

Astronomy or Earth Science

Solar System Mining

As the 21st century speeds up like a bike going uphill with a rusty chain, we must all consider the challenges confronting job-seeking Earthlings. Many of these new jobs will be off-world, and many will be supporting our new extraterrestrial colonies on the Moon and Mars, as well as the burgeoning population of Earth, whose members hurtle toward the singularity.

You are an asteroid miner (actually, owner of an asteroid-mining firm) who explores and exploits asteroids for their valuable mineral and metal content. These materials (or the asteroid themselves) must be retrieved and relocated.

Your assignment is to propose a business model for your comet-wrangling or asteroid-mining businesses. Your proposal should include

- A minimum of 3 specific candidate targets (specific asteroids or comets)
- The locations or orbital profiles of the targets
- The properties of those candidates (mass, dimensions, chemical composition)
- The approximate value of those candidates (in terms of valuable minerals and their current costs¹)
- Your method of traveling to, securing, and retrieving the target object.
 - Estimate the time it would take to move the object to its destination (earth orbit, Moon, Mars, or LaGrange point)
 - Total mission time (estimate travel time to the object)

You may embellish this report in any way you want. Images would be nice if you can find some. It should be no more than four pages (be concise!), and you can submit to me electronically.

Eric A. Grunden, Science Teacher, Raleigh Charter High School

¹ You may have to research the costs of moving materials to orbit to compare (How much would it cost to lift a ton of material X to orbit?)