

Engineering Mini-MOOC

Fly me to the Moon

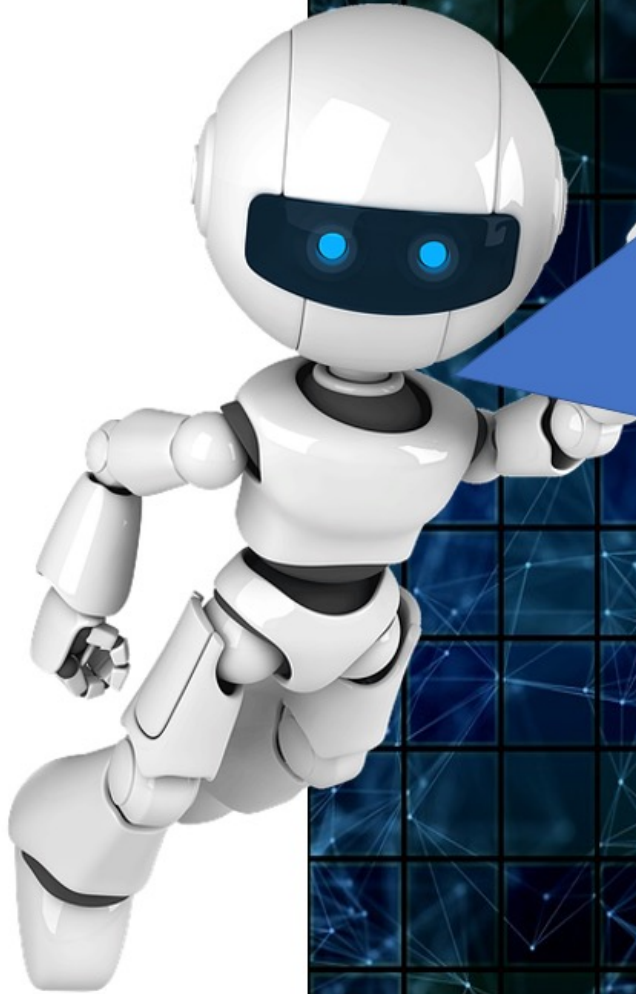




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Erasmus+ Programme
Partnership – Project n°2019-
1-SE01-KA201-060604



Hello and welcome !

I am ERA6, your trainer robot.

In this MOOC, we train NASA astronauts and engineers for the Apollo 2035 mission to the Moon. The objective of this mission is to build the first inhabited lunar base.

For that, we propose 4 training modules:

1. Accident on the Moon
2. How did we get to the Moon?
3. The technology it took to get to the Moon
4. Design your moon camp



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1. Accident on the Moon (engage)



Hello, this is ERA6 and you are in our first training module :
Accident on the Moon

Objective of this course :

Knowing the lunar environment is fundamental. The future colonists will have to make decisions and in particular they will have to be able to choose the most suitable tools for life on the Moon.

Instructions for the task

Imagine an accident on the moon: the aim is to find the essential equipment to reach the mother rocket, by classifying 15 objects in order of importance. The exercise is done individually and then in groups.



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1. Accident on the Moon (engage)

10 minutes: individual ranking

Each participant fills the decision sheet (first column). During this phase, no exchange between the participants is allowed.

30 minutes: collective ranking (working group)

In your group determine a collective ranking of the same elements. Then fill the third column “Collective ranking”.

20 minutes: explanation and score results

Fill the last column with the NASA ranking and calculate the individual and collective score.

Calculation: the score is the difference between your rank and NASA rank. Calculate each line and then the total. The lower the score, the better the result.



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1. Accident on the Moon (engage)

How to calculate your score ?

1. Complete the "Rankink of N.A.S.A. column.

Objects	Individual ranking	Difference in points	Collective ranking	Difference in points	Ranking of N.A.S.A.
A matchbox	3		5		15
Concentrated food	2		2		4
50 meters of nylon rope	15		11		6
	Total :		Total :		



1. Accident on the Moon (engage)

How to calculate your score ?

1. Complete the "Rankink of N.A.S.A. column.
2. Then, calculate the distance between Individual ranking and N.A.S.A. ranking. Make the individual total.

Objects	Individual ranking	Difference in points	Collective ranking	Difference in points	Ranking of N.A.S.A.
A matchbox	3	12	5		15
Concentrated food	2	2	2		4
50 meters of nylon rope	15	9	11		6
	Total : 23		Total :		



1. Accident on the Moon (engage)

How to calculate your score ?

1. Complete the “Rankink of N.A.S.A. column.
2. Then, calculate the distance between Individual ranking and N.A.S.A. ranking. Make the individual total.
3. Finaly, calcule the distance between Collective ranking and N.A.S.A. ranking. Make the collective total.

Objects	Individual ranking	Difference in points	Collective ranking	Difference in points	Ranking of N.A.S.A.
A matchbox	3	12	5	10	15
Concentrated food	2	2	2	2	4
50 meters of nylon rope	15	9	11	5	6
	Total : 23		Total : 17		



1. Accident on the Moon (engage)

How to read your score ?

The lower your score is, the better you are.

In the below example, the individual score is 23 and the collective score is 17. The group has been better than the individual.

Objects	Individual ranking	Difference in points	Collective ranking	Difference in points	Ranking of N.A.S.A.
A matchbox	3	12	5	10	15
Concentrated food	2	2	2	2	4
50 meters of nylon rope	15	9	11	5	6
	Total : 23		Total : 17		

Objects	Explanation	ranking of N.A.S.A.
2 tanks of 50 kg of oxygen each	First essential element of survival	1
25 liters of water	Indispensable to compensate a strong dehydration due to the very great heat on the illuminated side of the moon	2
A celestial map of the lunar constellations	Essential for orientation	3
Concentrated food	Efficient way to repair energy loss	4
A solar powered transceiver (medium frequency)	Useful to try to communicate with the mother rocket but this device does not have much range	5
50 meters of nylon rope	Useful for roping up, climbing rocks; possibly for hoisting the injured	6
A medical kit and hypodermic syringes	The injections of vitamins, serum etc...require a special opening (provided by the N.A.S.A.)	7
A silk parachute	Can be used to protect from sunlight	8
A self-inflating lifeboat	Can be used as a sled to pull objects; the gas (CO) used for this device can be used for propulsion	9
Light signals	Useful when the mother rocket is in sight	10
2 x 45 caliber pistols	Can be used to accelerate propulsion; in a pinch to end one's life	11
A case of powdered milk	Nutritional trap: more cumbersome than concentrated food	12
A solar powered heater	Not useful: suits are heated	13
A magnetic compass	No use on the moon; the magnetic field is not valued there	14
A matchbox	The absence of oxygen does not allow them to ignite	15