

Apollo 18



CHALLENGE:

Working as a team, design a space bridge that will get the three astronauts (ping-pong balls) from space safely through reentry and splash down back on earth using only the materials provided. Apollo 18 was the first of three Apollo missions to be canceled by NASA. This is your opportunity to show that the Apollo 18 mission would have been a success if you and your team were part of Mission Control.

DIRECTIONS:

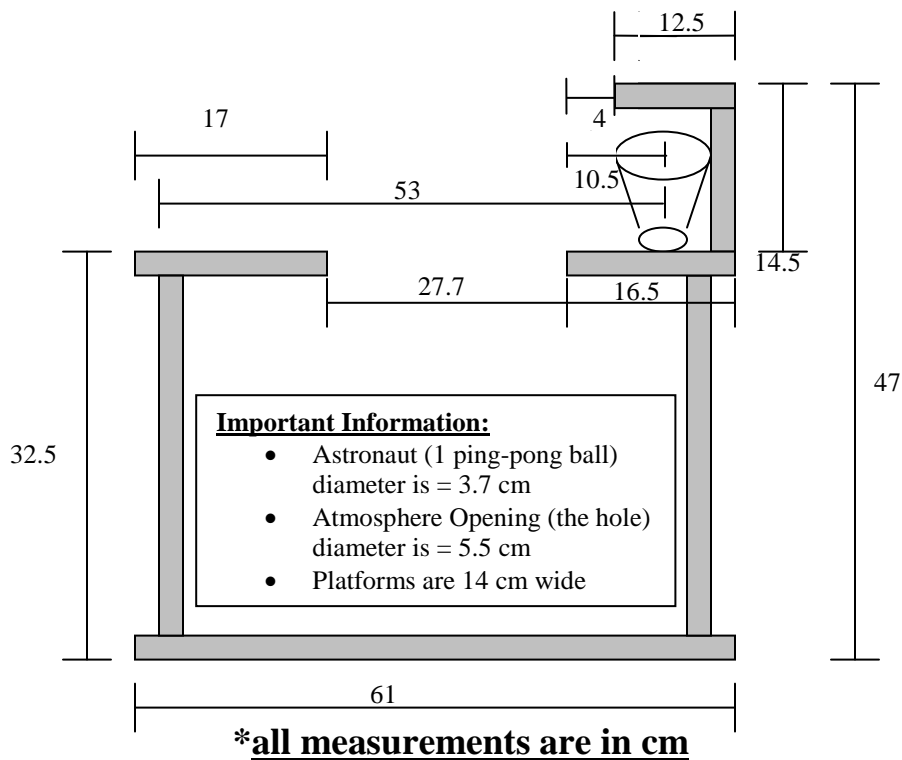
1. Each team will consist of **two (2) or three (3) students** from the same period Science class.
2. Only the materials provided by the instructor may be used. **You cannot use the plastic bag.**
3. All construction of the project will be done **in class.**
4. The team will have one class period to work on their design (brainstorm and obtain materials) and two class periods to construct and build the design (total of 3 days for the **Apollo 18 Mission**). The completed project is due at the **start of period** on the test day.
5. On competition day, each team will have **two (2) minutes** to set up and perform three successful attempts in getting all the astronauts home safely. The bridge may not be held, touched, or helped in any way once the ping-pong ball has been released.
6. The cup (the ocean) must stay in its original position; it may not be moved from that position.
7. You **may not use the tape, rubber bands or any other supplies to anchor or fasten your design to the platform.** Tape does not work in space if it has nothing to stick to.
8. The **Apollo 18 Mission Report** is to be completed and turned in **by the due date on BOK.** This will go in your notebook.

WHAT YOU NEED TO DO:

1. Make a **group of 2 or 3** from the same class period
2. **Read the directions** and any other information on this paper
3. Spend at least **10 minutes brainstorming** and **drawing at least one design** in your own notebook.
4. **Discuss** what your group is going to do and how. **Write down** the **steps** to making your device.
5. Get your **supplies** and **label** your zip-lock bag with (Names, Per # and Group Name).
6. Start planning, discussing, and building your design. **Keep notes in your notebook** on what worked, didn't work and design improvements.
7. **Cleanup** at the end of each period.
8. **Enjoy**

GRADING:

- **Save all 3** astronauts in under 2 minutes 100 pts
- **Save 2 of 3** astronauts in under 2 minutes 80 pts
- **Save 1 of 3** astronauts in under 2 minutes 70 pts
- At least **1 of the 3** astronauts **hit atmosphere** (platform) 60 pts
- Design does not work, but is testable 50 pts



Materials:

- 10 narrow stir straws-13 cm
- 10 toothpicks
- 8 clear drinking straws- 20 cm
- 4 flex-straws
- 3 rubber bands
- 3 sheets 8 ½ x 11 in paper
- 2 large paperclips
- 2 small paperclips
- 2 3-oz. cups
- 1 30 cm piece of masking tape (teacher will give this to you. Gently stick it to the outside of your Zip-Lock bag)

You will not receive any other supplies and you may not bring supplies from outside the classroom (deep space). You can only use the 3 color pieces of paper inside your materials bag (do not use the directions sheet in your design). You **many not use** the actual Zip-Lock plastic bag in your design. You may use rulers, scissors, and writing utensils. You can cut or use the materials as you want. If you cut incorrectly or change your mind you cannot retrieve more supplies from the Odyssey. Imagine that you are the Apollo 13 astronauts and all you have to work with are the materials in your space capsule. If you leave any of these materials on your desk after your class, they will float off into space and you won't ever see them again. Protect your materials and **do not pollute space.**

Measure carefully and accurately. Be a problem solver, a team player and use the Scientific Method to bring back Jim Lovell, Fred Haise and Jack Swigert. Enjoy.