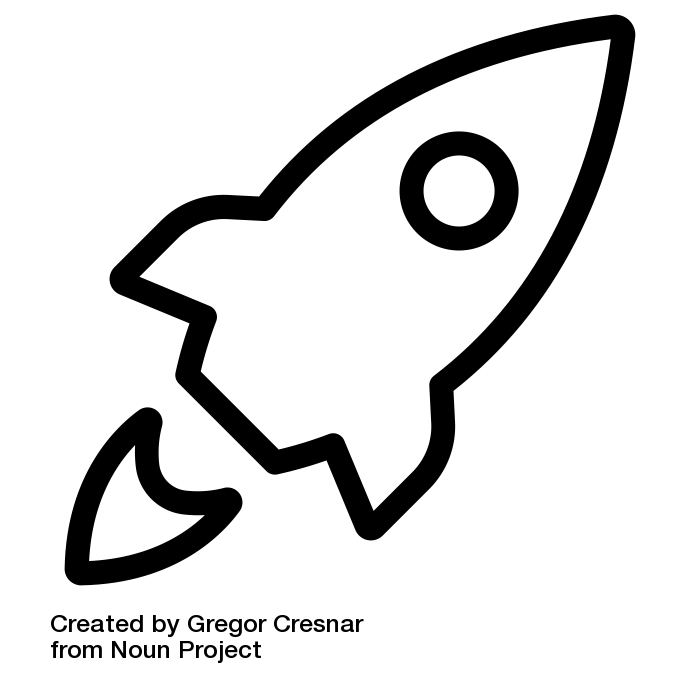
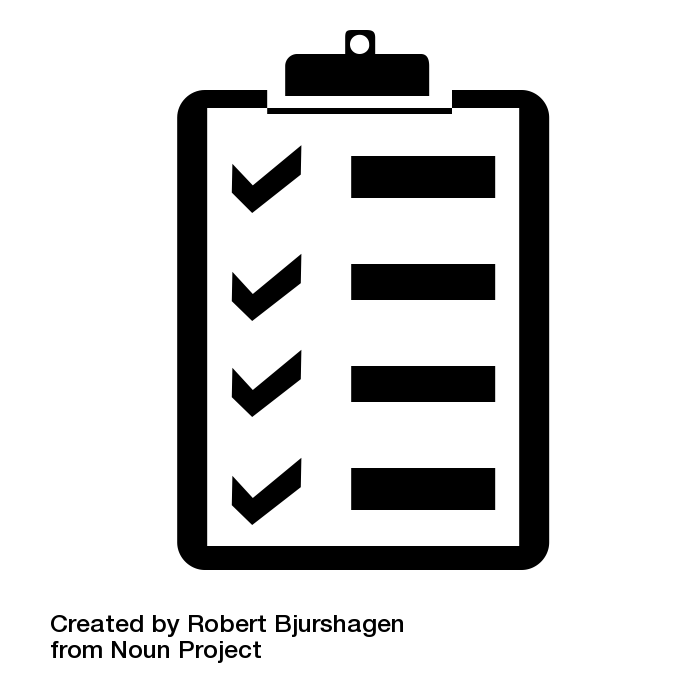
**Design:**

A Mission Patch to represent you OR your group.

Start in pencil. Then, add color.

Include your name OR your mission name.

You can include symbols to represent you, your group and your interests.



**Directions:**

Using the template, **draw** your patch.

> It must be in **color**.

**> Three - four** items/figures/words must be on the patch.

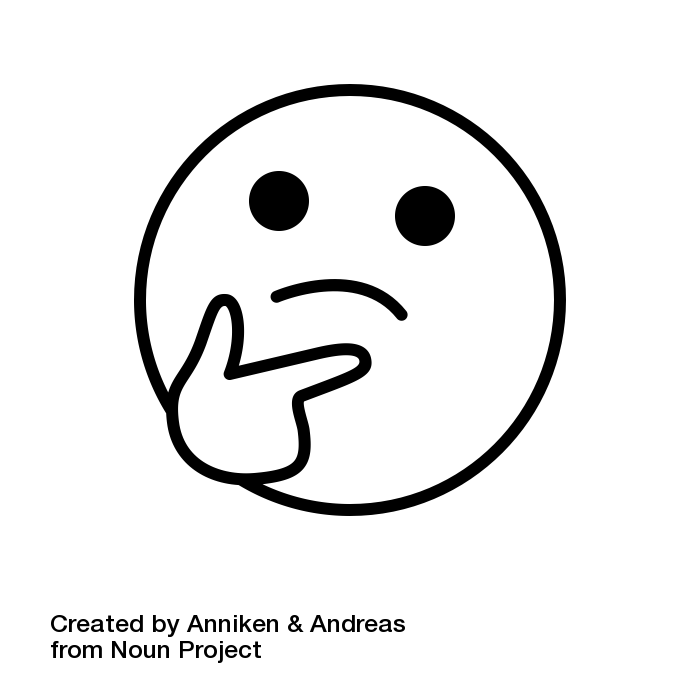
> Be original. **Do NOT** copy other NASA patches.

