Presentations

Considering the wealth of mining technology and expertise in Northern Ontario, you are well positioned to take a significant role in the newest type of mining venture – asteroid mining. With 3 of your colleagues, you have decided to incorporate as a space mining start-up company. This enterprise is not only risky, but also expensive and you must raise capital for your first big project. Your teacher and fellow students are actually venture capitalists that will decide which company in the class will receive funding. You must present your business plan including a report and slide presentation or video.

Your presentation and report should include:

A. Your company's name.

B. The basic concept or business idea:
This is the company's overall mission. It could include mining for materials that can be used to refuel spacecraft travelling to the outer solar system or seeking water for astronauts on long space missions, mining resources that are valuable to sell on earth, or mining for materials to build space stations or colonies on distant planets.

C. Identify types and locations of asteroids to mine:
Come up with a list of criteria. You may wish to consult resources such as https://en.wikipedia.org/wiki/Asteroid_mining and http://www.planetaryresources.com/2015/08/how-we-choose-our-asteroid-targets/

Consider a variety of factors:

- If you want to mine a specific type of rock, metal, or mineral, you should do further research on different asteroid spectral types beyond C-type, S-Type, and M-Type (Asteroid Spectral Types)
- If you are building a space station on Mars, your asteroid should be near Mars, whereas if you are bringing materials back to Earth, the difference in velocity between orbits is important since the spaceship has to "catch up" to return to the planet. Some companies are even planning to capture asteroids and extract their resources somewhere else!
- How large should the asteroid be? It may be easier to land on a larger asteroid, but it is easier to "hollow out" a smaller one.

- How soon is the asteroid's next "close-approach" to the Earth? Does it return regularly? Maybe you will plan to mine the same asteroid for 20 years or to mine one asteroid in 5 years, another in 20 etc.

D. Identify specific asteroids:
You may use the JPL Small-Body Database Search Engine. For more information about using this database see *Using the Jet Propulsion Small Object Browser.docx*.
Once you have chosen the target asteroids and/or comets, detail their desirable features.

E. What are some necessary tools and technologies for your company?
Are these technologies currently available? Being developed?
Do you have ideas for new tools and equipment that could be invented?

F. Make some (very) rough estimates for a budget:
How much does it cost to launch 1 kg of water into space?
How much money does it cost to launch a probe?

G. Why should the investor choose your company?

(Adapted from http://www.sciencebuddies.org/science-fair-projects/project_ideas/Astro_p038.shtml)