EXAMINATION OF THE ANIMAL EYE
The horse has 0.6 times the acuity of humans, 1.5 times the acuity of dogs, and 3 times that of cats.

A cat viewing this chart at a distance of 20 feet can see the letters in line 2.

A dog viewing this chart at a distance of 20 feet can see the letters in line 3.
Hand Motion and Light Perception
Is there any chance for sight? Consensual PLR
PLRs (retina, CN 2, chiasm, optic tracts, midbrain, CN 3, and iris sphincter muscle)

Dazzle and PLR FLASHLIGHT TEST
Other reflexes useful for eye examination

- Palpebral blink reflex (CN 5 and 7)
- Corneal sensitivity
  - Weak in brachycephalics dogs and cats, and diabetic dogs
Corneal Sensation: CN 5 and 7
Basic Equipment
- Schirmer tear test
  - 15-25 mm wetting/minute in dogs and cats
  - not a linear test
    - Quicker initially, then slows. Will overestimate STT if you double the 30 sec value
Phenol Red Thread Test:
Cats: $23.0 \text{ mm } \pm 2.2 \text{ mm}/15 \text{ seconds}$
Dogs: $34.2 \pm 4.4 \text{ mm}/15 \text{ seconds}$
Shape of head predisposes to disease!

Exophthalmos of brachycephalics

Enophthalmos of large breeds
Nasolacrimal duct obstruction

- Erosions at nasal canthus
Obstructed puncta: Flush lacrimal puncta
Nasolacrimal System Flush

- fluorescein dye passage as a guide to patency
- The upper punctum is cannulated with a 22g blunt lacrimal cannula. Cats don’t like it.
– fluorescein dye passage as a guide to patency
Fluorescein and cats

Brachycephalic dogs and cats may have fluorescein appear in the mouth so examine the oral cavity for presence of fluorescein (esp if they vomit!!).
Shallow orbits increase risk of .....???

Traumatic Proptosis
Eye Position: Strabismus

Is a muscle ruptured or something behind the eye pushing it laterally?
Symmetry of Eye and Pupil Size

Congenital glaucoma

Noah
Look at the lids. There are 3!!

Meibomian glands

Hypothyroid blepharitis
TE Examination

TE protrusion can be a sign of ocular pain.
“Cherry Eye”

Repaired
Corneal Colors!!!!

**Colors**
- Superficial (tree-like) and deep RED blood vessels (brush).
- Blue is edema
- White or yellow is neutrophils
- Shiny or clear or dark is not good: 
  
  "Thin"
Blue is edema
Shiny is thin and this can be bad!!
Dark is thin!!!
Dark is really bad!!
Fluorescein test: Every eye exhibiting signs of pain should be stained!!
- Detects a corneal epithelial defect or ulcer.
Use fluorescein full strength. Dilute the Rose Bengal
Corneal abrasion: partial epithelial cell layer loss
Cobalt Blue Filters

- www.slitlamp.com: bluminator
Seidel’s Test
SOAC Melting Ulcer
Melting Ulcers
Descemetoceles do not stain
Rose bengal

- Tear film integrity
  - Mucin layer instability
Rose bengal retention
Feline Herpes Rose Bengal positive
“Red Eye”

- Infection
  - Chlamydophila
  - Mycoplasma
  - Herpes and calici virus
  - Bacteria and fungi
- Allergic/environmental
- Parasites
- Neoplasia

Conjunctivitis
- Scraping for cytology
  - The cultures should be done before any drops, (drugs contain bacteriostatic agents)
  - Topical anesthetics and the handle end of a scalpel blade to scrape.
  - Sterile dacron swabs for culture.
Topical Anesthetics

- Diagnostic use only.
- Not to be prescribed.
- Toxic to corneal epithelium.
- Two drops of proparacaine last up to 25 minutes in dogs.
  - 1 drop=15 minutes.
  - Duration of onset is < 1 minute.
- One drop lasts 5 minutes in cats
Plasma cells
Pupil size is educational
- Pupils are normally larger in the dark and small in the light.

- Large pupils
  - Glaucoma
  - Retinal and optic nerve disease

- Small pupils
  - Uveitis
Iris Color Changes

- Uveitis
- Neoplasia (melanoma, lymphoma)
- Icterus
- Hemorrhage
- Anterior chamber and anterior segment.
  - "aqueous flare" is a sign of uveitis.
  - Shallow AC: lens luxation; leaking wounds; bombe
  - Deep AC: lens luxation
Slit lamp exam

Iris

Lens

Cornea
Corneal Dystrophy
**Tonometry:**

Normal IOP in dogs and cats = 15-25 mmHg.
TonoVet

Rebound tonometer: no anesthesia needed
- Mydriatics (not in glaucoma and lens luxation).
  - tropicamide lasts 4-6 hrs
  - atropine 5-7 days
- The lens should be examined for cataracts or nuclear sclerosis, and lens position.

(The center of axis of globe rotation is the center of the lens.)
Nuclear Sclerosis

Cataract???

Focal

Nuclear Sclerosis
Nuclear Sclerosis and Peripheral cataracts
Lens Induced Uveitis
Vitreous

Asteroid hyalosis
Synchysis scintillans
Examine the fundus with a light, indirect lens, and direct ophthalmoscope.

- indirect technique first (low magnification)
- direct technique last (high magnification)
<table>
<thead>
<tr>
<th></th>
<th>Direct Ophthalmoscope</th>
<th>PanOptic Ophthalmoscope</th>
<th>Indirect (20D) Ophthalmoscope</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>FOV</strong></td>
<td>9° (2.5 mm)</td>
<td>29° (7 mm)</td>
<td>56° (14 mm)</td>
</tr>
<tr>
<td><strong>LM</strong></td>
<td>17.24x</td>
<td>3.2x</td>
<td>1.74x</td>
</tr>
<tr>
<td><strong>AM</strong></td>
<td>405x</td>
<td>7.43x</td>
<td>4.04x</td>
</tr>
</tbody>
</table>

FOV - Field of view; LM - Lateral magnification; AM - Axial magnification
RETINA
RPE
CHORIOCAPILLARIS
TAPETUM
CHOROID
SCLERA
Sadie
Feline Central Retinal Degeneration

Lipemia
Tribrissen retinopathy

Myelin variation
Baytril toxicity (2.5 mg/kg BID PO)  
Dog: Retinal Detachments
Systemic Hypertension: OMSD

Hemorrhage

RD
Ultrasonography