**> Neatness** is important. Put forth your best effort.

**> Mission name and number** are included.

**> Name** and **Flight Director (Homeroom Teacher)** must be on the page.

**Think about it**



* *What is the* ***name and number*** *of your mission?*
* *What do you want the patch* ***message*** *to say to others?*
* *Keep it* ***simple*** *for all to see!*
* *Do you want* ***words*** *on the patch?*
* *What* ***symbols*** *will represent your mission?*
* *What* ***colors*** *would look good together on your patch?*

**DRIVER**

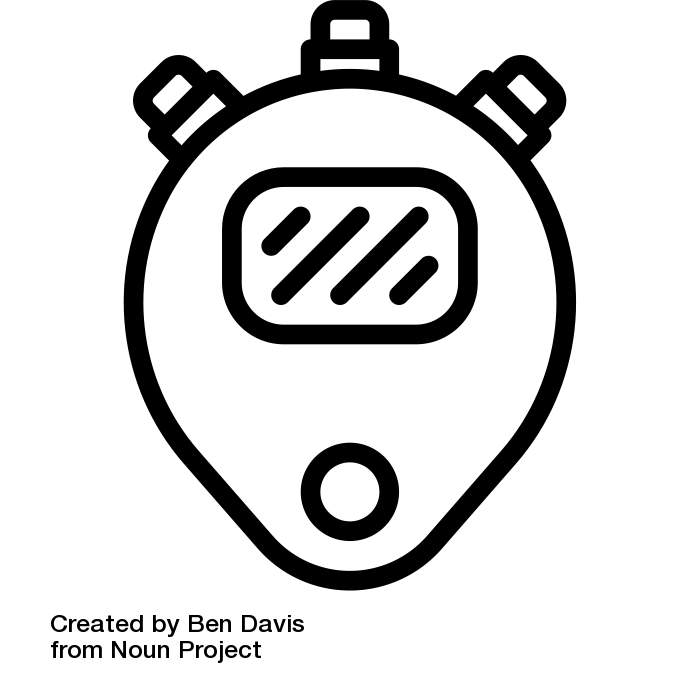
**Rover Driver** Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ **HR**: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Course:** SPIRIT OR OPPORTUNITY **Attempt** (circle one) : First or second

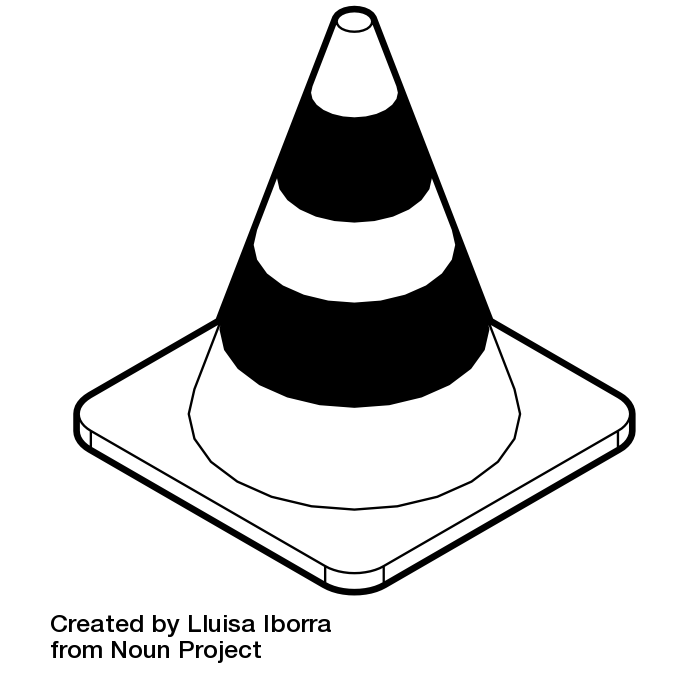
Walk through the course. Write down the commands your rover should follow using the codes. Count your steps and be sure to list where the rover needs to make a turn on the course.

