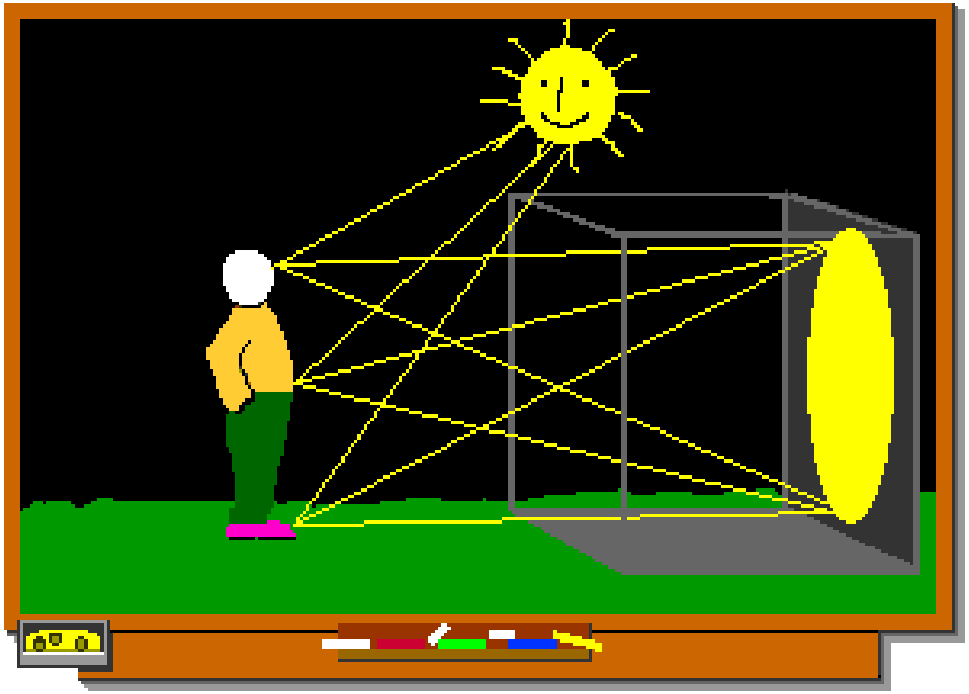
The Camera

Tsvetelina Yonova-Karbe,

23.11.10

Light Reflections

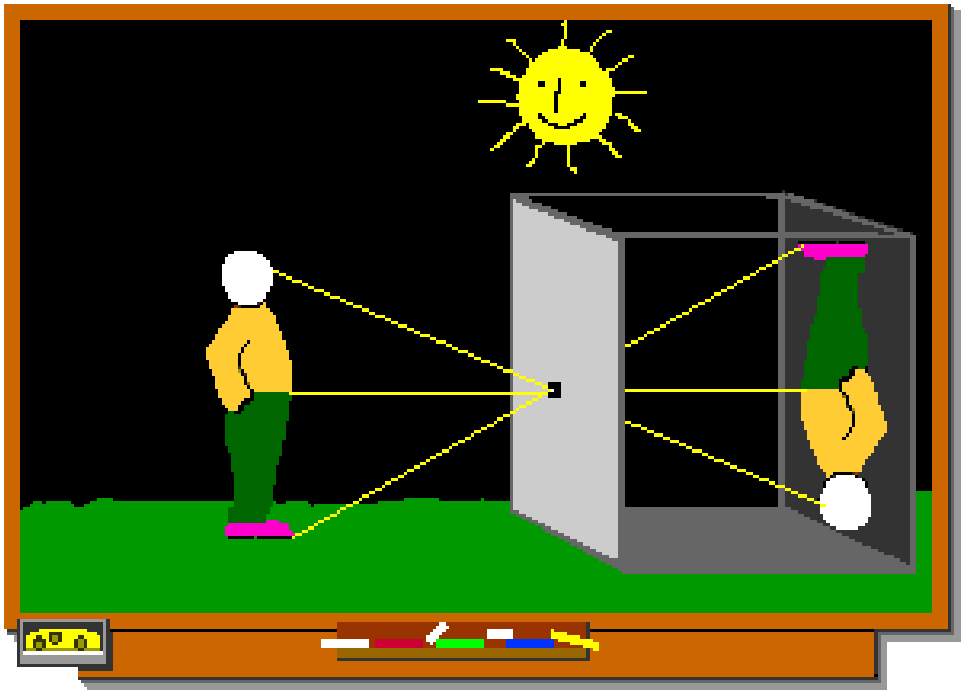
- (Sun)light falling on an object is reflected by it



