

ZERO 
ROBOTICS  
SPHERES ISS CHALLENGE

Jeopardy



Jeopardy Categories

Space	Programming and Logic	Math and Physics	Zero-G IDE	SPHERES
<u>Question 1</u>	<u>Question 1</u>	<u>Question 1</u>	<u>Question 1</u>	<u>Question 1</u>
<u>Question 2</u>	<u>Question 2</u>	<u>Question 2</u>	<u>Question 2</u>	<u>Question 2</u>
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<u>Question 5</u>	<u>Question 5</u>	<u>Question 5</u>	<u>Question 5</u>	<u>Question 5</u>

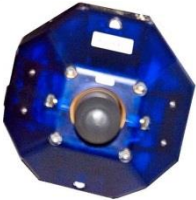


The mission of this US government space agency is to understand Earth's placement in the universe and to explore space.



What is the “National Aeronautics and Space Administration”?

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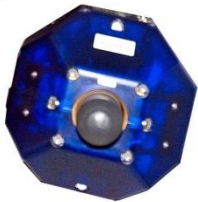


This low Earth orbit satellite has astronauts living on it! It has housed people from not one, but 14 different countries.



What is the “International Space Station (ISS)”?

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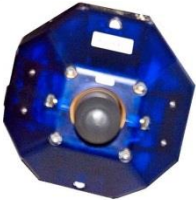


With over 100 missions, this recently ended program ferried astronauts to the International Space Station and beyond.



What is the “Space Shuttle Program”?

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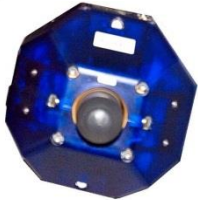


In 1969, this mission was “one small step for man, one giant leap for mankind”.



What is the “first landing/man on the moon”?

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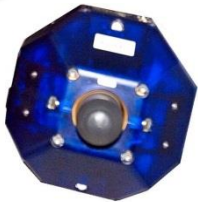


This next destination for human exploration includes plans to establish a permanent human settlement.



What is "Mars"?

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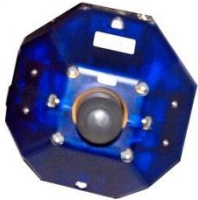


This primitive data type possesses the ability to store decimal numbers, also known as floating point numbers. Hint, it is not an int.



What is a “float”?

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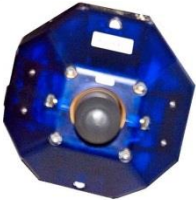


Conditional statements are a way to give instructions about when to do something. What is an example of this conditional statement?



What is an “if-then” statement?

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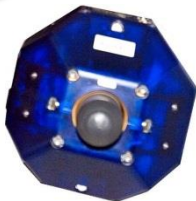


This word, synonymous with “code” also means a list of instructions or directions for a computer.



What is a “program”?

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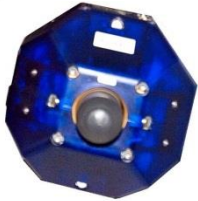


This data structure holds a row of elements that store information. Some examples include `myZRState[12]`, `temp[3]`, `position[3]`.



What is an “array”?

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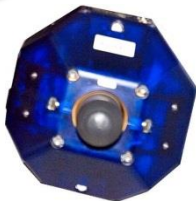
One of the ways you can make comparisons in code is with

“!=”. What does != mean?



What is “not equal to”?

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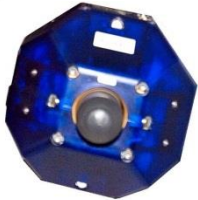
Math and Physics Question #1

This law of Physics states that every action has an equal and opposite reaction.



What is “Newton’s 3rd Law”?

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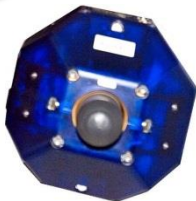
Math and Physics Question #2

This commonly used entity in mathematics possesses magnitude and direction.



What is a “vector”?

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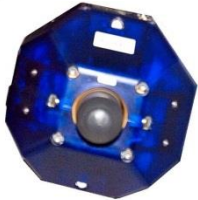
Math and Physics Question #3

This word describes the amount of matter in an object.



What is “mass”?

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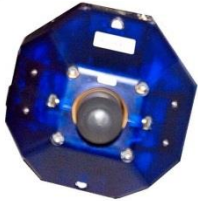
Math and Physics Question #4

The mass of an elephant that is six tons on Earth is _____ tons on the moon.



What is “six”?

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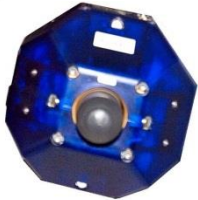
Math and Physics Question #5

This Law states that an object in motion stays in motion unless acted upon by an outside force.



What is “Newton’s 1st Law”?

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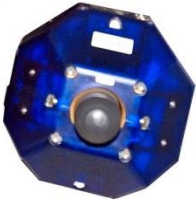


The Zero Robotics website has a special software application, known as the ZR IDE, that allows you to program code. ZR IDE is short for....?



What is “Zero Robotics Integrated Development Environment”?

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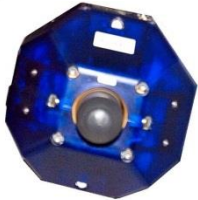


This API function allows a satellite to point in a certain direction.



What is “setAttitudeTarget”?

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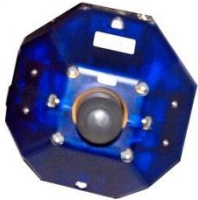


Calling this API function returns information about the position and orientation of the opponent satellite.



What is “getOtherZRState”?

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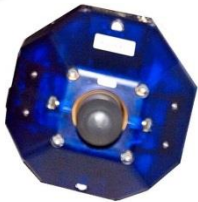


*This command moves a SPHERE
to a specific coordinate.*



What is “setPositionTarget”?

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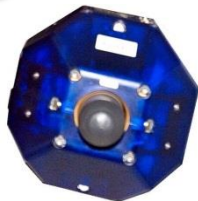


When sharing code with your team, this button must be pressed to save the current revision of your program.



What is "Commit"?

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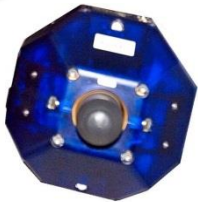


This word, synonymous with “mini” describes SPHERES, which are designed to work in groups and clusters to perform the function of a large, single satellite.



What is “micro”?

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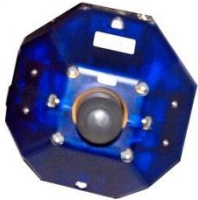


SPHERES, as with many other types of robots need power and fuel to operate. Type AA _____ power SPHERES and _____ is the fuel used.



*What are “batteries” and
“carbon dioxide”?*

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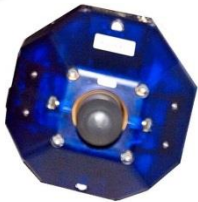


SPHERES is an acronym that stands for a string of seven words describing its functionality. What are these words?



What is “Synchronized Position Hold Engage and Reorient Experimental Satellites”?

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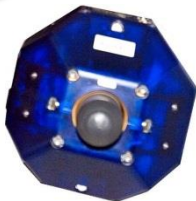


While on the ISS, SPHERES essentially move without friction (true or false).



What is "true"?

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This object controls the movement of the SPHERES, allowing SPHERES to move in all directions on a grid. There are 12 of these objects on a SPHERE.



What are “thrusters”?

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