

Dissecting and Diagramming the Eye

Technology and Dissection Lesson plan for grades 4-7

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Source: Amy Rice-O'Rourke, Rochester Community Schools, c/o Hampton School, 530 Hampton Circle, Rochester Hills, MI 48307. MAISA and the REMC Association of Michigan Best Practices in Technology Integration Plan: <http://www.remc11.k12.mi.us/bstpract/bstpract/065/065.pdf>.

SOURCES AND RESOURCES:

- Virtual Eye Dissection and Eye Anatomy Tools
<http://www.eschoolonline.com/company/examples/eye/eyedissect.html>
- Sheep Eye Dissection, step-by-step with accompanying color photographs from John Burroughs School
<http://science.jburroughs.org/resources/skeleton/eye/eyedissection.html>
- Anatomy of an Eye using a model pictured at different angles with interactive questions
<http://science.jburroughs.org/resources/skeleton/eye/modeltutorial.html>

POTENTIAL TEKS ADDRESSED THROUGH THIS LESSON:

§112.15. Science, Grade 4: 1A, 2B, 3C, 4A, 4B, 10A

§112.16. Science, Grade 5: 1A, 2C, 3C, 4A, 4B, 10A

§112.19. Science, Grade 7: 1A, 3B, 4A, 4B, 11A, 12B, 13A

PERFORMANCE OBJECTIVES:

Students will be able to:

- Compare the structures and functions of a sheep eye to that of a human eye
- Dissect the eye of a sheep, noting the anatomy, using scientific procedure
- Construct a labeled diagram to model eye structures using technology tools

MATERIALS (per student):

A science journal or notebook and pencil to record thoughts and observations throughout the investigation, and a computer with a program such as Kid Pix Studio for diagramming will be needed.

For Dissection:

- Sheep eye
- Dissecting pan
- Surgeon's gloves
- Scissors
- Single edge razor blade
- Probe
- Forceps
- Paper towels

CONCEPTS:

By dissecting and constructing labeled diagrams of eyes, students explore the structures and functions that contribute to the sense of vision. Media exposure is increased through this lesson, and allows for opportunities to describe how light passes through the parts of the eye and is received by the brain.

PREPARATION:

Preparing dissection material before class begins saves time and confusion and prevents potential safety issues.

EXPLORE:

Students should follow the dissection instructions as described by the John Burroughs School (see the Resources section above). If physical dissection is not an opportunity at your school due to limitations, this website can substitute for physical dissection as it shows the sheep eye through each step in color photographs. A virtual dissection can be performed at:

<http://www.eschoolonline.com/company/examples/eye/eyedissect.html>.

Students should note observations and diagram the parts of the eye in their science journals as they progress through the dissection, whether physically or virtually. They can predict how they think sheep and human eyes are similar or different. Then investigate if their predictions were accurate.

EXPLAIN:

Students should visit websites that discuss eye anatomy. In the resources section above, two recommended websites are listed, but others may be found. Discuss: What do each of these parts do? Why might each of these parts be important for eyes and vision? What problems might be caused if any of these parts were missing?

Students should create a rough draft of their eye diagrams (viewed from different angles, such as a top view and a side view and a frontal view). Parts to label could include sclera, cornea, lens, vitreous body, iris, pupil, retina, and optic nerve. They may trade drafts with a partner to analyze if any parts or details might be missing.

Advanced students who have studied light and optics might also include the brain, as the visual message must travel to the brain in order for people to actually “see.” These students may draw an image upside down in the middle of the eye diagram, behind the lens and then show the image right-side-up on the retina, the way it is carried by the optic nerve in the brain.

EVALUATE:

After drafts have been peer-reviewed, students may use a media tool, such as Kid Pix, to publish their diagram. They can add narrative discussing structures, functions, and vision if microphones are available. Class diagrams may be compiled into a class slideshow.

ELABORATE:

Students can investigate more on how sight is used or is lost and how it influences lives by reading biographies about Louis Braille and Helen Keller and then presenting what they've learned.