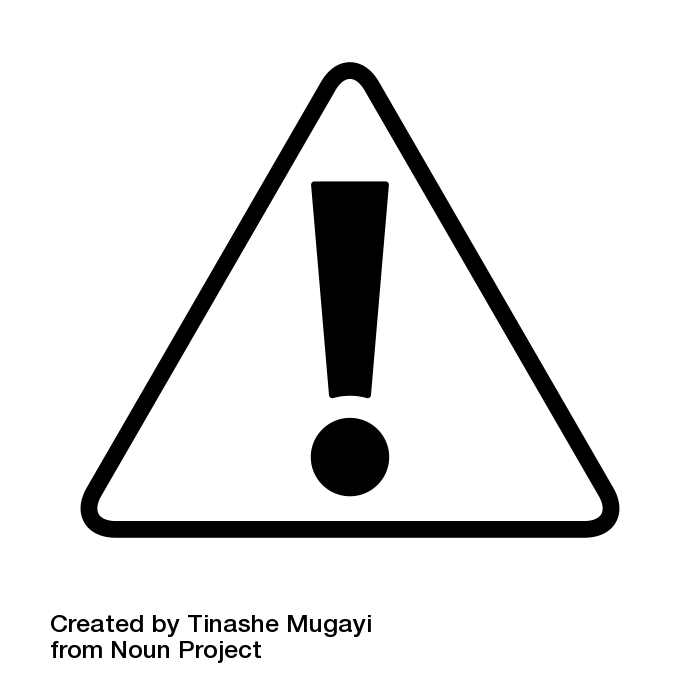
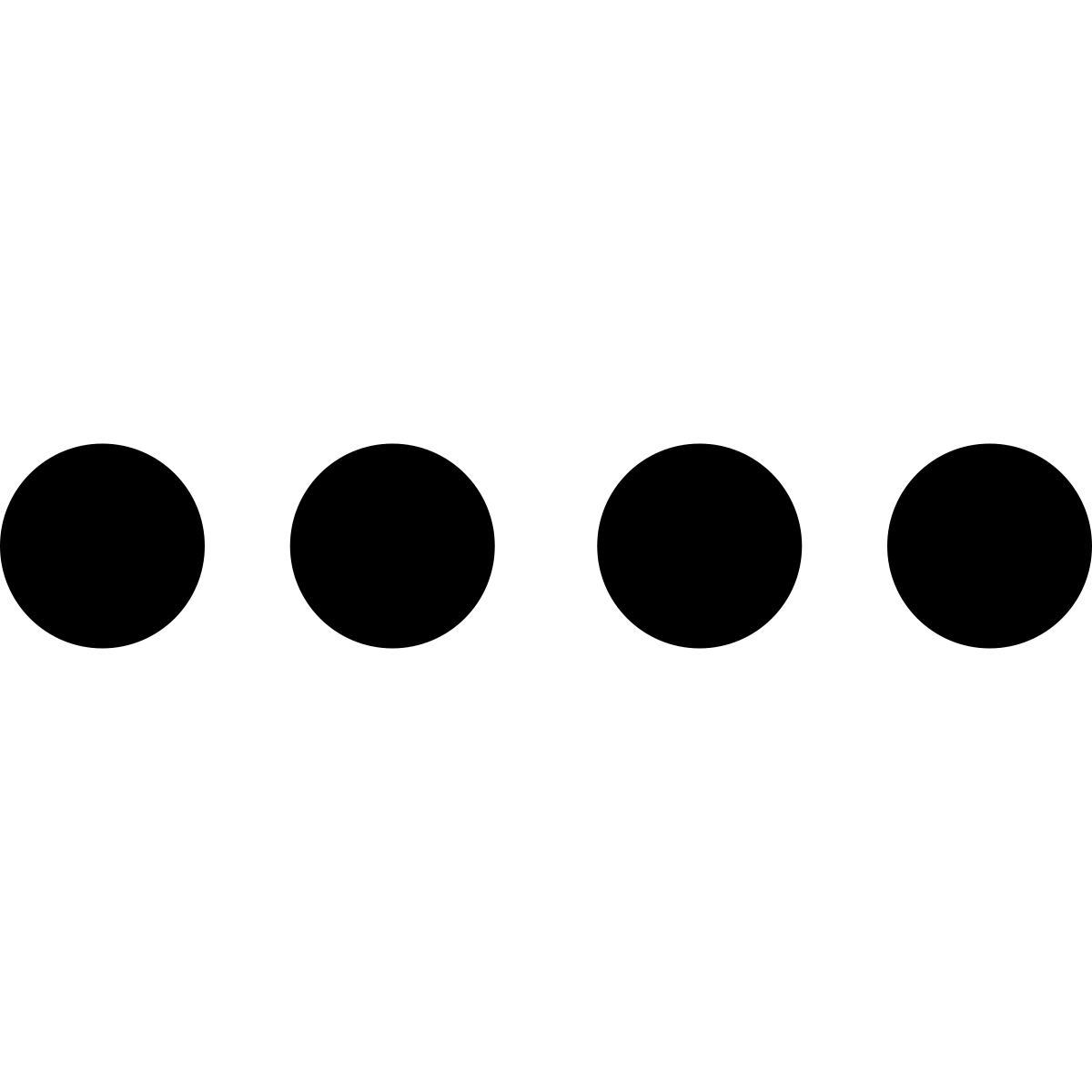
\*\*When retrieving rocks, be sure to include a direction (*Right, Left, Forward*)!

