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# HAVE SEEDS

# WILL TRAVEL!



How We Build it ?

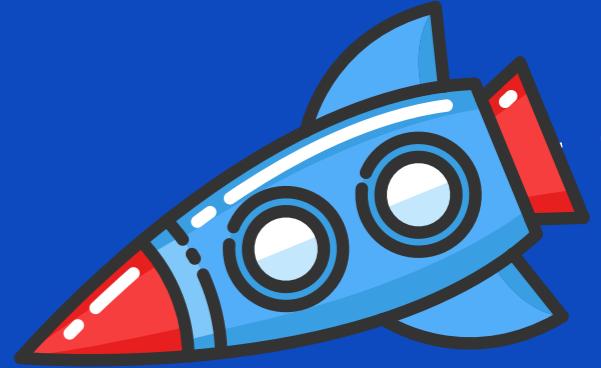
Mission To Mars!

## The Package

Discover ▾

# THE

# MISSION



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Travel details :

Rocket speed = 39,600 Kilometers per hour

Distance from Earth to Mars (One way) = ~480 million kilometers

Travel time (One Way) = ~7 months



# THE CREW

A crew of 4 to 6 humans  
All consuming between 1900 and  
3200 calories per day  
Work and sleep on a small  
spacecraft



# SURVIVING



*Back To Earth!*

Having 5 vegetables such as Kale, Spinach, Lettuce, Sweet potatoes, and Cabbage can give astronauts the nutrition they need. Out of 17 essential Vitamins and Minerals vegetables help provide over 75% of the required intake just on their own.

## COMPONENTS OF THE SEMI-RIGID GROWING MODULE

- Growing tray LWH 120x60x15 is enough to grow 18 Lettuce plants.
- Planting pillows dimensioned 20x20x15 cm used in the growing tray.
- “Upper” side where the plant will be growing should be made from water impermeable plastic sheet to reduce evaporation losses.
- Sides and bottom might be made from the wicking material to distribute water and contain LECA (Lightweight Expanded Clay Aggregate) pellets.
- LECA is chosen for mostly reusability, it is easier to clean it of roots and sterilize it.
- Water is delivered through tubes around the back of the unit from the water bladder to the individual plants
- LED light panels are placed at a distance of 40 centimeters from the growing substrate.
- Full spectrum LED light source is proposed for this installment due to better aesthetics and promotion of psychological support for the crew.
- Instrumentation panel with camera sensors, ventilation system (CO<sub>2</sub> and Oxygen supply and air agitation system) and microcomputer are installed in the system to allow for high automation.





## Mustard

**Nutritional value:** A, C, K, B1, B3, B6

**Growing Space:** 30cm (Area = 900cm<sup>2</sup>)

**Growing time:** 30 to 60 days (1-2 months)



## Spinach

**Nutritional value:** K, A, E, C, B2, B6, B9, Mn<sup>2+</sup>, Cu<sup>2+</sup>

**Growing Space:** 30cm (Area = 900cm<sup>2</sup>)

**Growing time:** 6-10 weeks (1.5 to 2.5 months)



## Lettuce

**Nutritional value:** K, A, Folate (B9), Iron

**Growing Space:** 20cm (Area = 400cm<sup>2</sup>)

**Growing time:** 50 days (1.5 - 2 months)



POSSIBLE PLANTS TO TAKE