

**Overview:** Risk analysis is a common element of most project planning processes. Essentially, participants brainstorm things that can go wrong and then develop plans to mitigate that risk.

### **Objectives**

- Refine your understanding of the Mars Direct, Semi-Direct, and opposition launch plans within the context of a problem;
- Critically analyze contingencies provided in plans presented by Zubrin and others;
- Hone problem-solving skills.

**Task:** Present your partner group with a problem, malfunction, or challenge while en route, on the surface, or on the way home from Mars. Be creative. Exchange challenges with your partner group.

Once you've exchanged challenges:

- **Analyze** your options to remedy the problem you've been given within a Mars Direct, Mars Semi-Direct, and opposition launch mission. If you aren't sure what these entail, see your book; take notes.
- **Plan** your course of action to deal with the problem. You must have assets supported by the plan. For example if you escape to a vehicle in order to move to another location, there must be fuel in the vehicle, etc..
- **Decide** which plan (Mars Direct, Mars Semi-Direct, or opposition launch) offers the best contingency for the situation you've been given. You must choose one.
- **Explain** your choice to your partner group, sketching supporting information on the whiteboards.
- **Suggest** improvements for the plans you considered.

Create a new challenge for your partner group.

- Lather, rinse, and repeat.

Regroup and share your best challenge and solution with the class.