The rover will ONLY be able to follow your written commands. You CANNOT change your commands once your rover has begun the course.

**Your Mission:**

* **Safely** navigate your rover **as fast as possible** on the Martian surface



* Return **rock samples** (cones) to Earth for research 
* Dangerous, rocky terrain and craters (Do NOT step on colorful dots

**Rover Command Codes**

|  |  |  |
| --- | --- | --- |
| Right **R**  Left **L** | Forward **F**  Backward **B** | Stop **S**  Rock Sample Retrieval **RSR** |

Commands *Example*  1. F 3 steps. 2. Turn L 1 step. 3. RSR ®

\*\*You DO NOT have to use all 31 commands. Use as many steps as you need!

|  |  |
| --- | --- |
| 1.  2.  3.  4.  5.  6.  7.  8.  9.  10.  11.  12.  13.  14.  15.  16. | 17.  18.  19.  20.  21.  22.  23.  24.  25.  25.  26.  27.  28.  29.  30.  31. |

**OFFICIAL**

**Rover Official** Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ **HR**: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Course:** SPIRIT OR OPPORTUNITY **Attempt** (circle one) : First or second

Name of Rover **Driver**: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Name of Rover **Members**: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

-> Say GO and start the stopwatch.

> As the Rover moves through the course:

* Record the **number of foot faults** by making tally marks in the chart below.

*\*Check that the driver is only reading the commands on their sheet!*

> When your rover finishes:

* STOP the stopwatch. Record the **total course time** in the chart below.
* Count the **total rock samples collected**. Record it in the chart below.

|  |  |  |
| --- | --- | --- |
| **Number of Foot Faults\*** | **Total Course Time** | **Total Rock Samples Collected** |
| noun_163448.png | noun_490476_cc.png | noun_880719_cc.png |
|  | \_\_\_:\_\_\_\_.\_\_\_ |  |

\* Make a tally mark for every time the first person in your rover team steps on a tile.

**\*\*Grab from rover as they are collected. Return to course when complete.**

**Post Drive Reflection**

As a team, evaluate your performance in each category on a scale of **1-5 *(1=We need more practice, 5 = We are ready to go to Mars!)***

Discuss the questions and record your answers on the lines below. Be specific.

Teamwork - **We worked well as a team.**

**1 2 3 4 5**

Problem-solving - **We overcame difficulties/challenges well as a team.**

**1 2 3 4 5**

Perseverance - **We continued even when it was difficult.**

**1 2 3 4 5**

Character - **Our role assignments were a good fit for each of us.**

**1 2 3 4 5**

Communication - **We communicated well with each other.**

**1 2 3 4 5**

What were some of the **challenges** your team experienced during your Rover Race?

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

What do you think may have **caused** these challenges?

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

What are the suggested **changes** for the Rover Team’s next drive?

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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