

The Sun and Solar Wind

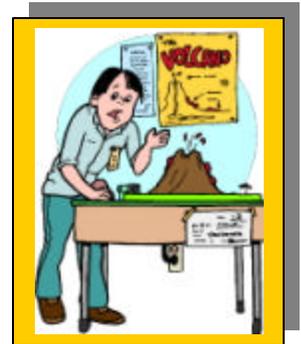
A Communication Development Process for Science Classrooms

Speaking to Inform: Building a Powerful Message

By Senior Associate Jacinta Behne, McREL Eisenhower High Plains Consortium for Mathematics and Science

INTRODUCTION

Students learn best when they get involved in the investigative process, and their learning is enhanced when they assume the role of instructor. This informative speaking exercise focuses on strategies to help your students prepare a presentation that conveys knowledge and understanding of a topic of interest in the science classroom. The goal of this six-part exercise is to empower your students to: 1) select a topic, 2) understand the organizational principles of informative speaking, 3) gather good materials, 4) discover the attributes of a good delivery, and 5) use visual aids.



A rose by any other name . . . is still a fragrant flower on a stem. Don't get caught up in terminology. Call it what you want . . . a speech, an address, a few remarks, a lecture, or a presentation. It's all the same. Does the term "speech" make your students nervous? If you tell them that they will be delivering an informative lecture, do they run for the door? Use whatever term that you deem appropriate for your classroom. For the purposes of this article, we will use the term "presentation."

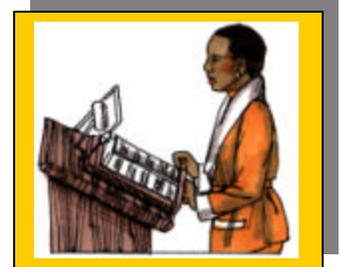
The reality is, giving a presentation of some type is increasingly making its way into the job interview regimen today. Students who are given the opportunity to improve their speaking skills will have a definite advantage in their school work, in a job interview, and working on the job. By giving students the opportunity to become better speakers, teachers facilitate learning and help students become tomorrow's vital communicators and leaders in science and industry.

NATIONAL STANDARDS

The *National Science Education Standards* mandate that "teachers of science guide and facilitate learning." It is important that they "orchestrate discourse among students about scientific ideas," and that they "promote many different forms of communication." This speaking skills communication exercise allows the science teacher to "structure and facilitate ongoing formal and informal discussion," as put forth in the national standards. When students engage in science communication activities, their abilities to think, understand, explain, argue, and conclude become greatly enhanced.

RATIONALE

How important is the informative presentation? What kinds of people make informative speeches? Informative speechmakers include the classroom teacher introducing a new unit, the company controller explaining next year's budget, the architect reviewing plans for a new building, the community volunteer outlining plans for a new fund raiser, and the student sharing a science project with the class.



In a recent, graduates from five U.S. colleges were asked to rank the speech skills most important to their jobs. They rated informative speaking number one (Johnson & Szczupakiewicz, 1987). Another survey indicates that 62% of the respondents use informative speaking "almost constantly" (Wolvin & Corley, 1984).

According to communication experts like Dr. Stephen Lucas of the University of Wisconsin, "There are endless situations in which people need to inform others. Competence in this form of communication will prove most valuable to you

throughout your life," (Lucas, 1998). It is important to understand that in speaking to inform, the student should strive to provide information that is accurate, clear, and meaningful. The informative presentation doesn't seek to persuade. Rather, the purpose is to convey knowledge and understanding—not to advocate a cause.

SELECTING A TOPIC

The first action that your students will take in preparing for an informative presentation is to select a topic. The best way to begin that process is to narrow down the type of presentation that they may select. There are a variety of ways to classify an informative presentation. In your science class, students will most likely give speeches about:

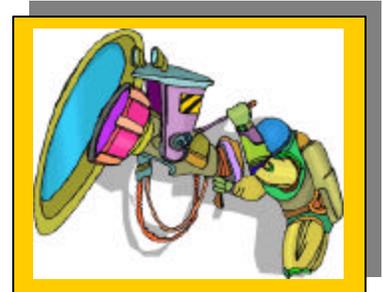
- Objects
- Processes
- Events
- Abstractions

Objects

Remind your students that an object is anything that is visible. Though tangible, an object may have moving parts, be alive, be a place, a person, an animal, or a structure. Examples of objects for a science class informative presentation could include a microscope, a mammal, or a space shuttle. Working from these specific topics, students then focus on one aspect of the topic. They would potentially inform their audience of the structure and function of an electron microscope, the anatomy of a mammal, or special features in the interior of a space shuttle.

