Definitions

Lenses
Lenses can be fixed focal length or Zoom. A Zoom lens is any lens that can be adjusted to do the job of more than one focal length. For example: a 35 - 70 zoom incorporates all the focal lengths between 35 and 70 mms inclusive. There are three major divisions in lenses:

*Normal lenses:* See and record an image much as your eye sees it. On a 35mm camera, normal is 50mm.

*Wide-angle lenses:* Give a wider angle of view and have a greater depth of field. These are lenses with focal lengths shorter than normal. A 35mm, 28mm, and a 24mm are common wide-angle lenses for a 35mm camera.

*Telephoto lenses:* Bring distant subjects into view, have a shorter depth of field, compress space and give a narrow angle of view. Lenses with focal lengths longer than 50mm are usually classified as telephoto lenses.

Lenses are different for digital and film camera. Digital sensors are usually smaller than 35mm film. This means that while a lens says “50mm” is may be the equivalent of a 70mm lens on a film camera! You still have your wide-angle/normal/and telephoto, but you cannot get as wide with most digital cameras and your ‘normal’ lens will likely be around 35mm!

Film
A plastic base with a light sensitive layer (emulsion). The more light contacts the film, the darker it becomes when developed. Covered with silver molecules, the silver molecules are chemically changed when hit by light. These silver molecules are coupled with color dyes in color film. The more light contacts the film, the more dense it becomes when developed. Different films have different sensitivities to light. See ISO.

CCD
A Charge Coupled Device is one of the most common sensors in digital cameras. It takes the place of film and is made of pixels. Each of these pixels respond to light not unlike the silver molecules in film. This is then translated to an image in your computer. A camera that has 6 megapixels has 6 million pixels waiting to be hit by light. (CMOS is another type of array used in both very inexpensive and high-priced digital cameras.)

Shutter
The shutter controls the length of time the film is exposed. The length of time that the shutter is kept open is called the shutter speed. The shutter also affects the way in which movement is recorded. Slower speeds emphasize camera and subject movement. Faster speeds "stop" camera and subject movement.

F-stop
A variable size hole or opening. Also called aperture. It controls the amount of light, which reaches the film or sensor. F-stops also control depth-of-field.
ISO
Often called "film speed" is a measurement of the sensitivity of a particular film to light or on a
digital camera the sensitivity setting on the sensor. The higher the ISO the greater the sensitivity
to light but also generally the less detail and the more noise or grain.

Exposure
This is the amount of light that is allowed to reach the film as determined by the f-stop and
shutter speed. The main objective of exposure is to match the brightness of the subject with the
sensitivity (ISO). This match is determined by the light meter.

Exposure Modes
The following are the modes available to photographers to determine exposure:

- Manual (M) .................. Photographer sets both shutter speed and aperture
- Automatic .................. Aperture priority or Shutter priority
- Aperture priority (Av or A) .......... Photographer sets aperture; camera sets shutter speed.
- Shutter priority(Tv or S).......... Photographer sets shutter; camera sets aperture
- Program (P) .................. Camera sets both aperture & shutter speed (There are variations on
this mode such as "program Hi" for shooting sports etc.)

Middle Gray
This is the tone for which all meters are calibrated. ANYTHING you point your camera to will
meter to make it middle gray! This works most of the time. Can you think of a situation where it
wouldn't work?

Back Lighting
A lighting situation in which most of the light is in back of rather than directed at the subject.
With back lighting, overexpose one or two stops so that your subject is properly exposed and the
background is overexposed.

Bracketing
A way to help ensure a properly exposed negative; first take an exposure reading of a subject
with your light meter and shoot a picture at that setting, then take extra exposure of the subject at
f-stops or shutter speeds on either side of the first reading to allow either more or less exposure
to reach the film or sensor. These extra exposures can be made by altering the auto exposure
compensation dial or by photographing in the manual mode. With negative films, always bracket
with more exposure. With slide films, with less. Generally speaking for digital, jpg files are
equivalent to slides in exposure forgiveness and raw files are more like negative film.

Lens Hood
Low tech, but High Value! This tool will improve your contrast and your color by protecting
your lens from flare. Make sure to use the right one for the lens you are using – Wide angles will
be darkened on the edges (vignetting) if the lens hood is too large.