

Module 2

**Operation: Space Travel - From Earth to Mars
10-14 Teacher Version**

**ROBOTICS THROUGH SIGN LANGUAGE: ENSURING ACCESS
AND ENGAGEMENT OF STUDENTS WITH DISABILITIES
(DEAF OR WITH HEARING IMPAIRMENT) TO THE DIGITAL WORLD
OF CODING AND ROBOTICS – ROBOTICS4DEAF**

Project no: 2019-1-PL01-KA201-065123



Erasmus+

This project has been funded with support from the European Commission.
This communication reflects the views only of the author,
and the Commission cannot be held responsible for any use
which may be made of the information contained therein.



Version: 01.2020

Disclaimer

This project has been funded by the Erasmus+ Programme of the European Union.

The information and views set out in this publication are those of the author(s) and do not necessarily reflect the official opinion of the European Union. Neither the European Union institutions and bodies nor any person acting on their behalf may be held responsible for the use which may be made of the information contained therein.

Reproduction is authorised provided the source is acknowledged.

All rights reserved

Copyright © in ROBOTICS4DEAF consortium, 2019-2021

Title:

Operation: Space Travel - From Earth to Mars

Description:

In this scenario pupils ages 10-14 years old will learn about what it takes for a space exploration, how satellites orbit Earth and how a trip to the planet Mars would be like including a pit stop to the Moon for refuelling.

Relevant subjects:

Astronomy, Engineering and Mathematics

Other relevant competencies:

Problem-solving, Team work, Creativity

Target group:

Pupils 10-14 years old

Facilities/equipment needed:

Classroom, Projector, Internet Access, Lego Boost Robot KIT, Tablets, a printed playmat

Pre-requisites:

No cognitive prerequisites are required

Duration:

45' for Theoretical Questions

180' for Activity I

180' for Activity II

60' for Discussion-Conclusion

Learning Objectives:

Students will:

- *Get to know about the Moon and the Planet Mars*
- *Calculate the distances between them and Earth and the difficulties of reaching to them*
- *Construct the M.T.R.4 robot*
- *Learn commands for movement, colour recognition and motor movement*
- *Get to know the robot sensors and how to use them*
- *Develop their problem-solving skills through the completion of the various tasks set*

Theoretical questions:

Students should have access to the Internet so they can do their own research and answer the following questions

Helpful links:

How Long Does It Take To Get To The Moon?

<https://www.youtube.com/watch?v=eOJAgQwfXNE>

1. Moon 101 | National Geographic –
2. <https://www.youtube.com/watch?v=6AviDjR9mmo>
3. Mars 101 | National Geographic –
4. <https://www.youtube.com/watch?v=D8pnmwOXhoY>