http://www.striewisch-fotodesign.de/

Build a camera

- This light is defused and needs to be ordered



Build a camera

- Small gap to avoid unsharpness

Build a camera

- Small gap to avoid unsharpness
- Problem: small gap also means very small amount of light on the film.

Build a camera

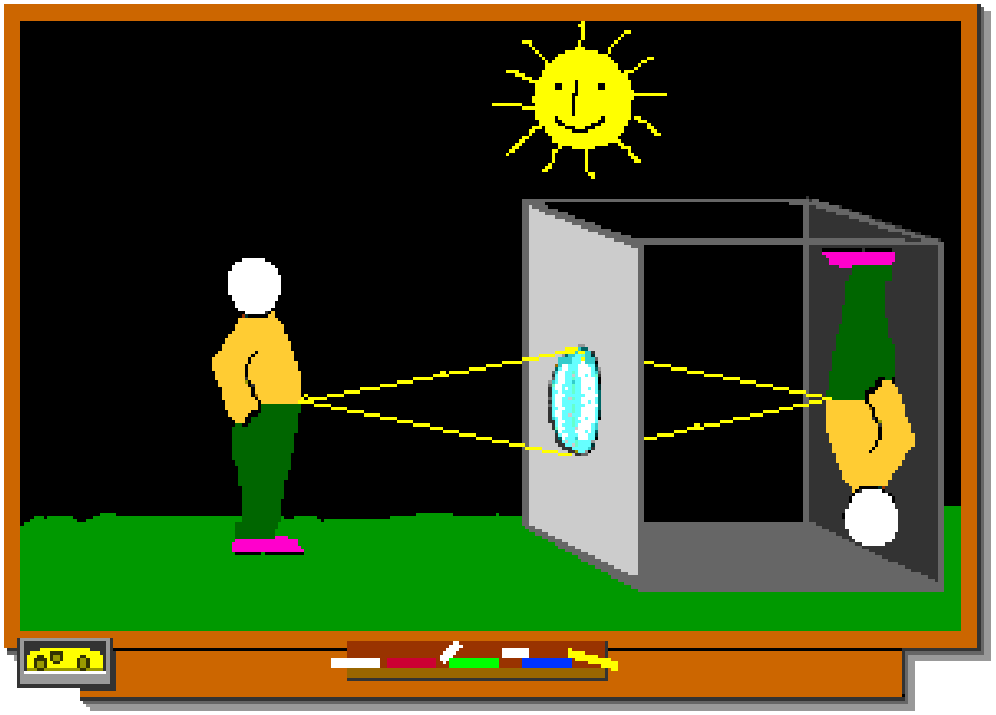
- Small gap to avoid unsharpness
- Problem: small gap also means very small amount of light on the film.
- We need to expose longer

Build a camera

- Small gap to avoid unsharpness
- Problem: small gap also means very small amount of light on the film.
- We need to expose longer
- Another problem: longer exposure time leads to unsharp images due to the movement of the object

