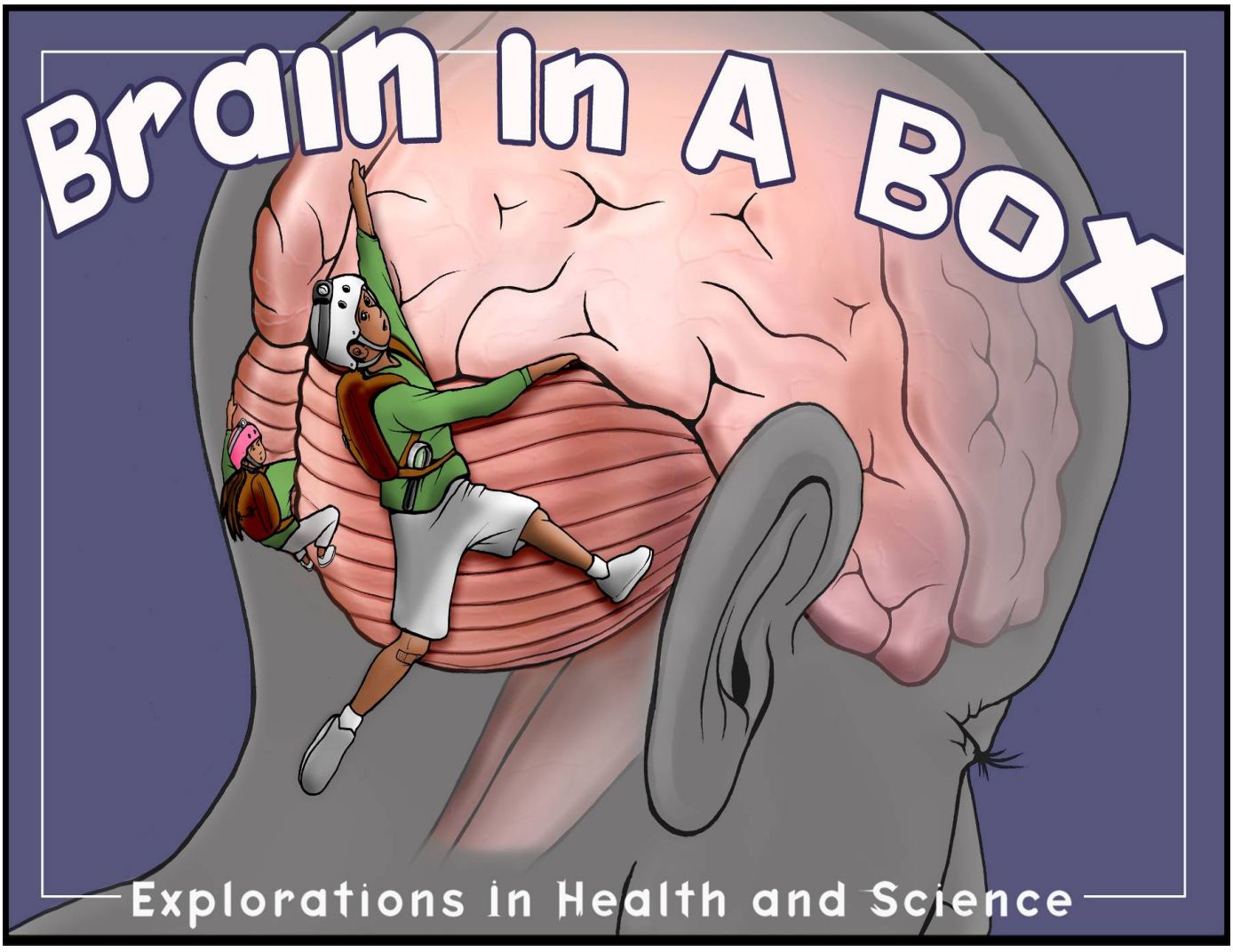
Ambassador Handbook



"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 students of rural Oregon. Oregon Health & 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. Lesson organization
3. The overview of activities for each station
4. Questions for each station
5. Box contents

Role of Ambassador

A. Connect with the teacher whose class you will be visiting to confirm schedules.
B. If you do not arrive at the class with the box, you may wish to review the following information to help you understand the format of the lesson.
C. Be sure to stop at the school office on your way into the building to get a visitor's name badge.

