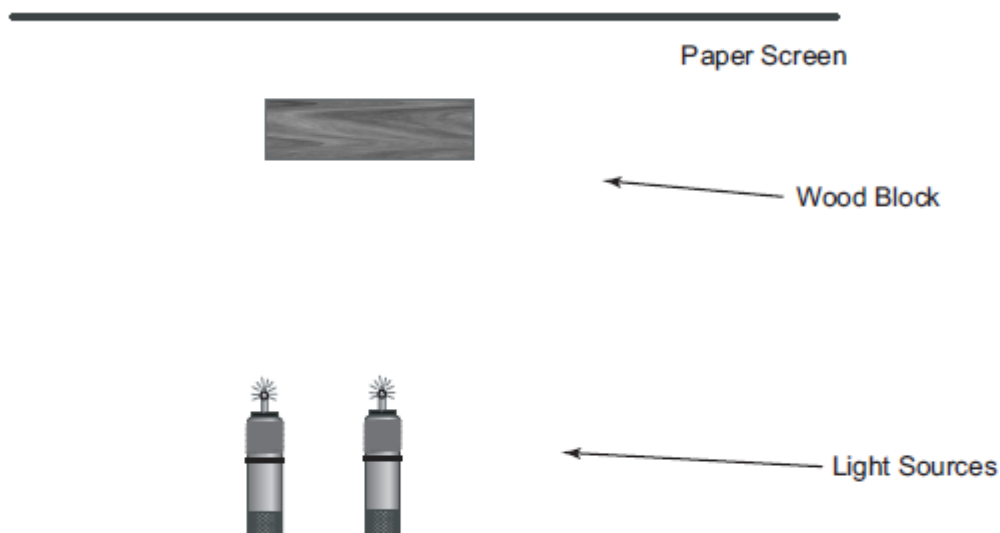
1. Suppose that you placed your finger behind the piece of paper while trying to locate the piece of paper. Suppose that then you moved your head a little bit to the left. Would your finger then appear to be located *to the left of*, *to the right of*, or *in line with* the piece of paper?

What if, instead, you moved your head a little bit to the right?

What if you had placed your finger in front of the piece of paper rather than behind it?

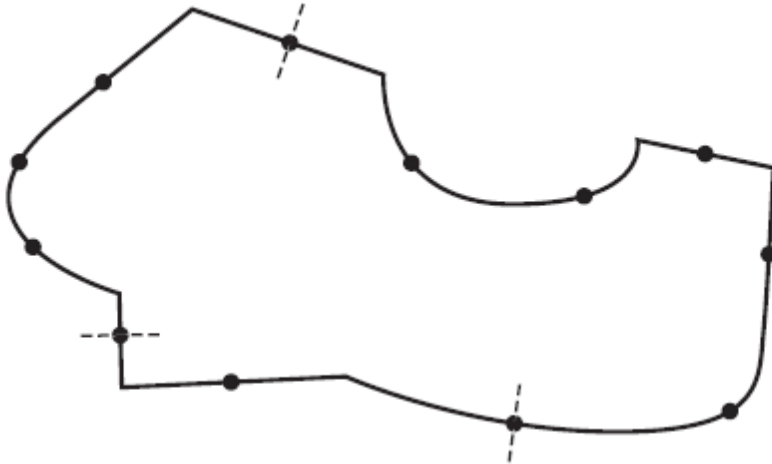
Shadows with two point sources.

Test your theory about how the shadow of a block will change when it's illuminated with **two** point sources compared to just one. To create a point source, remove the top portion of a Mini Maglite.



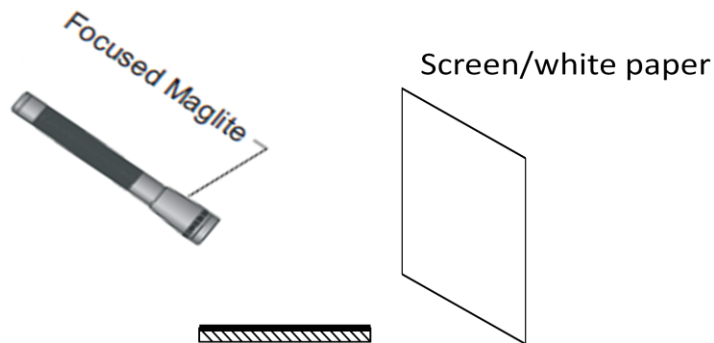
Normal lines

The normal to a surface (90° to the surface) is necessary when applying Snell's Law *because all angles are measured from the normal*. Using the below image draw a normal line at each dot.



Specular reflection vs . Scattering (diffuse reflection)

What do you see on a screen when you shine the focused Maglite onto a mirror that is flat on your desk as shown below?



What do you see if you remove the mirror and just shine the light on the desk?

How about if you replace the mirror with another piece of paper? How does the light on the screen change from case to case?