Processes

If your students prefer to inform the class about a process, they would describe a systematic series of actions that leads to a specific result or product. Beyond showing the class how to make a telescope from household objects, students would reveal the steps in the process and show how each step relates to another. An example of this type of process presentation is to inform the class about how hurricanes develop. In addition to sharing information, an informative presentation on a process can also enhance the audience's abilities to better perform that process. In this type of presentation, listeners will not only understand the information, they will be able to apply it to a technique. An example of this type of informative process presentation happens if a student indicates the basic equipment needed for working at an archaeological dig site and applies techniques, showing how those techniques can best be utilized.



Events

Presentations about events center on anything that happens. Examples of this type of presentation can be descriptions of what happens when you filter direct sunlight, what occurs when a submersible takes on water, or what takes place when a cube of ice is dropped into a glass of rubbing alcohol.

Abstractions



Students who offer abstract informative presentations describe theories, ideas, principles, and so on. Abstract presentations differ from object, process, and event presentations in that abstractions deal with thought. Abstract presentations can be difficult to explain. It is important to share with the student who makes an abstract presentation that the listeners' understanding will be greatly enhanced if he or she avoids highly technical language, defines terms clearly, and uses as many examples as possible to illustrate the concept. Abstract presentations can be given on gravitational theory, the principle behind the Doppler effect, or an idea resulting from student research on why something works the way that it does—beyond the obvious.

Whatever type of speech your students choose, remind them that the best way to build a powerful message is to choose a topic that is meaningful to the audience. Memorable presentations are ones that are useful and/or intriguing. Challenge your students to take what may be a commonplace object, process, event, or abstraction and make it interesting for the audience. An example of this might be to focus on what we know as the common cold and

inform the class on why modern science has been unable to find a cure for this malady. Caution your students not to get caught in the demonstration trap. Showing the class how ice cream melts is boring and has a low intrigue factor.

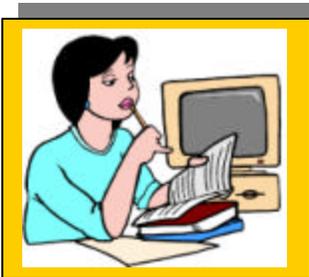


UNDERSTANDING THE ORGANIZATIONAL PRINCIPLES OF THE INFORMATIVE PRESENTATION

With the informative presentation, it is important to provide your audience with information in a highly organized format. There have been many studies conducted over the years to analyze the importance of organization in a presentation and its effects on the audience. The results are not surprising. Years ago, one college professor took a speech that was well organized and scrambled the sentences. A speaker delivered the original version to one group of students, the scrambled version to another group of students. Following the speeches, each group was tested on what they heard. The unscrambled speech scored much higher than the scrambled speech (Thompson, 1960).

Organization is important. Ask your students to begin organizing their presentation by identifying the main points that they want to cover. Remind students that most listeners cannot keep track of multiple main points. Therefore it's best to limit main points to between two and four. Once they have a listed their main points, they have completed the most difficult part of the outline process. They have uncovered the main body of the outline and listed the central features of their presentation. They can then organize their main points in the most appropriate order (chronologically, spatially, topically, etc.) and begin their research into each main point. The introduction and conclusion are completed last. The introduction serves to get attention and interest, introduce the topic, and list the main points of the presentation. The conclusion is a simple summation of the information revealed in the main points and signals closure of the presentation. For tips on how to draw a speech to a close, refer to [Off the Cuff](#) in this section of the Genesis Web site.

