Cow Eye Checklist: Identify the following structures/locations.

Use lines provided for additional notes

External structures

- Cornea: Anterior protective covering of the eye; transparent allowing light to enter; appears cloudy due to preservation process

- Essential Fat: White/grey in color; provides protection/cushion

- Extrinsic muscles: Muscles used to move the eye

- Optic nerve: Chord-like structure protruding from the back of the eye; carries nervous signal from the retina to the posterior (occipital) region of the brain

Internal Structures

- Vitreous humor: Jelly-like material, provides shape/support for the eyeball, helps hold retina in place

- Retina: Nervous tissue, location of the photo receptors (cones for sharp color vision and rods for night, dark/shaded vision); the retina is continuous with the optic nerve which leaves the back of the eye carrying the nervous impulse to the brain

- Optic disc (blind spot): location on the retina where the retina attaches to the optic nerve, sight does not occur at this location because there are no cones or rods present
Internal Structures

- **Fovea centralis/macula:** Location in eye where the sharpest vision occurs; the fovea centralis/macula is dense with cones and is the location of focus during lighted conditions, like reading (in humans); the fovea centralis/macula appears as a depression in the retina (Note: know the function for the quiz, identification is not required)

- **Choroid:** Dark layer of the eye, rich with blood vessels; reduces scattering of light and provides nourishment for the eye

- **Tapetum lucidum:** Iridescent, reflective layer found on the choroid; the tapetum lucidum aids in the reflection of light, increasing the ability to see at night; the human choroid does not have a tapetum lucidum

- **Sclera:** Tough protective outer layer of the eye which gives the eyeball its shape; the white part of the human eye; continuous with the transparent cornea; the sclera has blood vessels (may appear bloodshot); the cornea does not have blood vessels

- **Suspensory ligaments:** Hold the lens in place, attaches lens to ciliary body

- **Aqueous humor:** A transparent fluid produced by the ciliary body is located between the lens and the cornea; the fluid provides shape for and nourishes the cornea and it also provides nourishment for the lens

- **Lens:** Biconvex structure that focuses light on the retina through a process called accommodation
Ciliary body: Muscles of the ciliary body contract toward the lens, resulting in less pull on the lens; the lens bulges to its natural form resulting in the light rays bending more for closer objects; the muscles of the ciliary body relax pulling away from the lens causing the lens to flatten for distant objects.

Pupil: Opening of the eye, allows light to enter; the diameter of the opening is controlled by the iris; the pupil is the dark center of the eye; the pupil is black because light enters but it does not leave.

Iris: Structure of the eye which controls the size of the opening into the eye which is called the pupil; the pupil gets larger when the radial muscles of the iris contract in dim light; the circular/sphincter muscles of the iris contract to reduce the size of the pupil for brighter light; the iris is the colored structure of the human eye.

Draw and label the cow eye.

- Cornea
- Retina
- Tapetum lucidum
- Suspensory ligaments
- Pupil
- Optic nerve
- Optic disc (blind spot)
- Sclera
- Lens
- Iris
- Vitreous humor
- Choroid
- Aqueous humor
- Ciliary body