The Bony Orbit
The Muscles of the Eye
(Extraocular muscles)
Superior and Inferior rectus
• Superior rectus
  – Attached to the eye at 12 o’clock
  – Moves the eye up.
• Inferior rectus
  – Attached to the eye at 6 o’clock
  – Moves the eye down.

Lateral Rectus
• Lateral Rectus
  – Also called the external rectus
  – Attached at 9 o’clock
  – Moves the eye toward the outside of the head (toward the temple)

Medial Rectus
• Medial Rectus
  – Also called the internal rectus
  – Attached at 3 o’clock
  – Moves the eye toward the middle of the head (toward the nose)
Superior Oblique
- Located high on the temporal side of the eye.
- Passes under the Superior Rectus.
- Moves the eye in a diagonal pattern -- down and in.

The Nerves of the Eye
- Third Cranial Nerves
- Fourth Cranial Nerves
- Sixth Cranial Nerves

Lids and Lashes
- Main function is the protection of the eye.
- They also help to distribute tears which wash and lubricate the eyes.

The Refractive Structures
- These structures bend the light so that a clear image is produced.
- They are:
  - tears
  - conjunctiva
  - cornea
  - aqueous humor
  - lens
  - vitreous humor

The Lacrimal System -- Tears

Layers of the eye
- choroid
• sclera
• uveal tract
• retina

The Retina
• Cones and rods
• peripheral retina (rods)
  – motion
  – low light
  – no color
• central retina (cones)
  – macula
  – fovea

The Optic Pathway
• Begins at the optic nerve.
• Impulses cross and partially split at the optic chiasm.
• After the chiasm, it becomes the optic tract.
• Lateral geniculate bodies (sensory way stations)
• Some fibers go to the colliculus.

Optic Pathway (cont.)
• The fibers fan out into the visual cortex which is located at the top and back of the brain.
Vision and the Brain

- **Primary visual cortex (Striated Cortex)** --
  - spatial organization of a scene
  - shapes of objects
  - brightness and shading of parts of objects

- **Secondary visual cortex (Prestriated Cortex)** --
  - pattern recognition

The Brain and Vision (cont)

- **Temporal Lobes**
  - center for visual learning
  - recognition by sight

- **Midbrain -- Limbic sector**
  - emotional responses to visual stimuli

- **Midbrain -- Superior Colliculus**
  - guides visual attention