USEFUL TERMS

aperture: the opening in a camera obscura or a camera, telescope, etc. that lets in light.

camera obscura: Latin for "darkened room." The optical principle whereby light entering a darkened room or space, through a small hole, creates an upside-down, inverse image of the outside scene on a plane opposite the aperture.

camera lucida: Latin for "lighted room." Invented by William Hyde Wollaston (1766-1828) in 1806, the device served as a portable, lightweight drawing aid consisting of a prism atop a vertical rod attached to a clamp that could be mounted to a drawing board.

concave: bending inward, as in a lens or mirror with at least one side that extends inward (a lens with both edges extending inward is a double concave lens). A concave lens produces diverging light rays.

convex: bending outward, as in a lens or mirror with at least one side that extends outward (a lens with both edges extending outward is a double convex lens). A convex lens produces converging light rays.

depth of field: the area between the nearest and farthest points from the camera that are acceptably sharp and in focus. In describing a photograph, depth of field refers to the extent to which the space surrounding a subject is in focus. Depth of field is dependent on aperture size, the focal length of the lens, and the camera's distance from the subject.

diaphragm: that part of a camera, microscope, etc. that regulates the amount of light entering the lens.

digital photography: system for making pictures whereby pixels (the mosaic of light-sensitive picture elements) emit electrical signals proportional to the light received. The signals are converted to binary form (1s and 0s) and stored electromagnetically. The image is then recreated on a screen, film, or paper by electronically laying out the pattern of the pixels.

distort: to modify a wave, light, sound, signal, etc. so as to produce an unfaithful reproduction.

focal length: the distance from the optical center of a lens to a point where light rays from a very distant object converge (the focal point).

focal point:: the point at which light, sound, etc. is focused.

lens: a piece of glass or other transparent substance, with two curved surfaces (or one flat and one curved) that brings together or spreads rays of light passing through it. The word lens comes from the Latin word for lentil. Camera lenses are shaped so that the light rays converge on the negative.

optics: the branch of physics dealing with the nature and properties of light and vision.

out-of-focus: refers to a blurred or fuzzy image created when rays of light passing through a lens fall upon a plane in front of or beyond the point at which they converge.

pinhole camera: a lens-less and mirror-less camera obscura equipped with film or light sensitive paper. Scottish scientist Sir David Brewster coined the term in reference to the fact that the opening or aperture letting in light is sometimes formed using a pin. Photographs made using a pinhole camera tend to have a "soft" effect as there is no lens to focus the light rays.

prism: a device used to break light into its component wavelengths. A prism is usually a triangular piece of glass and can be used to see the spectrum of colors.

refraction: the bending of a ray or wave of light (or heat or sound) as it passes from one medium to another of different density. For instance, a straw in a glass of water can appear broken due to refraction of light in the water.

photograph: an image made on a surface (paper, glass, metal, cloth, etc.) from the interaction of light and light-sensitive chemicals. "Photo" comes from the Greek word for "light" and "graph" from the Greek for "writing."

shutter: a device in a camera that opens and closes to allow light to reach the film or plate for a specified amount of time. Early cameras did not need or have shutters since exposure times were long enough that the photographer could manually remove and replace the lens cap. Today's cameras typically have electronically operated high-speed shutters.