

Ambassador Handbook



“School-age children constitute what may be the most important audience you’ll ever address. They are eager to learn more about you and your work as a representative of the scientific community. Moreover, teachers welcome the opportunity to have health professionals come into their classrooms to talk about medicine and the excitement of science and research.”

Communicating Science and Medicine to Children

American Medical Association

Thank you for agreeing to share your career choice with local students!

The goal of **In-A-Box** curricula is to encourage *Explorations in Science and Health* with rural students of Oregon. Oregon Health and Science University, Area Health Education Centers (AHEC), and the Howard Hughes Medical Institute have teamed up to create this program. You are a vital part of the inspiration.

This guide outlines:

1. Your role as ambassador
2. The stations students will use for their activities
3. The contents of the box which students will be able to look through

I. The format for you (the ambassador) is as follows:

- A. Connect with the teacher whose class you will be visiting to confirm schedules (which can vary with this lesson depending on the teacher’s day).
- B. If you do not arrive to the class with the box, you may want to review its contents by viewing the box contents below.
- C. Be sure to stop at the school office on your way into the building to get a visitor’s name badge.

When you arrive to the classroom:

II. Introduce yourself and what your career is called. Describe how you came to choose this career and what you really like about it. Mention who the team you work with, or depend on, is and how science is part of your job. Spend 10 minutes and ask if students have questions.

Emphasize wherever possible that "Science is about asking questions and solving problems"

- A. The teacher will group students for five stations of activities about eye health and the professionals who work with eye/vision problems.
- B. If you can stay and participate, walk around and see what kinds of problem solving the students are doing on behalf of their activity goals.




- C. If you are returning the box to the AHEC coordinator, wait for the student post survey and teacher feedback form so that those can be collected and stored in the box.


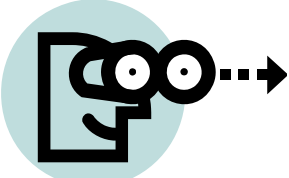
This format is very flexible and should work with your unique job as well as the teacher's time frame and unique students.

Enjoy and thank you again!

The following is a preview to the station activities:

Station Content and Objectives

| Stations 1-5 | Activity | Resources | Lesson Objective |
|---|--|---|--|
| <p>Eye-identification</p>  | <p>Students view each other's eyes for identification labeling</p> | <p>Eye Model, ophthalmoscope, and eye template sheet for recording.</p> | <p>To identify visible and hidden parts of the eye using professional equipment.</p> |
| <p>Vision Testing</p>  | <p>Vision testing and experiencing the "blind spot" in normal vision</p> | <p>Test poster, occluders, Amsler cards</p> | <p>To learn about the optic nerve connection to the brain and variation in individual vision</p> |
| <p>Your are the Professional</p>  | <p>Assume the role of a health professional and make decisions for the patient</p> | <p>Scenario, Role, and Treatment cards</p> | <p>To learn the many roles involved in health science, to make team decisions, and to problem solve.</p> |

| | | | |
|--|--|---------------------------------------|--|
| <p>Braille Language</p>  | <p>To unscramble the jumble words using the Braille alphabet</p> | <p>Braille cards and jumble cards</p> | <p>To learn the language aspect of the blind culture</p> |
| <p>Eye Diseases</p>  | <p>Simulation of eye diseases in routine settings</p> | <p>Simulation glasses</p> | <p>Empathy, eye health, and eye function.</p> |

Station 1 – Eye-identification

In pairs, the students observe each other’s eye using the ophthalmoscope and recording what they see on the template of eye anatomy (taken from activity 2 of lesson 1 in the Vision Curriculum for duplication). Rotating students can record what they see while disassembling the eye model and marking that on their template/station notes page.

Teacher Notes:

The ophthalmoscope has a light- advise students to handle it carefully and read the directions included.

Station 2 – Vision Testing

Place the chart 10 feet away from the student. Pair students so that one points to the chart.

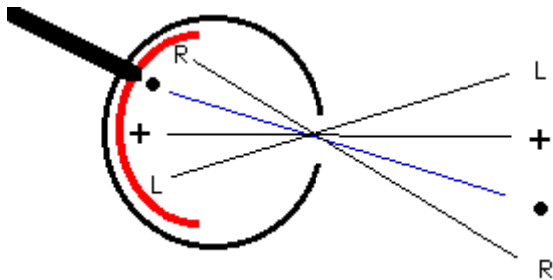
1. If the student uses glasses, then the test is performed using them.
2. Students can use the “occluder” or a hand to cover one eye.
3. The patient should then call out the numbers s/he can see on the chart using the other eye, starting first with the big numbers and proceeding to the smaller ones. The student has to identify every number on the line being read.
4. The last line that is read completely tells the level of visual acuity for that eye. For example, if the student can read the 9th line down completely, that eye is 10/10 (see the numbers on the far left side of the chart). This equals 20/20 vision, but because the student is 10 feet away from the chart, not 20, we call it 10/10.
5. Change the occluder to the other eye and proceed again from the 3rd step.
6. What if the student can read the 9th line completely and three numbers on the 10th line? His/her vision would be called 10/10 +3.

