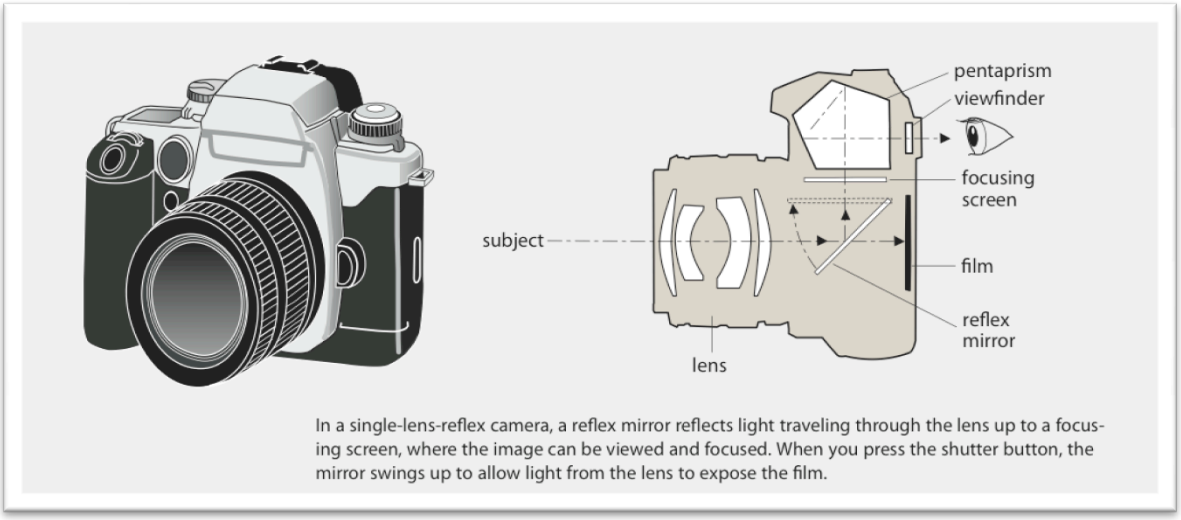
THE BASICS OF THE CAMERA: Choose a Camera & Film

KNOW YOUR CAMERA

Get to know each part of your camera very well and what functions they serve. We will actually study the camera hands-on early on in this class and how to operate it. Good pictures are made by good photographers —not by expensive cameras — so don't worry if a complicated camera doesn't suit your budget or your creative goals. You don't need the most expensive model or fancy features; many wonderful pictures are made with simple, even primitive equipment.

A **single-lens-reflex (SLR) camera** is so named because you view, compose, focus, and take a picture through a single lens with the help of a reflex mirror. You can't see directly through the lens, because the film and shutter are in the way; they have to be positioned right behind the lens to do their job. So the SLR redirects the light from the lens to your eye with a reflex mirror, focusing screen, pentaprism, and viewfinder. Remember, the more you know about how your camera works the fewer problems you will encounter. There's a diagram on page 3 that names the parts on the front of the camera. Take some time and learn the terminology well.



In a single-lens-reflex camera, a reflex mirror reflects light traveling through the lens up to a focusing screen, where the image can be viewed and focused. When you press the shutter button, the mirror swings up to allow light from the lens to expose the film.

Reflex mirror: The reflex mirror is located in the camera body right behind the lens and in front of the film. It's positioned at a 45-degree angle; when light comes through the lens, the mirror reflects it upward. The mirror also is hinged; when you press the shutter button, it flips up and out of the way as the shutter opens, permitting light to expose the film. The mirror then quickly flips back into position, so you can view the subject and take another picture. It's this flipping action that creates most of the noise you hear when you take a picture with an SLR—and it also may cause the camera to vibrate somewhat. The reflex mirror has another important function. All lenses naturally project an image that is upside down and laterally reversed, so that the left side of the picture is on the right and the right side is on the left; for example, words read backwards and upside down (see the illustration at the top of the following page).