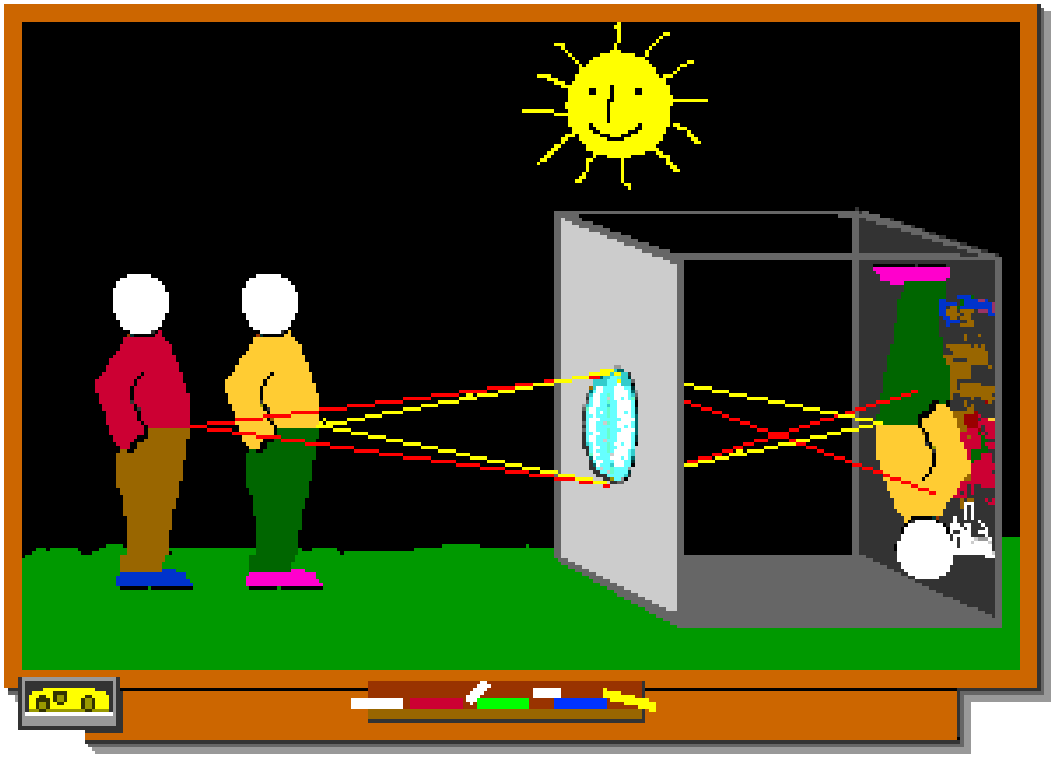
Build a camera

- Solution: use a lens!



