

PROMOTING PLANETARY SCIENCE AMONG ELEMENTARY SCHOOL STUDENTS
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A good way to enthuse primary school students about science is to use planetary science. The kindergarden to second grade age group is wildly enthusiastic about any outside visitor to their class and amazingly knowledgeable about space. Combined with a multimedia, interactive presentation, this background provides a good platform to talk about education (staying in school, studying hard) and science (what scientists do, how everyone needs to know some science) to these students.

As part of the outreach portion of the Alma College NASA/ Joint Venture grant, I was invited to talk about "space" to students in one of the rural elementary schools in Gratiot County, Michigan. A specific topic was unimportant, and as my background is in meteoritics I used that as a launch point for an interactive presentation to bring space science to the students in their own classroom.

A half-hour presentation was developed using the following basic outline:

- I. Introduction - What do you know about space?
What is in Outer Space?
- II. Story Time - Relate the origin and evolution of the Solar System in story form using poster illustrations.
- III. The Facts - Show pictures of the planets and a few other bodies and relate one or two facts about each. Try to address topics brought up in I.
- IV. Show and Tell - Pass around meteorite and terrestrial hand samples and talk about what they tell us. Field questions while waiting for samples to go around.
- V. Conclusion - Settle down the younger kids by talking about what is not in space. "Feel" zero gravity. Hand out line drawings of planets on colored paper for them to color.

The introduction not only introduced the topic for the students, but also let me get a feel for their knowledge base. It also provided a way to address certain topics and their concerns. For example, "aliens" was a popular response to "What is in Outer Space?". This answer was not treated as wrong, but used as a theme when we later looked at the planets. We would talk about living conditions on each individual planet and the students would decide on their own that aliens could not live in our solar system, so must live on planets around another sun.

Posters and pictures were used to illustrate the story of the solar system and the look at the planets. Hand samples of rocks are always popular, so, in addition to space rocks

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(i.e., meteorites), I bring a selection of terrestrial rocks including basalt and granite. Flashy rocks (i.e., malachite, specular hematite, etc.) are also very popular, but tend to distract from the main thrust of the talk. (They can be left for another presentation on terrestrial geology.)

At the end, something is usually required to calm everyone down and I have discovered this age group is still willing to believe they can feel zero gravity if they pretend hard enough. So, we sit very still and feel ourselves floating along in space.

This basic format was used in each class and needed surprisingly little modification for each grade level. There was no need to "dumb down" anything, and only judicious trimming of the amount of material related was needed in going from preschool to second grade classes. Everyone was quite well informed about what was in space in general as well as some specifics, such as the names of the planets. As the grade level increased, the amount of knowledge increased from knowing the names of a few planets (Pluto in particular!) to knowing not only the names of all the planets, but also their order and a little about each of them.

Two key considerations lead to success in doing a presentation for this age group. One was to stay on their level - literally. I usually sat in the storyteller's chair with the students in a big circle on the floor. The other consideration one must make is to "go with the flow". You need to respond to what they know and can comprehend, as well as respond to what they want to know, and fit it into the basic format.

This presentation was done for about sixteen preschool through second grade classes over two days in successive weeks. There was only one bad experience, and that was with a kindergarten class on the Tuesday before Thanksgiving. (Oddly, the preschool class that same day was all ears!) Overall, it was an exhausting and time consuming experience, but very rewarding. The impression on the students was great enough that one young man who saw me several weeks later in a completely different setting remembered me as "the lady who talked to us about space".

It is all too often stated that interest in science by American students is at a deplorable level, and that the space program is particularly ridiculed and unsupported by the taxpayer. Among the majority of ordinary people that I have known and worked with, I have rarely found the latter to be true, and this series of presentations has shown me that the former is also false. At rural Ithaca South Elementary School in central Michigan, the students were both enthusiastic and very knowledgeable about space. Somewhere between the second grade and high school they appear to lose this interest in science (although not necessarily space) and it is this loss of interest that we need to be addressing. Programs such as the above should be continued as the students progress through their education in order to improve science education in America.