Teacher Notes:

The “blind spot”

Most people (even many who work on the brain) assume that what you see is pretty much what your eye sees and reports to your brain. In fact, your brain adds very substantially to the report it gets from your eye, so that a lot of what you see is actually "made up" by the brain.

Some special features of the anatomy of the eyeball make it possible to demonstrate this to yourself. The front of the eye acts like a camera lens, differently directing light rays from each point in space so as to create on the back of the eye a picture of the world. The picture falls on a sheet of photoreceptors (red in the diagram); specialized brain cells (neurons) which are excited by light.



The sheet of photoreceptors is much like a sheet of film at the back of a camera. But it has a hole in it. At one location, called the optic nerve head, processes of neurons collect together and pass as a bundle through the photoreceptor sheet to form the optic nerve (the thick black line extending up and to the left in the diagram), which carries information from the eye to the rest of the brain. At this location, there are no photoreceptors, and hence the brain gets no information from the eye about this particular part of the picture of the world. Because of this, you should have a "blind spot" (actually two, one for each eye), a place pretty much in the middle of what you can see where you can't see.

Station 3 – You are the Professional!

Students read about the hypothetical patient on the card. At the bottom right are roles of professionals who likely would work with this patient. On the back is the team who would likely work together to help this patient. Divide the group by the number of roles and have them read what that professional does with any new patient. On the station notes sheet, have the role groups write their recommendations for this patient once they agree on a plan.

Teacher Notes:

Keep the Treatment plan cards separate until students are done with their recommendations.

The treatment plans are what professionals at OHSU said they would do with those patient scenarios. This can be shared after students share their recommendations. For younger students, have the whole group choose one role to agree on a recommendation plan. One student can be the scribe, one can share with the class, and one can read the professional treatment plan at the end.

Station 4 – Braille Language

Students can learn with their senses how the Braille language works for the visually impaired. Have students choose a jumble card and then decode the word. They can switch cards or create their own by spelling their name in Braille. Be sure to have them try remembering letters by closing their eyes after they are familiar with letters.

Station 5 – Eye Diseases

This station allows three students at a time to experience the eye diseases of macular degeneration, glaucoma, and cataracts. Have students record how they might feel in the scenario situations given each disease on their station note sheets.

Teacher Notes:

There are three pairs of goggles and one card with the vision impairment simulations. Have students discuss if any of their grandparents or other family members suffer from these vision impairments and what limitations that may put on their daily lives.

Box Contents

Five station envelopes:

Station 1: Eye model- laminated picture of the eye, ophthalmoscope, and eye photograph.

Station 2: Vision test sheet, 2 occluders, 4 Amsler cards

Station 3: 3 Patient scenario cards, 3 role cards, 3 professional treatment cards

Station 4: 6 Braille cards, 1 Braille code & history card, 5 jumble cards

Station 5: 3 simulation goggles, 1 simulation card, 3 scenario cards

Student surveys- pre and post- these help us to evaluate the effects of In-A-Box curriculum and are to be placed in the box at completion.

Artifacts

Eye In-A-Box- poster is yours to keep for the classroom.

Bill Nye “Eyeball” DVD and curriculum

Eye model

Three simulation goggles

Blueprint for Health Eye chart

Eye Facts poster

Box of eyeball replicas

“Eye Didn’t Know That” laminated chart

Country Doctors video- This one hour long PBS video was made in rural Oregon about the need for local health care providers.

Clock or fan- “Persistence of Vision”

Students will understand the purpose of this exercise after learning about how vision works first.

- Situate the Clock on a stable, level surface. It will demonstrate the persistence of what our eyes tell our brain more effectively in a darkened area; computers, window light, and overhead lights will diminish the effect.
- Plug in the clock to a wall outlet and be sure the connection is secure on the bottom of the clock.
- Ask students what they read, and how this can be possible when the wand is moving.

Books:

- **Eyes and Ears**
- **She Touched the World**
- **Sight**

Wild about Healthy Vision- activities and reproducibles created by the National Eye Institute for learning about eye disease, eye safety, and first aid for eye injuries.

Animal Eyes- Interesting background created by the Foundation of the American Academy of Ophthalmology to share with students about how human and animal eyes differ; seeing in the dark; color vision, how the eye works, multiple eyes, and eye positions.

Museum of Vision; seeing in 3D-Step by step activities to teach students about the human visual system and visual perspectives using art techniques. Time and material requirements are detailed.

Vision Curriculum-Three lessons created by the National Eye Institute: The Eyes and the Great Brain Connection! The Imperfect Eye and Eye Safety. Reproducibles for the anatomy of the eye, optical illusions, the visual system, eye safety, and eye opening facts are included.