

Guide to Creating an Exploration Station for the Physics Fair

Borrowed From Science Expeditions' 2006 FAQ:
<http://www2.biotech.wisc.edu/alliance/ex2006faq.php>

Content

The content of an Exploration Station is the scientific research or physics topic about which you are most passionate, but it is expressed in a fundamentally different way from how you express it in academic circles. Instead of using specialized terminology you and others in your field have developed to be specific about what you mean, you will use the most accessible language for reaching the general public.

Instead of assuming your audience knows the background of why this research outcome is important, you will explain the background. Instead of working your way around to the conclusion and discussion, as in a scientific publication, you BEGIN with the conclusion. But other than HOW you communicate your content, your content stays the same. The same aspects of your research that continue to fascinate you should be what you are trying to relay to the public in your Exploration Station.

Interactivity

Interactivity, especially for children, but even for adults, means using as many senses as possible, including touch, smell, hearing, and sight, to gain access to new ideas. Interactivity in an Exploration Station means people can pick up, handle, try, feel, see movement, sense temperature or generally get a grip on something that fires their imagination.

What we've learned, however, is that the things people interact with don't necessarily have to be the exact same things as your content; they don't have to pick up a quark, but if they could pick up models of quarks, it helps them get the idea.

Staffing

Exploration Stations need to be staffed. We know from experience that an Exploration Station that does not have a person on hand to invite participation will be glanced at, but largely ignored. Planners of Exploration Stations should plan to have at least one person on hand at all times. The good news, however, is that the person present does not have to be a research group leader or senior faculty member.

Often students, even undergraduate students, can do a bang-up job of interacting with visitors. This is partly because students can remember what it was like to learn the scientific content for the first time. The process of remembering what it is like to acquire intellectual content for the

first time we call "*Lucid Learning*". Lucid Learning allows a person to craft their interaction with the public so the content is most accessible.

Take-Home Items

It's really good to give visitors something they can take home, both to remember their experience, to know how to make further contact, and to stimulate further exploration and learning. The most effective thing to give them is something they've made themselves.

Hands-On Concepts

If you think about it, hands-on science learning is more like "real" science than classroom learning is. In addition, the latest cognitive research points out that different people process information in different ways; not everybody learns best by receiving information from text or lectures. Additionally, hands-on science reinforces the idea that scientific conclusions are only as good as the data; most scientific conclusions are contingent upon the data from which they are derived.

Target Audience

One key part of any communications effort — and creating an Exploration Station is a communications effort — is understanding your target audience. Some Station planners have asked what ages they should plan to address. We'd like to see each Exploration Station have something that appeals to kids. We're asking you to assume that the public in Madison is on the level of a high school graduate. And although of course many people in Madison have advanced degrees, they may not have much knowledge in your field. And for some it's been a long time since they've had any formal education.

Posters

1. Make everything big
2. Don't use too many words. This is not a professional scientific meeting poster, it's a reach-the-public poster. Imagine people are going to view it from a conveyor belt moving by the poster at 2 miles an hour. How much can they absorb in the few seconds they have to look?
3. Use the brightest colors you can without making it illegible.
4. Break out of rectangularity in terms of how you arrange elements on the poster. Don't do your poster as if it's made from a series of letter-size pieces of paper. Arrange items in circles, arrange them in snake-shapes.