Pentaprism. The hump on the top of the camera body incorporates a pentaprism**,** which is a mirror system that reflects and directs the image from the focusing screen to a viewfinder. It also allows you to hold your camera at eye level for viewing. Without this, you would have to look down at the focusing screen to view and focus. By reflecting and directing the image, the pentaprism also corrects the image's lateral reversal, so it matches the original subject—the left side of the subject is now on the left and the right side is on the right. It's also is usually integrated with the camera's through-the-lens meter and exposure controls, and reflects the displays of f-stop, shutter speed, and other meter settings and markers you see when looking through the viewfinder.

When light from the subject passes through the lens, it gets turned upside down and laterally reversed; the top of the subject is on the bottom of the frame and words read backwards (left).

The reflex mirror reflects the image up to a focusing screen, where it appears right side up but still laterally reversed (center). Looking through the viewfinder, you see the image reflecting from a penta-prism that reverses the orientation, making it read correctly (right).

FOCUSING SCREEN: Light reflected upward strikes a focusing screen**,** a textured sheet of thin plastic or glass. This is where the right side up (but still laterally reversed) image forms for you to view and focus. The screen is positioned at exactly the same total distance from the lens as it is from the film. Thus, when you've focused the image on the focusing screen, it also will be in focus on the film. With most SLRs, the focusing screen is non-removable, but in some advanced cameras you can choose from a variety of screen types. There are screens that are brighter than others for easier viewing and focusing; screens with a split-image circle or other features to help focus; screens with grid lines, used by architectural photographers and others who want a guide for precise composition; and various other types.

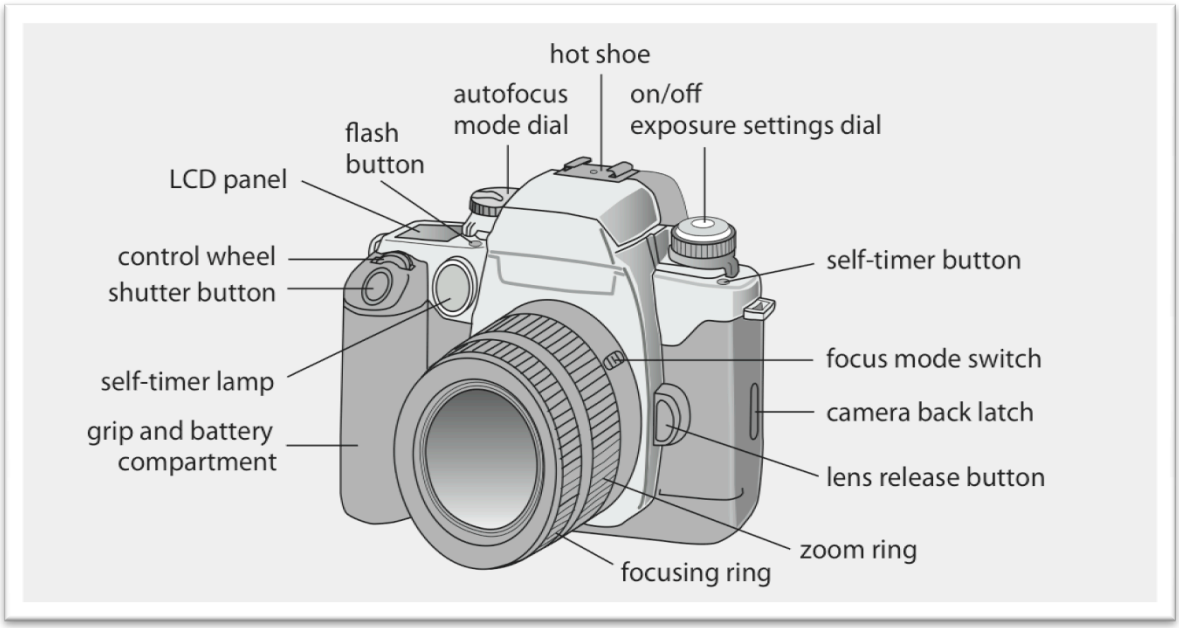
CHOOSE YOUR FILM

There are many different films available for black-and-white photography. The most important difference among these films is their relative **film speed,** how sensitive they are to light. Every film has an **ISO** number that rates its sensitivity; the higher the ISO number, the more light sensitive the film. You'll usually need a high-speed film (ISO 400 or higher) if you are photographing indoors or in a low-light situation (without a flash) to best capture what little light there is. You can generally use a medium- or slow speed film (ISO 200 or lower) in bright light outdoors or with a flash, when there is plenty of light to expose the film adequately. 35 mm film is packaged in a cylindrical cassette with the **leader,** the tapered end of the film, sticking out.

