



Cosmic Collision Introduction

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Section 1 – Introduction

1.1 – Overview

This section provides background for the CREATE Junior game called *Cosmic Collision*. This competition is for students primarily in the 4th and 5th grades. Students as old as 6th grade are allowed to participate as well as younger students who are ready for this level of engineering challenge.

1.2 – Introduction

Join the CREATE Foundation this year to save Earth from a wandering black hole. Design, build and drive your robot to push cosmic debris into the black hole, save NASA's ISS (International Space Station) resupply rocket, and many other spacecraft. Can you save the Earth from a *Cosmic Collision*?

A rogue, wandering black hole is approaching our solar system, dragging in space debris from the Kuiper Belt and Asteroid Belt, pulling the Earth and moon out of orbit, and knocking rockets off course. Your mission, is to design, build, and drive your anti-gravitation robot to save the entire solar system from certain doom.

Once the four robots are released into the solar system they will only have 90 seconds of active anti-gravitation during which time they will be impervious to the effects of the black hole. However, once time is up the black hole will devour your robot unless it escapes the solar system through a nearby worm hole. Get all four robots through the worm hole before time expires and the black hole is sure to follow, saving the solar system!

There is much to set right in the solar system.

1. Put the Earth back into its proper orbit.
2. Put the Moon back into its proper orbit.
3. Help dock NASA's resupply rocket with the ISS. The astronauts on the ISS are awaiting critical supplies!
4. Put both Chinese Space Agency Chang'e 4 rockets/satellites back into their proper orbits around the moon.
5. Help Space X's rocket get to Mars.
6. Collect all the space debris and push it past the black hole's event horizon.
7. Once all these tasks are done, escape through the worm hole, and if all 4 bots get out in time, the black hole will be sure to follow moving safely away from our solar system.

It's up to you! Are you up to the challenge?

1.3 – Questions to Ponder

Here are some questions to ponder about, this challenge. Who knows, you just might be asked these questions during the judges interview.

1. *What is an orbit?*
2. *What body in the solar system does the earth orbit?*
3. *What body/bodies in the solar system does the moon orbit?*
4. *What are some of the reasons the ISS (international space station) is important?*
5. *Why does the ISS require resupply missions?*
6. *Why are the Chinese putting two satellites around the moon? Why is one of them on the dark side of the moon?*
7. *What does "dark side of the moon" mean?*
8. *Why is Space X sending rockets to Mars?*

9. *Are black holes real?*
10. *What is an “event horizon”?*

1.4 – Further Exploration

Here are some areas of study you could explore.

1. *The Chinese Space Agency's Chang'e 4 mission*
2. *The ISS: History and Importance*
3. *Colonizing Mars, how and why*
4. *Black Holes*
5. *How the solar system works: Why planets stay in orbit*

1.5 – Let's Go

On the following pages are the rules of this fast-paced challenge. Your team will have the opportunity of designing, building and testing your own robot to push, lift and race beyond the competition. Good Luck. We begin in 3, 2, 1...