

Purpose

The aim of this activity is to give the participants an idea of how hard it can be to “drive” a machine in another planet, where planning is fundamental, since you cannot brake or change direction on a moment’s whim.

Material

Scarves, to blindfold the rover elements
Writing material (some type of graph paper is better)
Ruler and measuring tape
Calculator

The course

The course should be built with the locally available material, chairs and tables will do just fine. Planning ahead pays, so the teacher should draw it before, and consider the path for the rover taking into account the age of the students. There should be two options, one shorter path but with more corners, another longer but with few changes of direction. In any case, it should take no more than 10 minutes to complete. Keep the track clear of rocks or other obstacles to avoid any stepping problem (remember the rover elements are blindfolded), and be careful with sharp corners. The winner is, of course, the team that completes the course in the shortest time.



The teams should be composed of no less than 4 and no more than 6 students. The ideal team composition should be:

- 2 playing “rover”
- 1 for “transmission”
- 2 for “mission control”

The two students playing “rover” must not be allowed to see the course (this includes, of course, viewing other teams on the course). They should be blindfolded before being led to the starting line. Apart from the blindfold, the same restriction applies to the one playing “transmission”.

The “mission control” teams will have adequate time to examine the course beforehand; they should measure it and produce their own crude map of the path they plan to take. Scale and units of measure are of course their choice, though they should probably be more or less coached, depending on their age. All teams can do this simultaneously.

Each team (the complete set: rover, transmission and control) must then get together and calibrate the movements of the rover (steps, feet, whatever) so that the mission control can issue the right commands and have an idea of where the rover should be on the course. They should also clarify the commands, the coordination between the 2 rover elements, the way to turn, etc. When the rover is on the course, each command from control should only include one straight movement (for instance, 5 steps, forward or back) and an optional change of direction (for instance, turn right). “Mission control” should be installed close to the course, but with no direct view of the way things are going with the rover – this is the role of the element playing “transmission”. He/she must convey the orders as he gets them from “mission control”; at the end of each run, he can advise control on the position of the rover, but his/her input into the next command is not allowed. He/she will instead be allowed to correct the command when giving it to the rover, but this will incur a time penalty. If he/she leads the rover through physical contact, the penalty should be much larger. This implies the existence of an umpire (preferably a teacher, to avoid inter-team resentment).

Examples of course

