Laser Light I-Focus

Apparatus

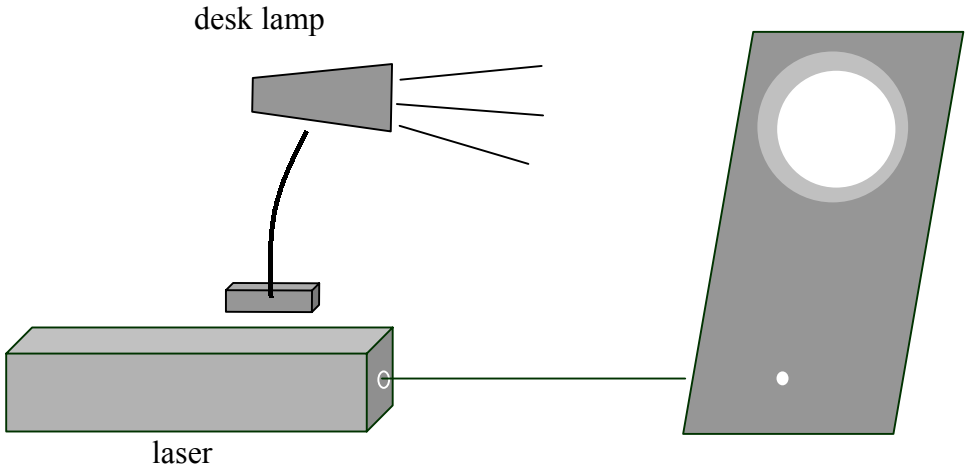
laser, "white light" collimated source (or a pencil torch), used blackboard dusters

Action

The students observe the spots from the two light sources on a distant screen (or wall). They then observe the beams from the side. The dusters can be banged together to make the laser beam visible, after students have first noticed that the laser beam is invisible from the side.

The Physics

The laser produces a small spot on the wall or screen which varies very little when the distance between the laser and screen changes. The incandescent light produces a large spot, which varies in intensity from the centre out. The spot from the incandescent light varies a lot when the distance is changed, getting larger and less intense as the distance increases. A laser beam is much more highly collimated and focused than is possible with a normal incandescent light source.



Accompanying sheet:

Laser Light I - Focus

Look at the point of light from the two sources.

Does the size of the point change much as you move the laser closer or further?
What about when you move the lamp closer?

Can you see the beams from the side?
Put some chalk dust in the air, now what can you see?