GRAIN: When film is developed, the silver halide crystals that were exposed to light form small black clumps of metallic silver, called grain, that make up the photographic image. Grain looks a little like particles of sand. You will recognize it when you see it, for example, when you're viewing your film through a magnifier or looking at an enlarged print. The size of the individual clumps can vary according to the type of film you use. Slow- and medium-speed films (ISO 200 or lower) produce smaller particles of silver, and are therefore called **fine-grain films.** Such films reproduce subject tones smoothly and render subject detail finely and accurately. Fast-speed films (ISO 400 and higher) use larger particles of silver to create the image. Ultrafast films (ISO 1600 and higher) are sometimes called **coarse-grain films**, or simply grainy, and reproduce image tones and details more roughly and with less subtlety. ISO 400 films

are generally considered medium-to-fairly-fine-grain. The choice of film, with its inherent grain characteristics, is one of the most important controls you have over the final look of your work. Some subjects, perhaps a lush landscape or an elegant flower, may look best when photographed with a fine-grain film that reproduces the scene with smooth, rich detail. Other subjects, such as a gritty urban scene, may feel more real when photographed with grainier (coarse-grain) film. It's very much a matter of individual preference.

FILM SPEED: Film speed is a measurement of how sensitive a film is to light. A film that is highly sensitive to light is called a **fast film,** or just "fast"; a film with low sensitivity is a **slow film**, or just "slow." The most common way to quantify film speed is according to its **ISO** (International Standards Organization) rating. A film with a higher ISO number needs less light to properly capture an image than a film with a lower ISO number. For example, ISO 400 film is more sensitive to light than ISO 100; it will take four times more light to properly expose ISO 100 film as it will take to properly expose ISO 400 film (400 ÷ 100).



