

## **Marsbound! Mission to the Red Planet "Design Challenge" Quick Reference**

Here are some things to keep in mind:

- The "equipment cards" represent different systems that might be used on a robotic mission to Mars.
- Blue cards are science instruments, purple cards are electronic components, yellow cards are mechanical components, orange cards are power systems, and red cards are rocket boosters.
- One green card will be drawn at random during "launch" and the effects listed on the card will apply. They are not used in the design itself, but you plan for the effects that a green card might have on your mission!
- Each system has a mass, power, and budget cost.
- The mission must be a lander or rover mission, *i.e.*, it must be able to travel to the surface of Mars.
- The spacecraft should be able to provide power for all the systems on board.
- The spacecraft should be able to be launched by one of the six red "booster cards" provided in the card deck.
- The entire mission cannot cost more than \$250 million dollars.
- The mission should provide the maximum "Science Return" possible, *i.e.*, it should have the maximum number of cards that include the text "Science Return +1" and "Science Return +2", while still meeting the above constraints.
- You will have to decide how much you are willing to spend on backup systems and other "risk management" issues!