2007
UMSL Fifth Grade Astronomy Outreach Program

Presented by:

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Program Background

- The Program has been offered in the spring to fifth grade classes in the St. Louis area since 1992.
- The Program is designed to enhance the curriculum requirements of the Missouri Department of Elementary and Secondary Education as well as increase interest in aerospace sciences and engineering.
- Thanks to the Missouri Space Grant, there is no charge to the participating elementary schools attending the Program.

Program Coordination

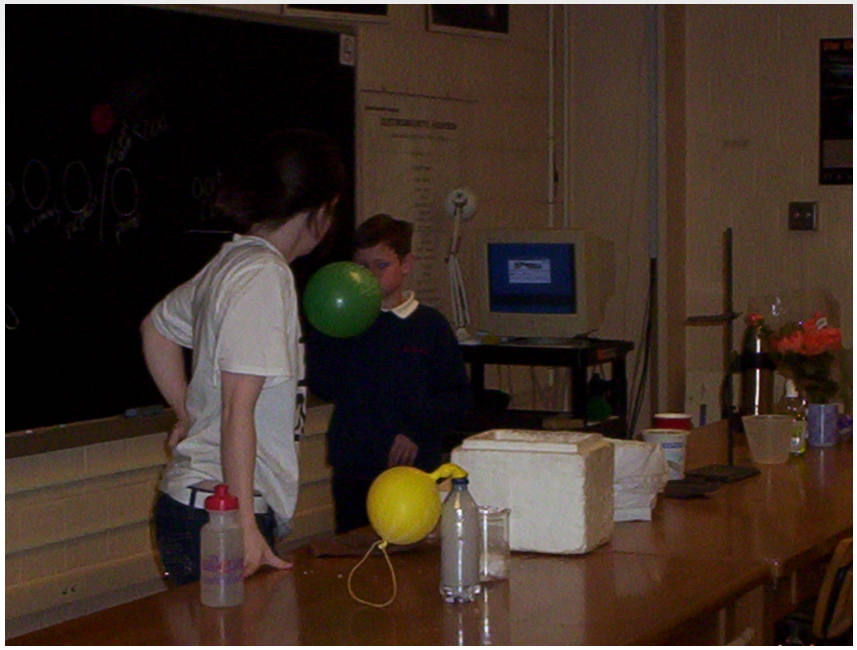
- The invitations are sent during the Fall semester.
- Invitations are sent to past attendees first.
- Scheduling takes place throughout the year but the majority happens in the early winter.
- The material that is covered in the Program can be school specific.

Program Design

This year the Program design accommodates three sizes of groups:

1. For groups of less than 36 students the whole group attends the same sessions in the planetarium and in the classroom (about two hours).

Program Design



2. For groups between 37 and 72 students the Program is divided into two sections. One group spends an hour in the planetarium while the other learns from activities provided by the assistant.

Program Design

3. For the largest groups (over 73 students) a third room is provided to the teachers for an activity of their choosing. The length for this size group is three hours.

Activities

Planetarium:

- The planetarium seats 36 students and features a Spitz A4 Star Projector which projects the motion of 1,354 individual stars, the five visible planets, the moon (with its phases), and the sun.
- The slide show presents information on the sun and the planets, including 3-D pictures from the Mars Pathfinder Mission. It also covers the Hubble, constellations, nebulae, globular clusters, and the shape of galaxies.