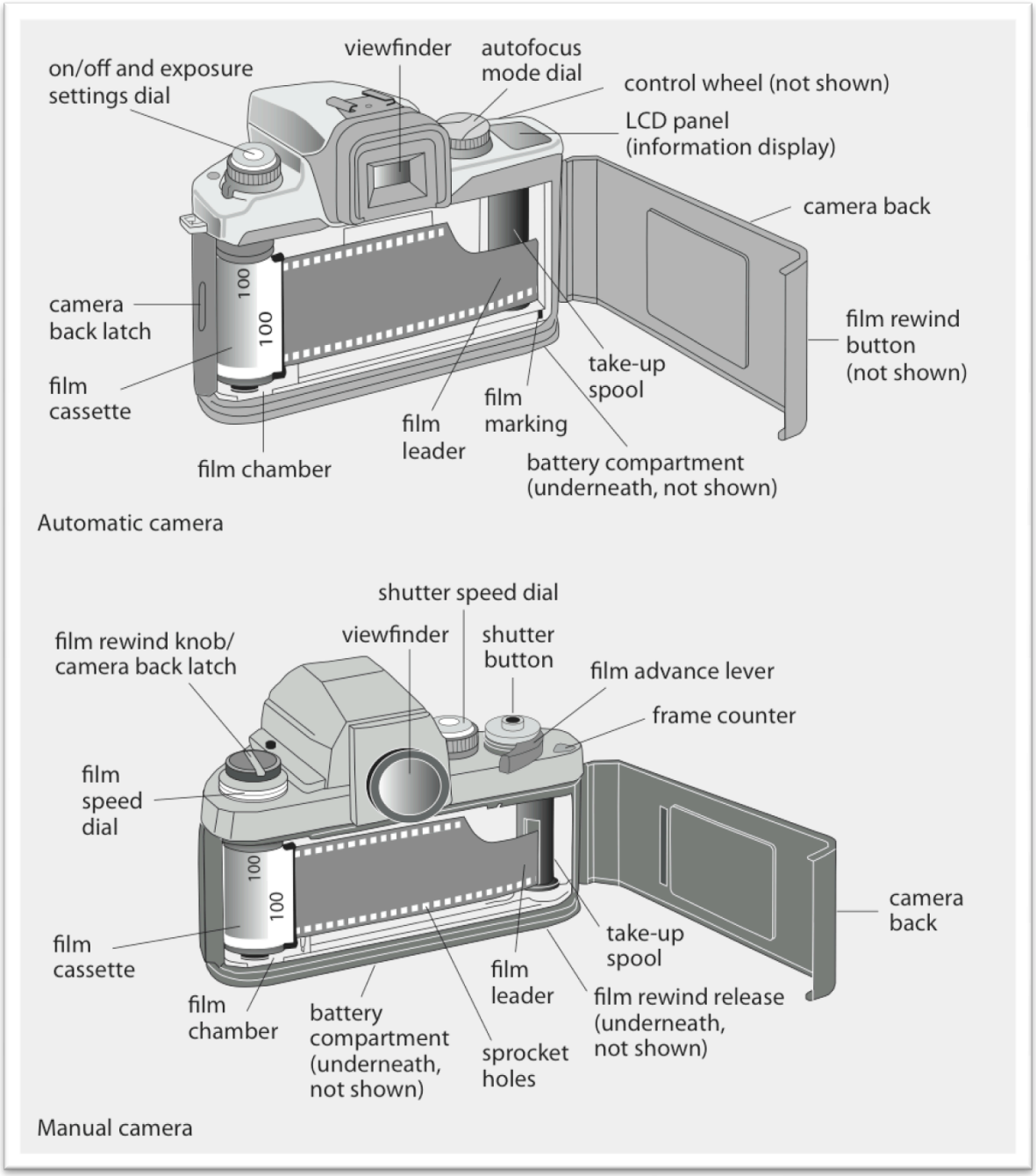
LOADING THE CAMERA

To load the film into the camera, open the back of the camera, usually by sliding or twisting a switch on the side of the camera or by lifting a knob on the top left side. The camera back has two chambers; usually the left chamber is empty and the right chamber contains a **take-up spool,** to wind the film as it advances out of the cassette. You insert the film cassette in the empty chamber with the extended spool end down. Then, pull the film leader to uncover enough film to reach the right chamber of the camera's interior. Don't pull out more film than you have to. With cameras that advance film automatically, you'll need just enough film so the front of the leader reaches just beyond the middle of the take-up spool. This point is often indicated by a marking on the opposite side and is sometimes colored red or orange.

With cameras that advance film manually, you'll have to slip the end of the film leader into a groove on the take-up spool and advance the film using the film advance lever located to the right on the top of the camera. Thirty-five-millimeter film has **sprocket holes,** square perforations along the edges. Advance the film one or two times until the sprocket holes on both sides of the film fit into small teeth in the spindle of the take-up spool. These teeth grab the film and move it along after you take your pictures.

Finally, close the camera back and make sure the back clicks shut. Our cameras load film manually, so you can only advance the film one frame at a time. You will alternate between moving the film advance

lever (see illustration below) and pressing the shutter button until the **film counter** (the number counter next to the winding lever) reaches the number of exposures listed on the film packaging. We will usually have 24 exposure rolls but, once in a while, we'll have 36 exposure rolls.



If your camera loads automatically, it may advance the film as soon as you close the cover when the camera is turned on; on some models you'll need to press the **shutter button,** the button used to take pictures, to initiate the film advance. After advancing, the camera's LCD panel should show a "1" to indicate you are on the first exposure. Some models advance the entire roll of film onto the take-up spool, then wind the film back into the cassette as you take your pictures. On these models the LCD panel may show the total number of exposures the film allows (usually 24 or 36) and count back to 1.

Congratulations! You are now ready to shoot your first pictures!