ZERO ROBOTICS

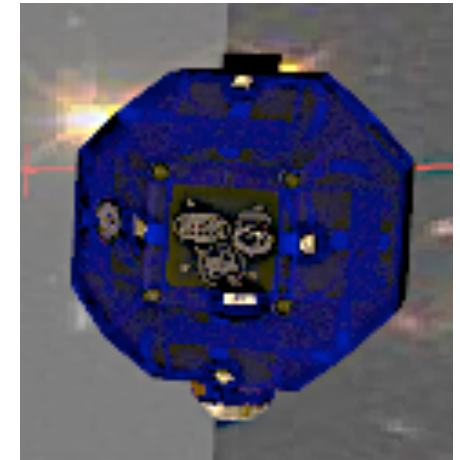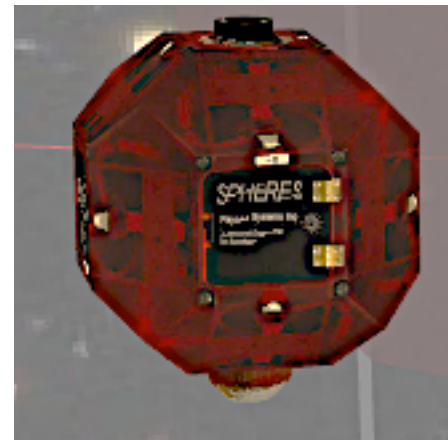## ISS PROGRAMING CHALLENGE

Introduction to Game Mode

- In this tutorial you will learn:
  - How to use the Game Mode to start writing programs for this year's Middle School Game!
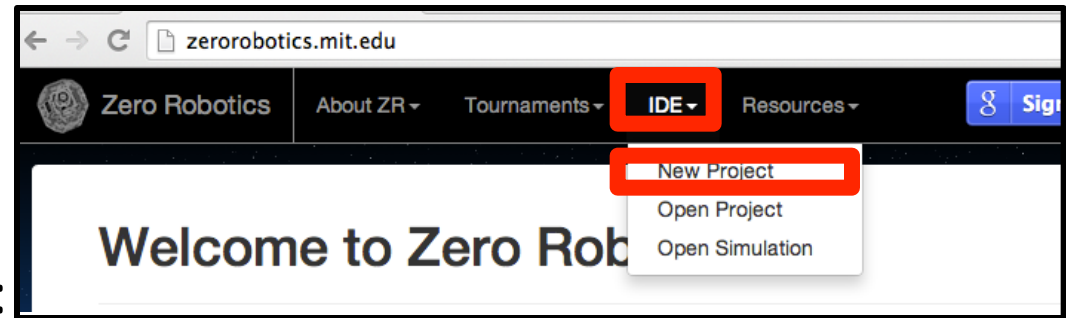 - How to compete against a standard player

- So far, to complete tutorials, you have been writing your programs in "Free Mode"

- Now that you are ready to start writing programs for the Middle School Summer Program Game you will switch to the appropriate Game Mode

- All code for the game must be written in the appropriate Game Mode

Let's get started…!!

Creating a Project in Game Mode

- Select the IDE drop down menu on top ribbon

- Select " New Project":

- In the popup window enter:

  – Project Name

    • Enter an name. Example: Team ABC1

  – Select "Graphical Editor"

  – Game

   • **Select the name of this year's game (ask your teacher!)**

- Click "Create Project"

- The Graphical Editor environment for the selected "Game Mode" will look similar to what you have seen in "Free Mode"

- There will be extra accordions on the screen with commands specific to the game

- The simulation, however, **will** look different!

- Want to take a peak?
  - You don't need to create any code

- Click "Simulate" from the menu on the top ribbon

- On the Simulation Settings Window:
  - Leave everything else "as-is"
  - Click "Simulate"

