

Dynamic Design: The Cleanroom

Planning a Party!

TEACHER GUIDE

BACKGROUND INFORMATION

The Genesis payload team responsible for assembling the science canister and installing wafers into the array frame developed a list of items that needed to be done in a certain order. These tasks included connecting electric cables, installing the seal, cover hinges, deployment mechanism, and concentrator filter. The list was a planning guide that was used to complete the tasks. In this activity students will complete a similar process, but rather than assembling the science canister, they will be planning for a birthday party.

Planning to plan is an important skill that students need to learn to become less reactive and more proactive when it comes to different aspects of their lives. Using the simple idea of a birthday party and dealing with all of the variables such as cost, and time constraints will help students make this a part of their everyday life.



NATIONAL SCIENCE STANDARDS ADDRESSED

Grades 5-8

[Science As Inquiry](#)

- Abilities necessary to do scientific inquiry
- Understandings about scientific inquiry

[Science in Personal and Social Perspectives](#)

- Risks and benefits
- Science and technology in society

Grades 9-12

[Science As Inquiry](#)

- Abilities necessary to do scientific inquiry
- Understandings about scientific inquiry

[Science in Personal and Social Perspectives](#)

- Personal and community health

(View a full text of the [National Science Education Standards](#).)

PRINCIPLES AND STANDARDS FOR SCHOOL MATHEMATICS ADDRESSED

Grades 6-8

[Numbers and Operations](#)

- Understand numbers ways of representing numbers, relationships among numbers, and number systems
- Understand meaning of operations and how they relate to one another
- Compute fluently and make reasonable estimates

[Problem Solving](#)

- Solve problems that arise in mathematics and in other contexts

[Connections](#)

- Recognize and apply mathematics in contexts outside of mathematics

Grades 9-12[Numbers and Operations](#)

Compute fluently and make reasonable estimates

[Problem Solving](#)

Solve problems that arise in mathematics and in other contexts

[Connections](#)

Recognize and apply mathematics in contexts outside of mathematics

(View a full text of the [Principles and Standards for School Mathematics](#).)

LIFE SKILLS ADDRESSED**Grades K-12**[Self Regulation](#)

Sets and manages goals

Grades 9-12[Life Work](#)

Manages money effectively

(View a full text of [Content Knowledge: A Compendium of Standards and Benchmarks for K-12 Education](#))

MATERIALS

For each student:

- Student Activity, "[Planning a Party!](#)"
- Post-it® notes
- Computer connected to Internet (optional)
- Optional: JSC Flight Hardware Student Handout, "[Planning the Assembly](#)" showing a sample spreadsheet.

PROCEDURE

1. Ask students what steps they must take when deciding to have a birthday party. (Some students may suggest that their parents take care of this. Others may indicate that they are responsible for deciding who will attend their party.) If no one states it, tell students that planning is an essential part of having a successful party. In much the same way Genesis payload team must plan the assembly of the spacecraft.
2. Hand out the student activity, "[Planning a Party](#)." Ask students to read the background information on their student activity sheet individually.
3. Tell students that they will be planning a birthday party for someone in their group. The student activity sheet suggests that one way to select the "birthday kid" would be to select the person in the group whose birthday is closest to today's date. Once this has been decided, have each student write this person's name on the sheet. Next, based on the person who has been chosen, the theme and colors should be decided. Once this is done students should write this on the student activity.
4. Have the students brainstorm some of the details of this party by filling in the concept diagram. You may want to get them started by completing one branch of the diagram as a class. Students should then finish the diagram in their small groups.
5. Each of the spokes on the diagram could represent one category of party planning that needs to be done. For procedure 4 on the student activity sheet, students should decide how to categorize the details of the planning process.

Alternate Strategy Tip

Several of the links in the teacher resources have examples of different party themes. If your students are having trouble indicating a theme, you may want to show them the themes listed on these sites. You may be interested in showing this using a computer hooked up to a projection unit.



6. Students should then decide which person in their group is going to be responsible for planning that particular category. During this planning process, each student should develop a table or spreadsheet that reflects the task to be completed, the date it should be completed, the projected cost to complete, the date accomplished and the actual cost. Explain to students that the parameters for their planning include the fact that they will have 10 total people attending the party and they have a total budget of \$200.00. Students should decide how much money is to be spent on each category.
7. Once the planning has been in place the next step is to do some shopping and compare costs. You can have students do this by having students go to a store as a homework assignment over a few days time, or by allowing students to visit some of the Internet sites listed in the Teacher Resource section below. If you choose to have the students research this on the Internet, encourage them to “shop around” for the best prices available so they can get more with the money in their budget. You may encourage groups to re-allocate money from one category to another based on the differences between projected costs and actual costs.
8. Once the students have had a chance to complete their planning spreadsheet or table, ask the groups to come together and compare their plans. One way to have the students go through this process is for them to sit in a circle and pass their papers to the person on their left. Students should read each plan and write comments on a post-it[®] note and attach it to the student sheet. After a certain amount of time, direct the students to pass the papers to the left again repeating the commenting process. The peer review ends when the paper is returned to the person it started with. Students should then be given time to respond to the comments by including it and revising their plan or by rejecting it.
9. (Optional) Have the students combine the categories together and write a final planning report that reflects the individual plans of the students in the group. The final overall plan, with timelines, cost, and person assigned to each task should be turned in for evaluation.
10. In the last procedure on the student activity sheet, students are asked to reflect on this planning experience in their journals. Once students have had time to do this, ask them probing questions such as those found on the student sheet. How was planning helpful? How did the pre-planning process enhance the party? In what ways would your party have been different if you did not do this planning? How would you change the planning process next time? Emphasize the importance of planning and how the process enhances the end product. Discuss with students why planning to plan is an important aspect of everyday life. Ask students to site examples of when planning to plan is an important part of the peoples lives both at work and at home.
11. Bring this discussion to a close by showing the students an example of a sample of the spreadsheet that the Genesis payload team used to plan the assembly of the science canister for the Genesis spacecraft. The sample shows only a small section of the spreadsheet used at Johnson Space Center. The portion provided here shows only the three rows concerning the fixed array. The spreadsheet used at JSC contains over 300 rows and 40 columns of information. Invite students to compare and contrast the spreadsheets used to plan the birthday party and the table used to assemble the science canister.

Teaching Tip

If you choose to have students observe the JSC flight hardware spreadsheet, ask individual students to open this spreadsheet and try to identify the row two column headers.

TEACHER RESOURCES

Below are links to various Web sites that list and give prices for items usually used at a party:

http://www.greatentertaining.com/home_kids/0,1924,,00.html

<http://www.americanpartyoutlet.com/>

<http://www.celebrateexpress.com/bexpress/default.asp>

<http://www.mypartypal.com/>

<http://www.partyetc.com/cgi-bin/SoftCart.exe/index1.html?E+scstore>