Activities

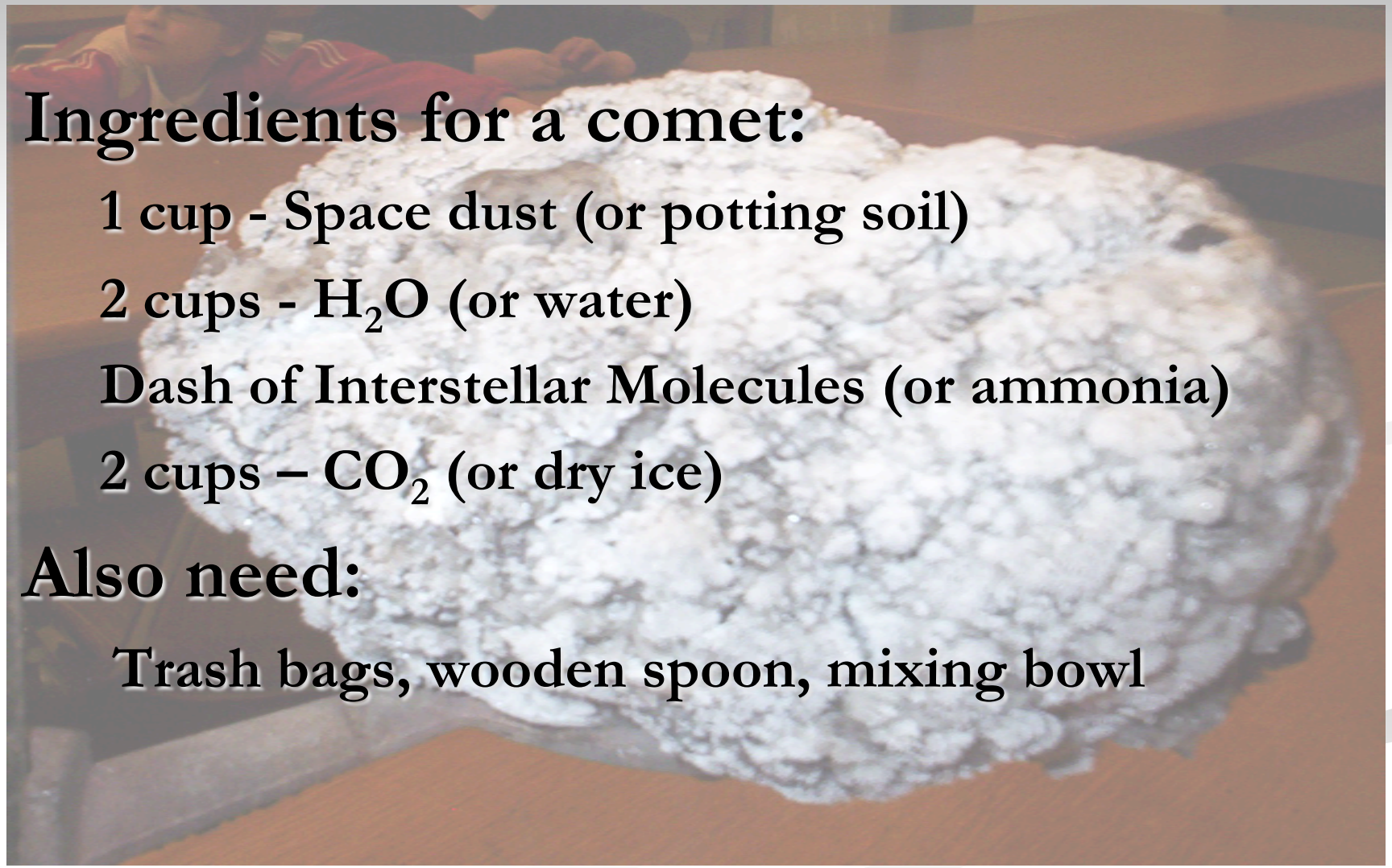
Classroom Activities:

- The demonstrations include the making of a realistic replica of a comet Nucleus. Experiments using dry ice (CO_2) and liquid nitrogen demonstrate to the students properties of gasses, liquids and solids in the solar system as well as on the earth's surface.

Activities

- The third group plays solar System Bingo or performs an activity provided by the fifth grade teachers. Some past activities include science videos, and construction of paper airplanes.

Activities



Ingredients for a comet:

1 cup - Space dust (or potting soil)

2 cups - H_2O (or water)

Dash of Interstellar Molecules (or ammonia)

2 cups – CO_2 (or dry ice)

Also need:

Trash bags, wooden spoon, mixing bowl

Program Evaluation

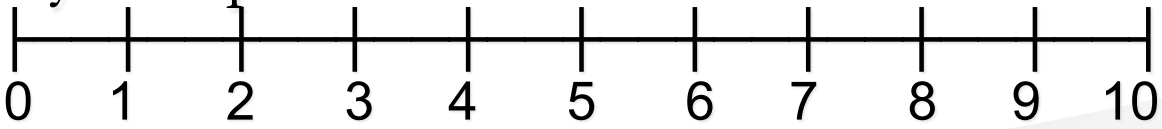
- The survey consists of 13 questions valued from 0 to 10.
- The questions measured aspects of the Program such as content, subjects, methods, style, and interest.
- The survey collects demographic information on the students and the teachers.

Program Evaluation

The program is evaluated using feedback from the teachers in the form of a mail in survey.

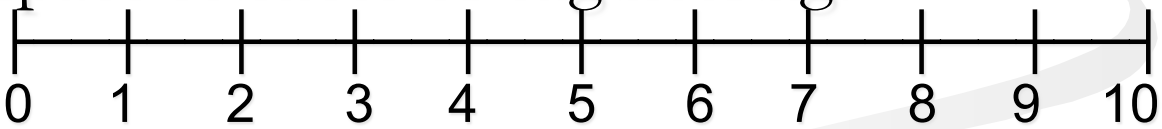
Sample questions:

5. The style of presentation was suitable for the class:



Style too formal — Style appropriate — Style too informal

11. The program increased students' interest for aerospace sciences or engineering:



Decreased students interest — Increased students interest

Program Evaluation

Demographics (as of April 13th, 2007):

		All	African Amer.	Cauc-asian	His-panic	Native Amer.	Pacific Is.	Other
No. of students	Total	302	58	209	0	0	1	35
	Male	162	25	118	0	0	1	19
	Female	140	33	91	0	0	0	16
% of students	Total	100	19.21	69.21	0.00	0.00	0.33	11.59
Anticipated No. of students	Total	546	54	244	0	0	2	26

Summary

- The Program is offered free of charge to participating schools, thanks to the NASA – MO Space Grant.
- Over the span of its implementation almost 6,000 fifth grade students have attended the UMSL Planetarium Program.

Summary

- The Program is designed to present a broad range of information, and to encourage interest for aerospace sciences and engineering at a young age.
- The sciences that are covered in this program are: Astronomy, Physics, Astrophysics, Engineering, Chemistry, Geology, and Mathematics.

Summary

- **Future Work and Discussion**
  - Update the slideshow to a video presentation.
  - Consider other grades.
  - Expand the program to invite other groups.

Acknowledgements

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