

Meet Extension Agent Trent Hollister



Trent Hollister, 4-H and Youth Development Extension Agent in the Tri River Area and Montrose County Department Head, is an advocate for STEM and has been an avid science fan for more than 30 years. As a little boy he always wanted to build something or take something apart to see how it worked and then try to put it back together. Even before starting school, Legos and Lincoln Logs were by far the best toys because they gave him the freedom to build and create. His continued involvement in science led to a Bachelor's Degree in Animal Science with a minor in Earth Science, a Master's Degree in Extension Education and the passion for livestock has been a major part of his life.

At the age of 8, he got his first taste of living with livestock. He purchased 8 head of ewes and 1 buck from the local sale barn and began his career raising club lambs that took him through his Educational Career and the start of his professional career. He raised club lambs for 21 years and at one time had more than 180 ewes and 20 bucks in the family herd, finally getting out of the business when he became a 4-H Extension Agent. Before joining CSU Extension, he was the Production Ag. Instructor and Livestock Judging Coach at Laramie County Community College in Wyoming. One of the most interesting classes he every taught was Livestock Health and Management in which several necropsies were made over his 6 years teaching the course. Remembering his younger days of taking things apart is why he loved teaching that class. Anatomy and Physiology of an animal has remained an interest and always something he has been involved.

As a 4-H Extension Agent he continues to stay involved in the Livestock Industry and is currently the key Agent in the TRA for Sheep, Goat and Horse projects while also taking the lead on the Meat Quality Assurance program in the TRA.

Trent lives in Delta, Colorado with his wife Janelle, a local Resource Consultant for the School District. The 4-H program is huge part of both of their lives and will continue to be a part of their lives for many years to come.

STEM Connections

Connecting Science, Technology, Engineering, and Math concepts to our everyday lives.

Colorado
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University

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SHEEP EYE DISSECTION

So cool and SO GROSS!!!

The eye is incredible! Different organisms have different kinds of eyes, but all mammals have very similar eyes in structure and function, even though some animals do see with as much color as we do. Other mammals can see better at night than we can.

EXPLORE IT - DESIGN IT - DO IT

External Eye

- In all **dissections**, we start with external (outside) observations. This IS part of any dissection. Pick the eye up and find the following structures:
 - Cornea—the dark part of the eye. The cornea is **transparent** when the animal is alive, but becomes **opaque** after death. The cornea lets light through to the back of the eye where the light receptors are found.
 - Fat—to protect the eye in the socket, like packing peanuts in a package.
 - Sclera—this is the white part of the eye. It is very fibrous and tough.
 - Optic nerve—on the opposite side of the cornea, feel with your fingers until you find a hard knob. That is the optic nerve. All blood and nerves (which the brain interprets as what we see) go through the optic nerve.
 - Eye lid and lashes—you may have this on your eye.

Internal Eye

- With the pointy end of the scissors, push the tip into the eye at the point halfway between the cornea and the optic nerve. It will be very tough. Don't squeeze, though. There is a liquid that can squirt out!
- After you have punctured the eye, carefully cut the eye in half, with the cornea as one half and the optic nerve as the other half.
- Look at the cornea half of the eye on the inside. Locate the lens, a round pearl-like cloudy object (that is clear when the animal is alive). The lens focuses light so we see a clear image. Ciliary bodies are muscles to control making the pupil larger or smaller for the proper amount of light.
- Remove the lens and liquid between the cornea and the lens (called aqueous humor), and cut away to cornea. You can clearly see the iris (color part of the eye) and the pupil (a hole that lets light through).
- Looking at the other half of the eye, remove the jelly like substance called the vitreous humor. This helps to keep the eye's shape.
- You will see a membrane that captures the rainbow called the tapetum (part of the choroid layer). It better reflects light to see at night. Remove.
- Under the tapetum is the retina, composed of rods and cones. Rods see in low levels of light in black and white, and cones see in color.
- Follow the clean up directions to the right.

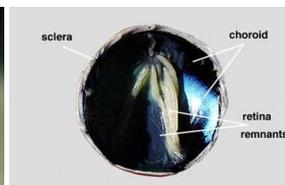
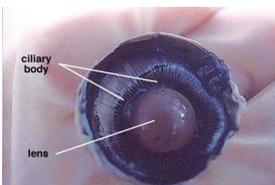


Photo Credits: <http://science.jburroughs.org/resources/skeleton/eye/titlee.html>

Colorado State University Extension 4-H programs are available to all without discrimination.

Age Appropriate:
4th—HS grades

Time Required:
60 minutes

Materials:

- Sharp pair of scissors
- Sheep eye (call a butcher and ask for an eye) keep refrigerated and use within 7 days – sooner is better
- Meat tray cleaned
- First aid gloves
- Protective eyewear
- Old shirt (to wear)
- Large plastic garbage bag
- Dish soap
- Bleach

The Set-up:

- Be sure to get your parent's permission.
- Purchase a sheep eye from a butcher (order ahead)
- Put on the old shirt
- Put on gloves and eyewear
- Spread the disposable garbage bag out—you will do your dissection on it, and then use it to throw everything away
- Set out the meat tray (use as a dissection pan) and scissors
- Place the eye in the dissecting pan (meat tray)

The Clean-up:

- Continue to wear your gloves, protective eyewear and old shirt
- Wash the scissors thoroughly with warm/hot water and dish soap using a paper towel.
- Place in small amount of water 1 Tablespoon bleach.
- Soak scissors for 10 minutes and then rinse/dry.
- Turn the garbage bag inside out and throw away the meat tray, eyeball remains, and your gloves.

Power Words

- **dissection:** detailed examination or analysis
- **opaque:** not able to see through; not transparent
- **transparent:** allowing light to pass through so that objects behind can be seen