This material is based on work supported by the National Science Foundation under Grant No. DUE 9987332.

IV. Appendixes

Appendix A

Sample "Quiz Show" Questions for Inquiry A: The Eyes Have It

1. Light rays enter the eye through which structure first?
   Answer: cornea

2. The dark circle seen in the middle of the colored part of the eye is called the ____?
   Answer: pupil

3. The colored part of the eye with #2 in it controls:
   A. how much light goes into the lens.
   B. how far light has to go before it reaches the retina.
   C. the shape of the lens right behind it.
   D. whether you see objects better near or far away.
   Answer: The answer is A because it is the iris.

4. ____ are microscopic nerve cells in the retina that are stimulated when light strikes them.
   Answer: Photoreceptors (rods for dim light vision and cones for bright light vision.)

5. To see colored objects most clearly it is best for which kind of photoreceptor/nerve cell in the retina to be "struck' by light?
   Answer: cone cells

6. Where in the retina would one expect to find the densest concentration of cone photoreceptor cells?
   Answer: central fovea

7. If you look at an object close to you and it is seen well, and then shift your gaze to an object which is far away, you will also still see it well. This process is called visual accommodation. What parts of the eye are in involved in refracting the light rays to the retina in the right way to make that happen?
   Answers:
   - The iris adjusts the size of the pupil and how much light enters at one time.
   - The ciliary muscle relaxes or contracts the suspensory ligaments in order to alter the shape of the lens (it causes the lens to flatten for distance vision and causes it to thicken in the middle).
   -

8. Which of the structures you have learned is responsible for carrying sensory nerve impulses generated at the retina to the brain?
   Answer: optic nerve

This material is based on work supported by the National Science Foundation under Grant No. DUE 9987332.

9. True or False? All parts of the retina are equally sensitive to light stimulation.
   Answer: false

10. The optic disc is:
    A. the place where light rays should converge after they pass through the lens.
    B. the place where the optic nerve exits the back of the eye to carry nerve impulses to the brain.
    C. part of the retina where no photoreceptor cells are located.
    D. another name for the blind spot.
    E. all of the above EXCEPT A.
    Answer: E

11. Sensory nerve impulses from the optic nerve and other major sensory nerves of the body converge on this part of the brain before being relayed on to other parts of the brain before we consciously recognize what they are. What part is this "switchboard" of the brain?
    Answer: thalamus

12. Victims of blows to the head, such as those in car accidents and falls where they hit their heads, are often temporarily blinded, can't see objects, or decide what they are clearly. There are at least two places in the brain that could be malfunctioning. Name them.
    Answer: - primary visual area of the cerebral cortex / occipital lobe
    - visual association area of the cerebral cortex / temporal lobe

Other questions could be posed by projecting drawings or pictures with an overhead projector and pointing out particular structures to be identified and/or asking for a short summary of its function, etc. Consider the various ways in which this is done on televised quiz shows too for additional ideas.