Lesson Organization

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

A. Introduce yourself and spend a few minutes telling your story.
   - Talk about your job, why you chose your profession, what route you took to get there and what you enjoy about it now.
   - Use stories and anecdotes to engage the students.
   - Keep it simple and short, about 10 minutes total.
   - Consider whether the vocabulary is age appropriate (audience 4th to 8th grade, ages 9 - 14).
   - Don't forget to use questions to keep the students involved.

B. The students will be watching (while you are there) or will have watched the Bill Nye *Brain* DVD.

C. The materials for each station are identified by a picture. The artifacts that go with that station are also labeled accordingly.

D. The teacher will group the students and assign them to a station. Give each student a station notes sheet to record their responses.

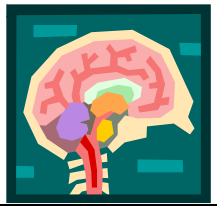
E. At the station there will be an instruction card and artifacts for the students to manipulate and a teacher resource card (to help with questions!)

F. The groups have 10 minutes to work at each station and then they will rotate to the next station.

Be available to answer students' questions as they figure out the instructions on the cards. The format is flexible to account for your unique job as well as the teacher's time frame and the students' interests and abilities.

If you are returning the box to the AHEC Coordinator, wait for the students' post surveys so that those can be collected and stored in the box. Please ensure that all the station materials go in the correct envelopes and that the artifacts are returned to the box.

Station Activities

Stations 1-5	Activity	Resources	Learning Outcomes
Brain Exploration 	**Observe and touch different brains and answer questions**	**Brain models and specimens**	**Observe and draw comparisons about the size and properties of the brain**
Brain Discoveries 	**Read stories, act out outcomes and decipher scans**	**Stories, picture and scans**	**Show how technology advances medicine**
Brain Connections 	**Build a neuron. Connect a neuron.** **Interpret pictures of real neurons.**	**Pipe cleaners and rope float neuron set up.**	**Introduce structure and function of a neuron. Introduce pruning and neurotransmitters**
Brain Business 	**Experiments that highlight areas of the cerebral cortex and their varied functions**	**4 Game sleeves, stop watch, and charts of Multiple Intelligences**	**Introduce areas of the cerebral cortex and their varied functions**
Brain Growth 	**Rat experiment** **Scenarios about situations and thinking that affect the brain**	**Rat cage pictures, growth mindset chart, and brain growth game**	**Introduce the idea of a growth mindset**

Box Contents

Bill Nye "Brain" DVD – Good background information that will be shown before or during your visit.

Bill Nye "Brain" Curriculum-

Station Envelopes – Marked on the front of each envelope is the contents and the artifact items needed.

Student Surveys – pre and post- these help us with our evaluations. Please place in the box upon completion.

NIH curriculum – *Brain Our Sense of Self* – station 4 activities have been taken from this. More extension on Water Maze activities from station 5. A total of five lesson plans with resources for further study.

Student Handouts – It's Mindboggling! Publication by the Dana Alliance – Student centered material with information and games.

Brain Model – shows the students the areas of the brain. The main areas we concentrate on are the cerebral cortex, the cerebrum, the brainstem and the spinal cord.

Sheep Brain – This brain must be kept in its bag at all times.

Diseased Brain– This is a brain with several pathologies on half of it. It illustrates the notice of damage to the brain when injury, substance abuse, Alzheimer's, and depression are present.

Jell-O brain mold – makes a realistic brain you can eat – great attention grabber.

Books-

Aha!
HMM?
The Brain
Brain Facts

Your Brain and Nerves Poster

Poster of the Brain In-A-Box graphic

Brain connections simulation with golf balls

Glossary

Brainstem – The area at the base of the brain that controls many basic life functions such as heartbeat and breathing.

Cerebellum – The area of the brain that controls many aspects of movement, including balance and learned skills.

Cerebrum – The majority of the human brain

Cortex - In humans, the thin outer layer of the cerebrum responsible for most high-level thought and sensory perception.

Dendrite – A thin branch typically shorter than an axon that carries impulses toward the cell body of a neuron.

Hemisphere – Either the left or the right side of the cerebrum.

Myelin – A protective covering of protein and fat that surrounds axons and speeds impulse transmission in some neurons.

Nerve cell – see neuron.

Neuron – A cell that carries the nerve impulse, consisting of a cell body, and axon, and many dendrites.

Neurotransmitter – Any one of 150 or more chemicals released from an axon that crosses the synaptic cleft and initiates an impulse in another neuron: more generally, any naturally produced chemical that affects the action of the brain or nervous system.

Pruning – The elimination of synaptic connections that are not used.

Synapse – Collectively, the end of one axon, a synaptic cleft, and the end of a dendrite.