GATHERING GOOD MATERIALS



The informative presentation is based on research. Most likely, students will go to the library to gather information for this presentation. A personal interview with someone who is an authority on the topic is a valuable resource. Personal experience may also be a valuable resource in this presentation, but neither of these two items is sufficient for a collection of resource materials for this presentation. Gathering good resources serves a number of purposes. Good materials add to the amount of information that can be revealed and, even more importantly, they enhance the speaker's credibility. Good resources take the material presented beyond that of assumptions and offer good reasons why the speaker should be believed.

Supporting materials are the backup for the students' main points. When students have gathered their materials, remind them that a resource is good only if it offers valuable information on one of the items that is central to the presentation. If the material offers no new information, or digresses from the main body of the presentation, it must be set aside for potential use with a later project.

DISCOVERING THE ATTRIBUTES OF A GOOD DELIVERY

What is good delivery? Perhaps it is best to begin with what is not good delivery. In delivering a presentation, students definitely do not want to chew gum, stare at the ceiling, shuffle their feet and move around, mumble their words, talk in a monotone, or gaze out the window. A presentation that is well-delivered features a speaker who has a clear sense of purpose, is well prepared, is clearly interested—even excited—about the topic, establishes eye contact early in the presentation, and avoids distracting mannerisms. This is one reason why most speakers dress in inconspicuous attire to present. It is important to avoid distractions and focus the audience's attention on the speaker's words and not on their attire.

Encourage your students to practice, practice, practice—at home in front of the mirror, in the car with their family, or at a friend's house. The more familiar the student is with the presentation itself, the more at ease they will feel when

they approach the front of the room to make the final presentation to the class. Remind students that volume is important. The best presentation falls on deaf ears if it cannot be heard. Speaking rate, vocal variety, good articulation, and well-placed pauses are also important for a well-delivered presentation.

Some speakers deliver their presentation from memory. Others use note cards, note paper, or another type of information-gathering tool. Whatever they use, students should be reminded that notes should not become the center of the speaker's attention. A speaker who reads a presentation verbatim has 1) looked down during the entire presentation, and 2) lost his or her audience's attention in the first 90 seconds.



NINE TIPS FOR USING VISUAL AIDS



Have you heard the adage that one picture is worth a thousand words? When a visual aid supports a verbal message, a speaker has added dramatic impact to his or her presentation. Visual aids can be a valuable tool in both getting a point across and adding interest to a presentation. Visuals can include charts, computer-generated graphics, drawings, graphs, models, objects, photographs, slides, videotapes, transparencies, or anything else that is appropriate for a classroom presentation.

Listed below are nine tips to share with your students for the effective use of visual aids in an informative presentation:

1. Practice with the visual aid in advance. Be sure that it functions correctly.
2. Avoid using the chalkboard. The speaker does not want to turn his or her back on the audience.
3. Explain the visual aid clearly. It's not enough to show the aid to the class; tell the audience what it means.
4. Prepare the visual aid in advance. Early preparation will result in a quality piece of work, and the visual aid will be ready for a student to use when he or she is practicing the presentation.
5. Talk to the audience, not the visual aid.
6. Be certain that the visual aid is large enough for the audience to see. A visual aid is useless if only those students seated in the front row can see it.
7. Display visual aids only while they are being discussed. If kept in sight, they will serve as a distraction.
8. Display visual aids where they can best be seen. Students should determine the best placement of their visual aids prior to the presentation.
9. Never pass visual aids among the audience members. At least three people in the audience will be more interested in the aid than they are in you—the last person who had it, the person who has it, and the person who will get it next.

CONCLUSION

The informative presentation that reveals new information in an interesting manner is memorable. Adding interest to a presentation happens by concentrating on selecting a meaningful topic, organizing the presentation in a logical manner, gathering good materials, discovering the attributes of a good delivery, and using visual aids. The science student who grasps the importance of speaking to inform and understands the critical need for conveying knowledge effectively has learned a valuable lifetime lesson. The science teacher who offers the opportunity for his or her students to learn this lifetime skill has taken strategic steps in preparing today's youth for tomorrow's challenges in the ever-changing fields of science and technology.

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