# Scratch logo and symbol, meaning, history, PNG

Background pattern

Description automatically generated**Mars Rover**

Register/login at <https://scratch.mit.edu>

*Make the Mars rover collect rocks using a* ***List*** *of directions.*

1. Graphical user interface, application

   Description automatically generatedChoose a robot **sprite,** a suitable planet **background**, and a rock **sprite**.
2. When the robot touches a rock, it picks it up (hides it).   
   Add this code to the rock.

Graphical user interface, text, application, chat or text message

Description automatically generated*Clicking the green flag shows the rocks and places the rover at the start position.*

1. Place the robot at a suitable start position, add the **start** block and **go to x,y** to the robot. The x,y position is where you placed the robot.

*The plan is a list of directions to move the robot****u*** *(up)* ***d*** *(down)* ***l*** *(left)* ***r*** *(right).*

1. **Graphical user interface, text, application, chat or text message

   Description automatically generatedMake a List** called **plan** for the robot plan.
2. Add robot code to **ask** for the input plan and **set plan to the answer**.

A close up of a cell phone

Description automatically generated with low confidence*Input a plan like “ddddddrrrrruuuurrrrr” to move the robot and collect rocks. Use a loop to work through the List.*

1. **Set a loop variable to 1**, for the first List item.
2. Graphical user interface, application

   Description automatically generatedAdd a loop that **repeats** for the **length of** the **plan**.
3. Inside the repeat loop, **change n by 1** each time around, and **wait** a second.
4. Graphical user interface

   Description automatically generatedGraphical user interface

   Description automatically generatedThe **first** thing it should do **inside** the loop (before **change n**) is move the robot in the direction given by **letter n of the plan**. **If** this is **equal(=)** to **d** then **change** **y** negatively to move down.
5. Check for **r** (right) and **change x** positively **if** it finds it.

*Run your code with the* ***green flag****,****d*** *and* ***r*** *might be enough to collect one rock.*

*Duplicate the rock.   
Do you need to add code for* ***u*** *(change y positively)   
or* ***l*** *(change x negatively) instructions now?*

***Save*** *your code with a good name.* ***File > Save now***