



## Inner Space at NASA • Study Guide

At NASA's Neutral Buoyancy Lab in Houston, astronauts train for space walking underwater, in a giant pool about half the size of a football field. Jonathan gets a rare and fascinating look into this high-tech diving as he ventures underwater with astronauts.

### Objectives

1. Introduces viewers to underwater astronaut training techniques at NASA.
2. Teaches concepts in buoyancy and gravity.

### Questions for before watching the program

1. What is microgravity?
2. What challenges would NASA face in trying to train astronauts on Earth for work in space?
3. What is the International Space Station? (ISS)
4. Why would astronauts need to train on Earth for "spacewalks" (EVAs) on the ISS?
5. What are challenges for astronauts on spacewalks? How is microgravity a difficult working condition?
6. What are the various roles of a space suit?
7. How might a space suit need to be modified to work underwater? (hint, how are the forces on the suit different?)

### Discussion for after watching the program

1. How is "neutral buoyancy" underwater similar to microgravity in space?
2. How is "neutral buoyancy" underwater different from microgravity in space?
3. What sensation would an astronaut in the NBL feel that is different from space? (Hint, such as when turning upside down.)
4. How are space suits modified to work in the NBL? Why is placement of the weights on the suit important?
5. What has to be done as an astronaut goes deeper into the NBL in order to maintain the constant neutral buoyancy of the suit?
6. Why don't the astronauts wear fins in the NBL?
7. Why are the astronauts and divers given a checkup before each dive?
8. What is in the NBL for the astronauts to practice on?

JOIN JONATHAN BIRD ON HIS UNDERWATER ADVENTURES AT [WWW.BLUEWORLDTV.COM](http://WWW.BLUEWORLDTV.COM)!