Any camera is, deep down, just a box.
Light shines in through one side of the box, and shines onto something light-sensitive at the back of the box.
In a film camera, light shines in via a lens, and shines onto light-sensitive chemical film (usually silver halide-coated celluloid).
In a digital camera, light also arrives via a lens, but then hits a light-sensitive electrical chip (usually a CMOS or CCD sensor).
You can build a cardboard-box camera, where light arrives via a hole in the box, and hits tracing paper on the back.

Here's the mathematics behind all cameras. It's basic similar-triangles geometry.

Because these are two similar triangles,
\[ \frac{F}{C} = \frac{Y}{X} \]
Or, solving for \( F \), the size of an object on film,
\[ F = \frac{C \times Y}{X} \]

This means:
- If \( C \) is big (you have a big camera), \( F \) is big (objects will occupy more film space)
- If \( Y \) is big (you're photographing a big object), \( F \) is big (big objects look big on the camera) (Duh!)
- If \( X \) is big (you're far away from the object), \( F \) is small (objects look smaller as they get farther away)

Notes: