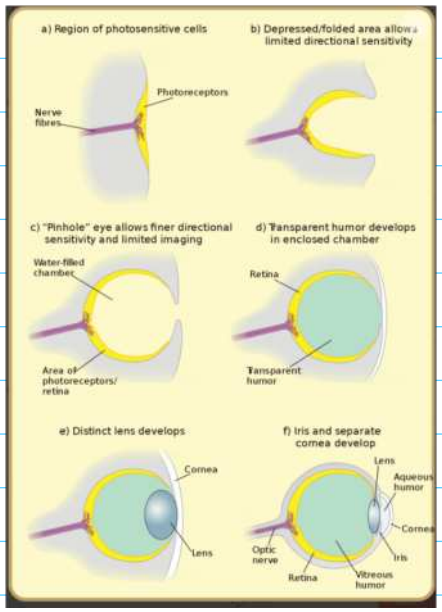
Animal Eyes



The eye has developed/evolved into one of the most complex organs, independently over 50x throughout history.

B/c vision is such a critical trait, many unrelated species have evolved different types of eyes to best suit their needs.

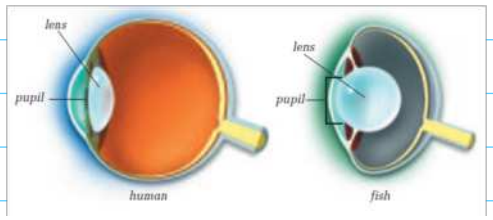


http://www.youtube.com/watch?v=qrKZBh8BL_U

→ WATCH: Evolution of the eye

Fish Eye

- → Fish have perfectly round lenses
- → B/c of this, fish can see in almost every direction → useful b/c they have no necks to turn to see threat

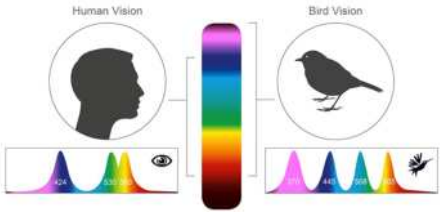


Bird Eyes

- → Have much sharper vision than humans
- → Humans = 3 types of colour cones

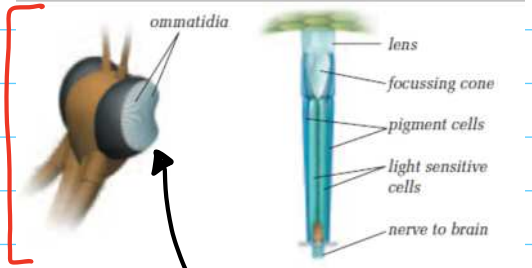
VS

- → Birds = 4 or 5 colour cones



Compound Eyes

- → insects & crustaceans have compound eyes.
- → made of small units → ommatidium



Long tube w/ lens on outer surface, focusing cone beneath it & light sensitive cells below that

Covered in convex surfaces

COMPOUND EYES MAY SEEM GREAT
BUT... MAJOR DRAWBACK... → MAKES IT HARD TO FORM ONE COHERENT IMAGE



https://www.youtube.com/watch?v=kMujLnWzpVA



https://www.youtube.com/watch?v=FsEzKH4Tl9g



NOCTURNAL EYES



- → NO ANIMAL CAN SEE COMPLETELY IN THE DARK, NOCTURNAL ANIMALS HAVE ADAPTATIONS TO HELP THEM SURVIVE
- → CATS & OWLS: VERY LARGE PUPILS TO ALLOW AS MUCH LIGHT AS POSSIBLE
- → MANY HAVE A LAYER IN THE EYE CALLED THE TAPETUM LUCIDUM WHICH REFLECTS LIGHT INSIDE THE EYE TO CAPTURE MORE LIGHT (COWS HAVE THIS TOO)
- → MORE RODS (BLACK & WHITE) THAN CONES (COLOUR) TO SEE MORE IN LOW LIGHT CONDITIONS



USUALLY... NOCTURNAL ANIMALS HAVE BIGGER EYES THAN DIURNAL (AWAKE IN THE DAY) ANIMALS.



https://www.youtube.com/watch?v=jdrNjHPYKz4

→ **WATCH:** WHY DO CATS HAVE VERTICAL PUPILS?