

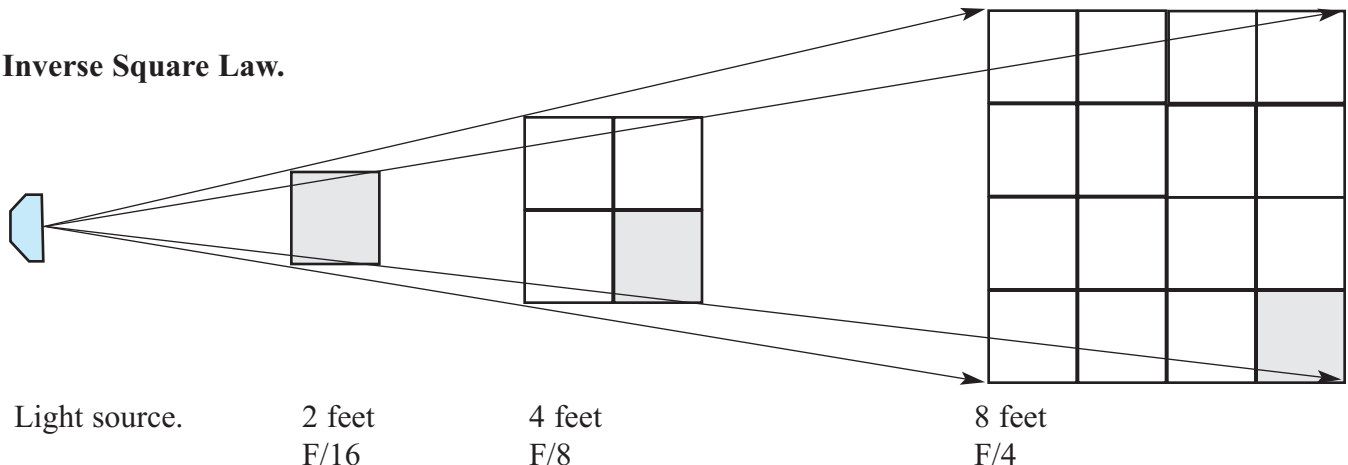
Light has 3 unique properties.

1. **It radiates in a straight line and in all directions from its source.** The design of the the light source housings will determine how the light will be directed.
2. **The angle of incident is equal to and opposite from the angle of reflection.** This means a light ray hitting a surface from a particular angle will reflect off that surface at an equal but opposite angle. The degree to which light obeys this principle depends upon the nature of the illuminating light and the nature of the reflecting surface.



3. Artificial light also loses its intensity as it travels away from the source. This phenomenon is described by the **Inverse Square Law**: the amount of illumination on a subject is inversely proportional to the square of the distance between the source and the subject. Thus, when the distance between the light source and subject is doubled, the subject receives only a quarter as much light (not half as much), and so on. The inverse square law does not apply to the sunlight because it is impossible to change the distance to the light source. The Sun is 93 million miles away, no matter where you stand on the planet Earth. The small variation in the curvature of the planet is insignificant in comparison to the great distance from the Sun to the planet Earth.

Inverse Square Law.



Because of the inverse square law, objects will vary in brightness depending on their distance from the light source. The closer they are, the brighter they will appear in the photograph. Small changes in distance from the light source to the subject make a big difference on the exposure. The intensity of the light on the subject is reduced by 1/4 each time the distance from the light to the subject is doubled, see the above diagram.

Light Ratio (Fill:Main).

1:1
2:1
4:1
8:1
16:1

Variation from Fill to Main in F/Stops.

0 F/Stop Change
1 F/Stop Change
2 F/Stop Change
3 F/Stop Change
4 F/Stop Change