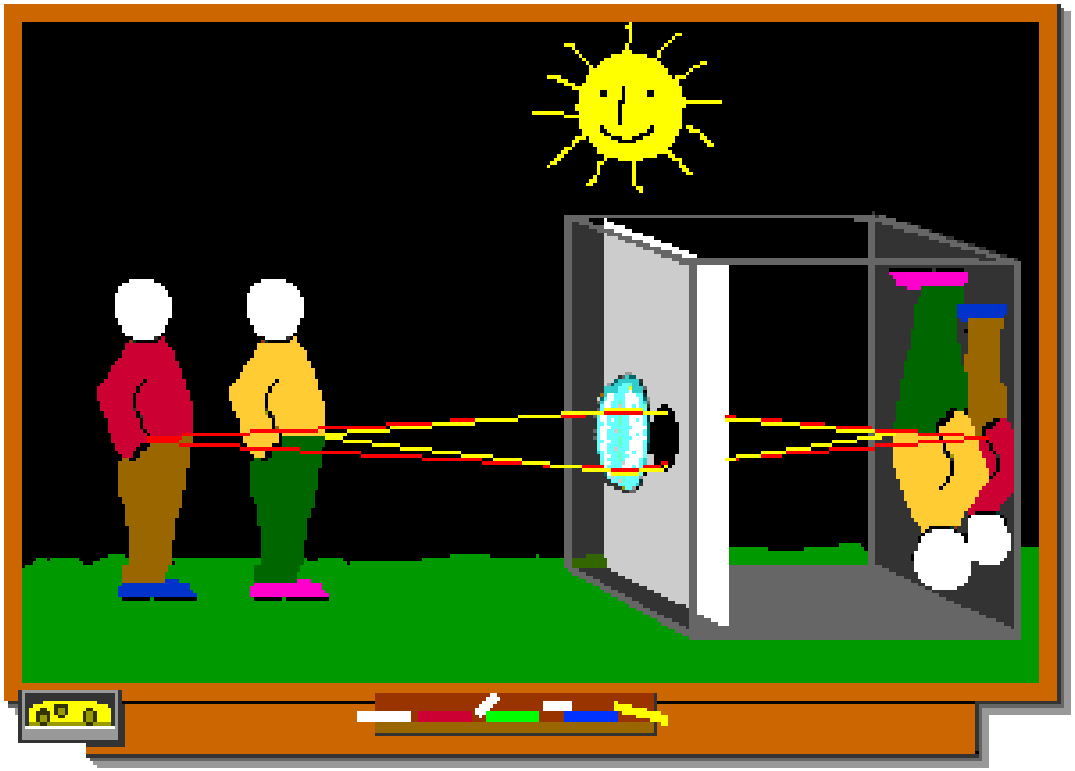
Build a camera

- Taking images from objects with different distance



Build a camera

- Solution: focus!

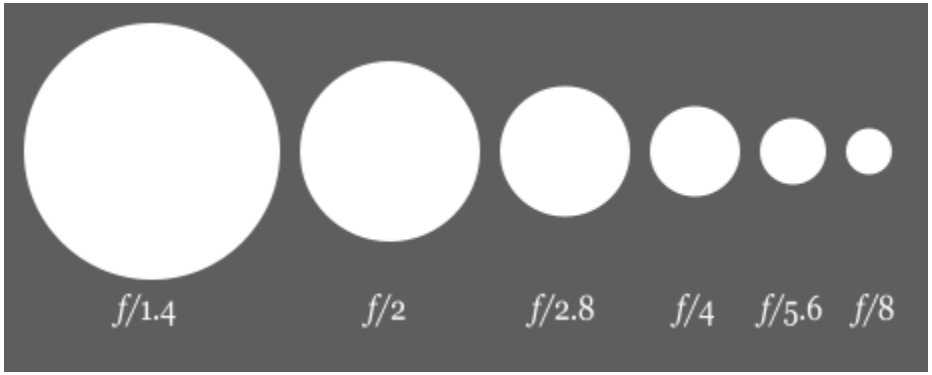


Build a camera

- Sharpness

F-stops

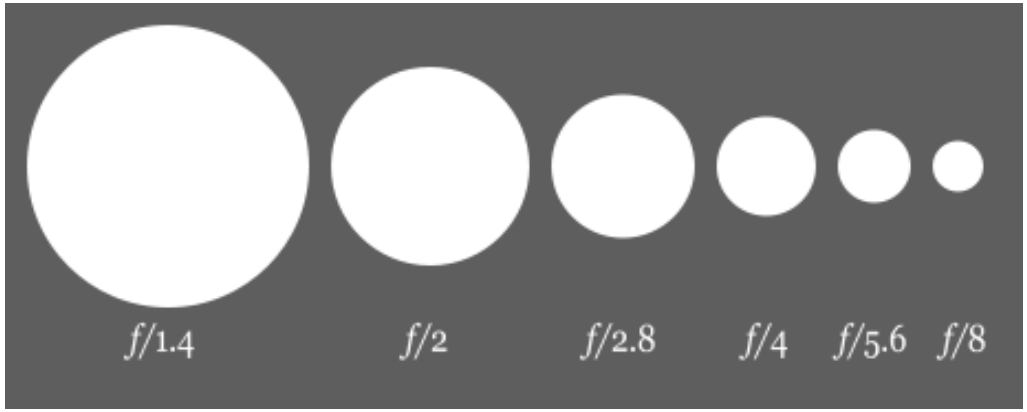
- The f-number is the *focal length* divided by the *aperture diameter*



http://wikipedia.org

F-stops

- The f-number is the *focal length* divided by the *„effective" aperture diameter*