- Select "View Results"
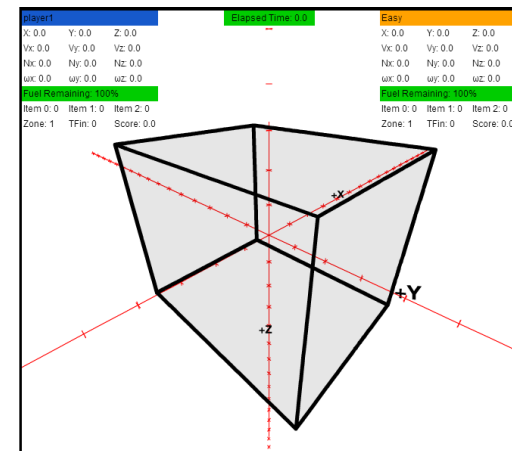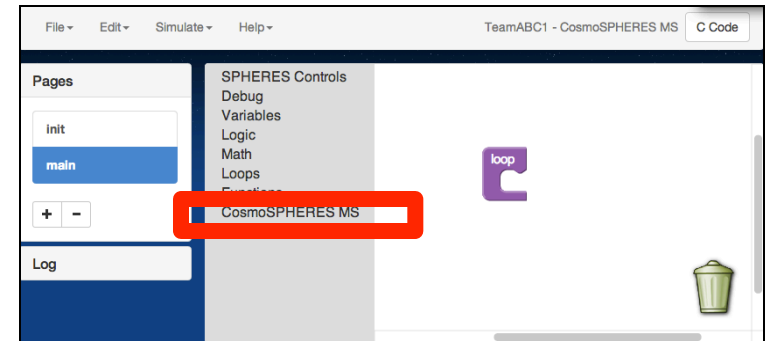
- When you click the arrow to start the simulation you will see the initial positions for the two satellites.

- Nothing else will happen because you have not written any code yet.

- Take a look at the scoring boxes.

  - Some extra, game-specific information is included

    - Based on your understanding of the game, can you guess why the information is there?

- Close the simulation window
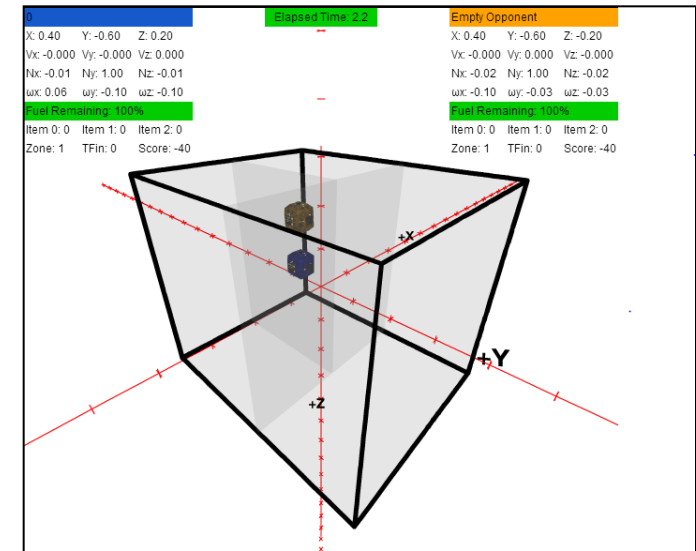
Note: These images are game specific and will vary from year to year

Playing a Standard Player

- Another feature of "Game Mode" is that you sometimes have the option to test your code against "Standard Players"

- Even though you don't have any code to test yet, you can try it right now

- From the Graphical Editor select "Simulate" from the top ribbon menu

  – Leave everything else "as-is" except opponent

  – Click "Select Opponent"

    • In the project window look for a shared project labeled "Standard Player" for your game

    • Click the check box

    • Click on Select

Playing a Standard Player, continued

- The name of the opponent will appear on the Simulation settings window

- Simulate and View Results!

- You will see:
  - The "Opponent" move though the game course
  - Various elements of the game will appear
  - Your SPHERE will remain stationary since you have not created any code
- Check the scoring boxes at the end of the match to see how well the "Opponent" scored

Note: This image is game specific and will vary from year to year

HS ZR 2D Demo Player #6		
X: -0.03	Y: -0.80	Z: 0.00
Vx: -0.000	Vy: 0.007	Vz: -0.000
Nx: 0.63	Ny: 0.77	Nz: -0.00
ωx: 0.45	ωy: -0.52	ωz: -0.34
Fuel Remaining: 6%		
Charge: 0		
Item 0: 1	Item 1: 1	Item 2: 0
Phase: 3	TFin: 138	Score: 5

Elapsed Time: 174.0

HS ZR 2D Demo Player #2		
X: 0.26	Y: -0.67	Z: 0.00
Vx: 0.006	Vy: -0.018	Vz: 0.000
Nx: -1.00	Ny: 0.07	Nz: 0.01
ωx: 0.38	ωy: -1.07	ωz: 11.49
Fuel Remaining: 32%		
Charge: 1		
Item 0: 1	Item 1: 0	Item 2: 0
Phase: 3	TFin: 172	Score: 7

Blue sphere: 5   vs   Red Sphere: 7

- Congratulations!

  - You have learned how to select the appropriate "Game Mode" to create a project for your game

  - You have learned how to test your code against a "Standard Player"

- Now it is time to get started! Have fun writing code!