Mission to an asteroid

Name: _____

For this assignment, you will be designing a mission to an asteroid. The only criterion that needs to be met is that something has to touch the asteroid for a good-natured reason. Answer each part with a detailed explanation, bonus points for creativity!

There are many great examples of mission outlines online to give you an idea of what we are looking for but please do not copy an existing mission (we know them all...) but feel free to take aspects and build upon ideas you find.

a) We will begin by deciding WHY we want to land on an asteroid. There are many reasons to want to go to an asteroid ranging from commercial (mining, settlement, relay station...) to scientific (sample return, science platform, instrument testing, human exploration...) to even artistic (sculpture, architecture...). For this part explain the WHY of your mission, your intended purpose on the asteroid. What do you want to accomplish by going to an asteroid?

- b) Now that you have your mission goal in mind come up with a name for your mission. Examples include Dawn, Rosetta, Deep Impact, Hayabusa...
- c) The next step is to determine the best possible asteroid candidate for your mission. There are many types, sizes, and shapes of asteroids and many places they are found. From the types of asteroids discussed in class and their locations determine which ones are best suited for your mission. For example a solid iron asteroid might be challenging to return a sample from but would be easier to build something on.

d) Next we will discuss how your mission will accomplish its goals. Talk about the general design, instruments, tools, materials needed on your spacecraft for your mission to succeed.

e) Now give an outline of your mission's procedure. Listing all of the steps to success taking into account how it will overcome the many challenges of encountering an asteroid.