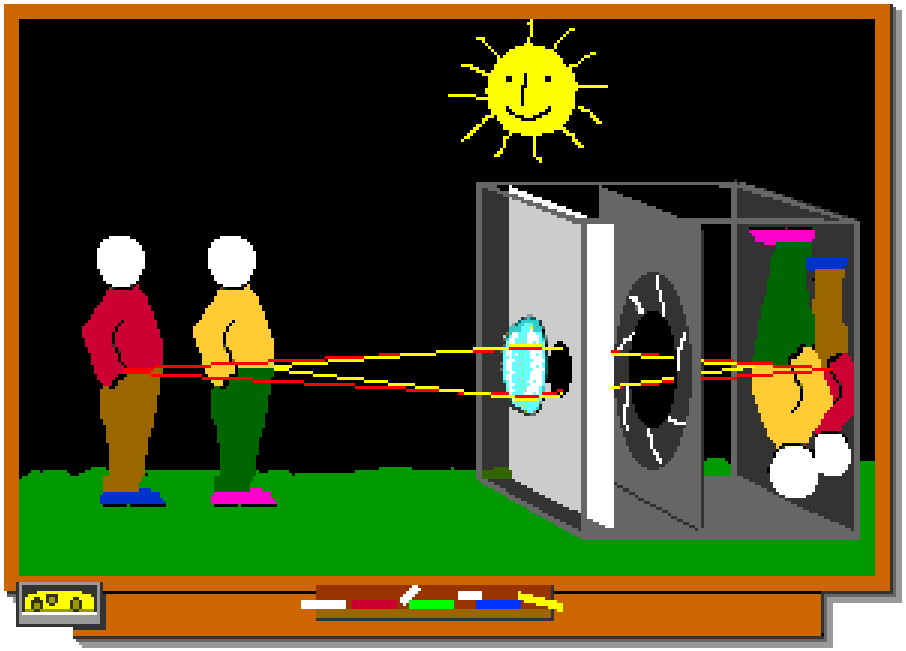


http://wikipedia.org

- To achieve the same light exposure: **Doubling** the f-number increases the necessary exposure time by a factor of **four**.

Build a camera

- We need also some mechanism to affect the exposure time

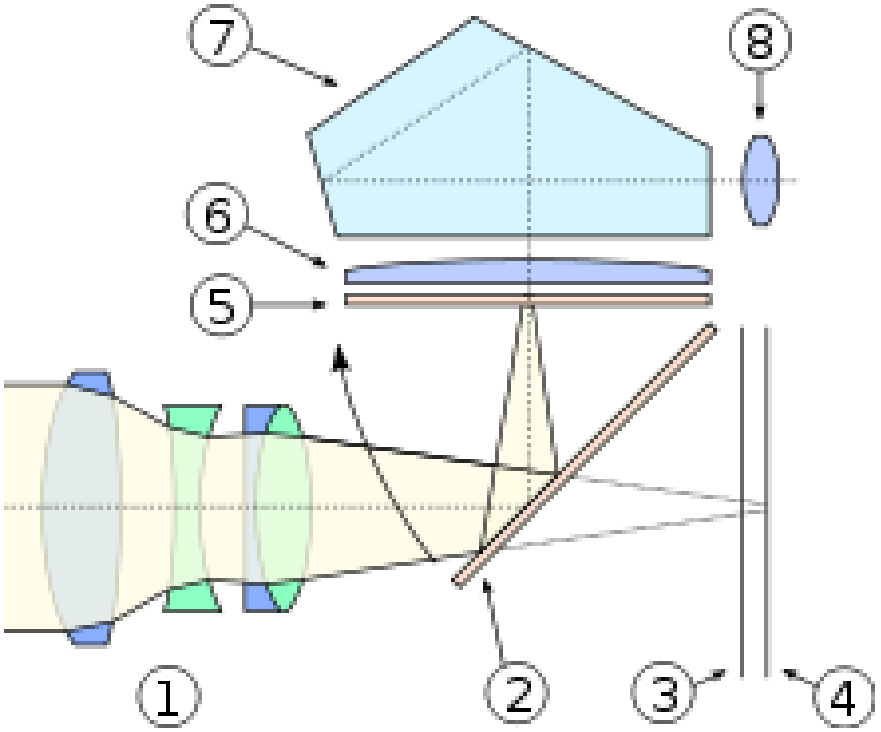


- Measured in fractions of a second:

½, ¼, 1/8, 1/15, 1/30, 1/60, 1/125, …

The structure of an SLR

- Construction



1.Lens assembly
2.Mirror in down position
3.Focal-plane shutter
4.Sensor/Film
5.Focusing screen
6.Condensing lens
7.Pentaprism or Pentamirror
8.Eyepiece

Discussion

http://commons.wikimedia.org/