



Moon, Mars and Beyond **Teacher Instructions**

Sequence of Activities

We are excited that you have chosen to participate with us in this simulation. You may choose to do any number of activities in preparation for your mission. We have found that most teachers spend anywhere from 8 to 10 forty-five minute class periods to prepare students. Activities may vary, depending on how you choose to use the mission to bolster the goals and objectives for your students. With younger students we recommend an emphasis upon hands-on skills and teamwork. As students get older and more experienced, the emphasis should change to thinking skills.

Note: The preparatory activities included on this website are designed to help you reinforce and supplement your usual textbook and classroom lessons about the specific math concepts necessary for the mission. You will need to cover these math concepts in depth, in accordance with your individual goals and objectives.

Print out the Teacher's Checklist and take care of the administrative details as well as the teaching details outlined here.

Stage I - Mission Briefing

This stage is one of the most important in terms of student motivation. Like a movie director, you set the scene, create the story, and help your "actors" prepare for their roles. Help students to understand that this is a simulation. Simulations help people prepare for emergencies. Simulations give us a chance to make mistakes in a safe environment and then to learn from them.

Spend time familiarizing students with the scenario behind the mission. That is, this simulation has a storyline. You may want to use the Power Point included on the website. You may also want to use other activities that get across the idea that the students are being asked to participate in a "mission," such as designing a mission patch.

You may want to ask questions such as:

- Who knows what a simulation is?
- Can you tell me who is involved in this mission?
- What will we be doing?
- Where will the mission take place?
- When will we be doing this?
- How will we prepare? How will we fly the mission?

During the pre-mission process, your students will be learning math concepts and skills. They will be learning to work as teams to solve problems and make responsible decisions. Activities include whole-class and small-group team activities.

Most teachers use this time to cover some or all of the following:

- Topics related to math in real life
- Historical review of the interplay between math, science, and technology
- Topics which highlight this interplay include the space race or the International Space Station
- Teamwork and communication
- Careers in math, technology, or engineering

Stage II - Mission Preparation

You will use this time for two things:

- Assign team roles. Each student's role should be important and meaningful, and chosen carefully in accordance with his or her learning styles or multiple intelligences.
- Practice the mechanics of the mission. You will need to make sure that all students have all materials, they can complete the math fluently, and they understand the flow of information.

Note: In addition to the classroom activities listed above, you have some administrative details to complete. At this point you will want to do a test connect with Mission Control, go over the Teacher's Checklist, and make sure you have everything listed in the Classroom Setup.

Stage III - Mission Simulation

Your distance learning experience will run for approximately 75 to 90 minutes, depending on the classroom. This includes a pre-mission briefing, followed by the mission simulation and a debriefing Q & A session. Preparation for the mission should be stressed the day before, focusing on the storyline and the team assignments.

If you have not participated in this simulation before, you will want to review the Mission Day Storyline to familiarize yourself with what to expect. Do not hand this out to students.

Stage IV - Mission Debriefing

Devote some time to follow-up the mission by analyzing results of the experience, creating a press conference, or participating in extension activities.