1. *How far is the Moon from Earth?*

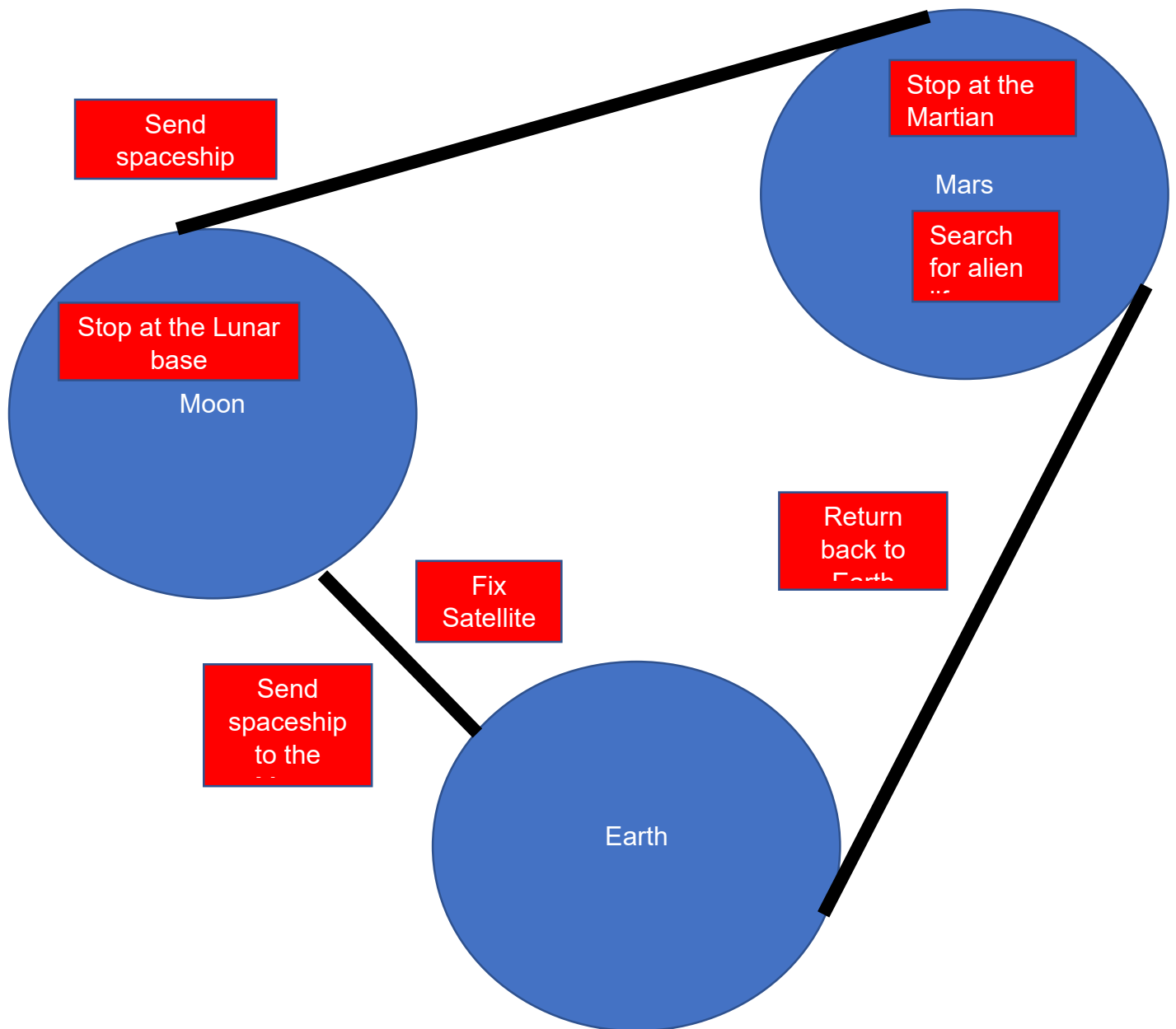
2. *How long did it take for this first mission to reach the Moon?*

3. *How far is the planet Mars from Earth?*

4. *How long would it take to reach Mars?*

5. *What would be some of the tasks which the astronauts would do once they reach planet Mars?*

Main activities:



Tasks:

- *Send spaceship to the Moon*
- *Fix the satellite on the way to the Moon*
- *Stop at the Lunar base*
- *Send Spaceship to the Planet Mars*
- *Stop at the Martian base*
- *Search for traces of life on Mars*
- *Return safely back to Earth*

Discussion/conclusion:

1. *Do you think Humans will ever live permanently on Planet Mars and when?*

2. *How will space exploration help humankind?*

3. *Do you think robots will play a role in space exploration and colonization?*

4. *How will the discovery of alien life change our lives back in Earth?*

Further activities:

1. *Which planet should mankind visit after Planet Mars and why?*

2. *Extend the playmat to include the planet you chose and explore specific aspects of the planet which make it unique*



This document may be copied, reproduced or modified according to the above rules.
In addition, an acknowledgement of the authors of the document
and all applicable portions of the copyright notice must be clearly referenced.

All rights reserved.

Copyright © in ROBOTICS4DEAF consortium, 2019-2021

