



iGEM Outreach Information

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Why Outreach

Regardless of how detailed and complex the material, it is always important to ask yourself two questions: why and what. Asking yourself these questions gives fundamental insight into the benefits of sharing your science with the world.

WHY

Why do you believe that science outreach is important?

Why are you interested in sharing your science knowledge?

WHAT

What is it that you're saying that you want to share?

What makes your science compelling (e.g. what would put it on the news)?

Asking yourself these questions will allow you to have a better understanding of how to foster interest and how to present to an audience who knows little/nothing about your field.

How We Learn: Constructivist Theory

Learning is heavily influenced by previous knowledge. The fact that knowledge and meaning is heavily centered around previous experiences can heavily change the way your audience perceives what you are saying

Constructivist Learning

Perception: How your audience perceives your topic? What do they already know about the topic? What misconceptions might they have?

Context: What background do they have on the subject? How does it relate to your audience? Has it been previously presented or alluded to in the wrong framework? How will you ensure that you are putting it in the correct context?

Prior Knowledge: What does your audience already know about your topic? On what level will they be able to understand it? Will learners be able to assimilate the amount of information you are giving to them?

In order to answer these questions it is important to have an understanding of who your audience actually is and what they know.



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Frames of Mind

Multiple Intelligences Theory by Dr. Howard Gardner suggests that intelligence is based in different areas.

Multiple Intelligences

Linguistic <ul style="list-style-type: none">• Word smart• E.g. reports, case studies, pamphlets, speeches	Musical <ul style="list-style-type: none">• Music Smart• E.g. songs, commercials, performances	Logical-Mathematical <ul style="list-style-type: none">• Number smart• Schedules, essays, action plans, experiments, problem-solving, designing	Visual-Spatial <ul style="list-style-type: none">• Art Smart• Murals, illustrations, advertising, mobiles, pictures, slides, designs, patterns
Bodily-Kinesthetic <ul style="list-style-type: none">• Body Smart• role-plays, dances, aerobics, working with hands	Interpersonal <ul style="list-style-type: none">• People Smart• small group work, co-operative learning environment, peer teaching	Intrapersonal <ul style="list-style-type: none">• Self Smart• logs, journals, diaries, autobiographies, resumes, portfolios	Naturalist <ul style="list-style-type: none">• Nature Smart• modeals, flowcharts, investigations experiments, photo essays, documentaries

An individuals' multiple intelligence strengths are typically correlated to what they are good at. It is also the most effective means of conveying information to them. It is a good idea to try and incorporate as many intelligences as you can in your presentation. It is even better if you can recognize certain intelligences applicable to your audience and apply them to your presentation.

Considering the Age of your Audience

Considering the age of your audience is essential to isolating the key points you want to get across and conveying them in a variety of ways. This will help avoid presenting too much information.



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Everyone learns better when they are engaged in the presentation. Making activities interactive is a good way to help all ages learn the material better.

Relevance is extremely important to the presentation. If your audience has no concept of how the information pertains to them in their stage of life than they will have no interest in it.

If it's possible it is also a good idea to get some information from an instructor or leader to better understand if your presentation is appropriate for the group. All presentations can also be improved by ensuring that you listen to feedback from your audience.

In any case, it is a good idea to limit the amount of time that you are talking to a group. As a general rule, a good number of minutes talking to a group can be correlated to their age (e.g. maximum 12 minutes for a 12 year old). The upper limit of time that you should be talking to a group of adults uninterrupted is 20 minutes. It is simply not effective to talk for longer as people stop being able to absorb and assimilate the information that you are giving them.

Planning an Exercise

- Decide what you want to cover
 - What are the key points that you want to convey?
- Decide how you will get your key point across
 - What methods will you use to convey the key points?
- Make a plan
 - Plan out the exercise considering aspects
 - E.g. time, activities, material
 - Practice your plan
 - Get feedback on your plan
- Be flexible
 - Things may end earlier or later than expected
 - Discussions are encouraged in the presentation but time should be considered for them
- Use variety
 - People all learn in different ways
 - You can make your presentation more effective by using several different approaches
- Think about resources/safety
 - Consider the age of your group and make sure that what you have planned is feasible
 - Identify any specific safety considerations

Tips

Be prepared: priority for ensuring that a presentation goes smoothly



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Make it relevant: make connections between the topic and the participants' lives

Be honest: form personal connections with participants, if you are genuinely interested in the topic then they will be as well. The enthusiasm you have for your topic will be duly noted.

Avoid technical jargon: limit the amount of new words that you introduce to the group. It is also essential to ensure that you don't use too technical terms that the group has not yet been exposed to.

Involve everyone: give everyone the opportunity to be involved, help everyone understand what you are presenting.

Ask questions: this will engage the audience as well as ensure that they are understanding what you are presenting

Presentation Skills

Do's

- Plan and practice your presentation – Practice and read your presentation the night before. This will help you get a sense of timing and phrasing
- Communicate with the audience – Ask questions and let the audience ask you questions. If you do not know the answer to the question asked, acknowledge that it is a great question and you are not sure of the answer. Also, learn the names of some audience members and refer to them. The audience will get more involved and will feel connected to you.
- Make eye contact – make eye contact with one person per sentence. The general rule for the amount of time you should have eye contact with someone before they begin to feel uncomfortable is 2 seconds.
- Speak with enthusiasm – Choose a topic that you know and care about since excitement is contagious. If you do not care about your topic, the audience will not either.
- Add humour – You can plan ahead what stories you want to use to make the audience laugh. This will relax the audience. Direct your sentences to an audience member who laughed before or who is ready to laugh. Since laughter is contagious, it will help to make everyone laugh. If no one laughs, do not worry and move on.
- Be confident – Present with a clear voice and confident body language, as the audience will look to you as a role model.



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Don't 's

- Put your hands in your pockets – It does not show good body language. It is sometimes ok to put one hand but make sure there are no keys to jingle. This will distract the audience.
- Rush or waste time – Take your time in the presentation and do not get nervous over silences. Silence may seem like a long time to you but sometimes the audience needs time to understand your presentation. Plan for having extra time or not enough time.
- Talk to the visual aids – This often bores the audience. Rather, present your information with your voice and body language.
- Use “filler” words – “Filler” words are words like *like*, *really*, *very*, and *umm*. This will distract the audience’s attention. Instead, stop and pause.
- Difficult vocabulary -Try to speak at their level. It is ok to introduce and define some big words but not too many.
- Move too much or too little – Do not hand-talk. This will make the audience dizzy and confused. However, if you just stand still, it may bore the audience. Try not to make the audience sees only your hands.
- Use a monotonous voice – Make your presentation more interesting by using voice inflection.

Three Main Things to Remember

- Appearance – Dress appropriately to give a good first impression and SMILE!
- Voice
- Body language