

## Robotic Planetary Exploration

Grade 9 Earth and Space

## **Instruction Sheet**

### **Rover Actions**

- 1. Rover controller attempts to move rover in any chosen direction
- 2. Check if the rover gets stuck, is obstructed by something, or found water.
  - a. If stuck, you lose a turn. Mark the sandy spot on the map
  - b. If obstructed, you can't move this turn but may move again next turn. Mark the obstruction on the map.
  - c. If you find water you're done!
- 3. Roll dice to see if natural event occurs (or analysis is required). Follow instruction according to the roll of the dice. NOTE: Roll on six-sided dice twice or roll two dice at once.

### **Rover Commands**













**Build** habitat

# **Map Coordinates**

Rover Starting Points: A2 and I0

Sandy spots where wheels get stuck: A7, B1, C4, E1, E5, F0, G4, H5, H9, I1, J9

Obstructions the rover can't roll over: B5, B9, D2, D7, E2, E8, F4, F5, G2, H2, H3, H7, H8, I3, I7

### **Dice Roll events**

- 2 = **Meteorite strike.** The rover is destroyed and you have to restart.
- 3 **= Communications breakdown.** The rover has to wait one turn to get new instructions.
- 4 = **Radiation blast.** The rover is out of commission for one turn.
- 5 = Time for **analysis**. Partner reads out what you learn as you use your rover's instruments.
- 6 = Everything is going well. No need to do anything.
- 7 = Everything is going well. No need to do anything.
- 8 = Time for **analysis**. Partner reads out what you learn as you use your rover's instruments.
- 9 **= Communications breakdown.** The rover has to wait one turn to get new instructions.
- 10 = **Radiation blast.** The rover is out of commission for one turn.
- 11 = Time for **analysis**. Partner reads out what you learn as you use your rover's instruments.
- 12 **= Micro-meteorite strike.** You have to wait a turn for repairs to be done.

Your list of successful commands that creates a path to water: