

PARTICIPANT HANDOUT

INSTRUCTIONS FOR NAVIGATION TEAM

Your team needs to provide the operator with movement instructions to retrieve all five samples and deliver the MATT rover safely to the Mars base. Communicate with everyone on the navigation team to decide the best way to communicate with the operator. Ensure you are in view of the operator's map, but make sure the operator cannot see you. The movements will be in relation to the rover's arrow. **You have five minutes to complete this mission.**

APPROVED COMMANDS

- Rotate 90 degrees clockwise
- Rotate 90 degrees counter-clockwise
- Rotate 180 degrees
- Move "#" spaces forwards
- Move "#" spaces backwards
- Retrieve the _____ sample within the square
- Affirmative
- Negative
- Rover destroyed; move to starting square

The rover cannot be moved diagonally.

RULES

- 1. See which direction the rover's arrow is facing; your instructed movements will be in relation to the rover's arrow.
- 2. Only one teammate can speak at a time.
- 3. The teammate cannot be interrupted, even if they give an incorrect instruction.
- 4. Teammates must take turns giving instructions.
 - Example: Teammate 1 says, "turn 90 degrees clockwise"; teammate 2 says, "move forward by 3 squares"; and teammate 3 says, "retrieve sample within square."
- 5. You cannot say "You are going the wrong way" or anything similar unless specifically asked by the operator.
- 6. If you are asked a question by the operator, you must wait 10 seconds before responding.
- 7. If the operator forgets to retrieve a sample, you must instruct the operator back to the sample and tell him/her to retrieve it. The operator will write an "X" to indicate retrieval.
- 8. If the operator goes into a danger square (deep crater, volcano, radiation pocket, or big rocks) you must end the game and restart if time permits.





MAP FOR NAVIGATION TEAM

| | DEEP | | | | | | |
|------------------|------|-------------------------------------------------|------------------|------------------|---------|-------------------------|---------|
| | 0 | | RADIATION POCKET | | BIG | DEEP | |
| | BIG | MAGNETIC ROCK SAMPLE | DEEP | | | | |
| | | VOLCANO | No. | ICE SAMPLE | DEEP | | |
| VOLCANO | | | | | | HOT SPRING SAMPLE | VOLCANO |
| | | BIG | | RADIATION POCKET | VOLCANO | | 300 |
| | | MARS ROVER STARTS HERE (PLACE ROVER HERE) | | DEEP | | BIG | |
| | BIG | DEEP | | | | BORON SAMPLE | 0 |
| | | | RADIATION POCKET | | VOLCANO | BIG ROCKS | 9 |
| RADIATION POCKET | | FOSSIL SAMPLE | | 6 | DEEP | MARSIBASE | |
| | | VOLCANO | 1 | | | | DEEP |

MATT ROVER IMAGE

Cut out image along dotted lines and use the rover to navigate through the map.



