

MISSION X MISSION HANDOUT

An ESA Mission X - Train Like an Astronaut Mission Handout



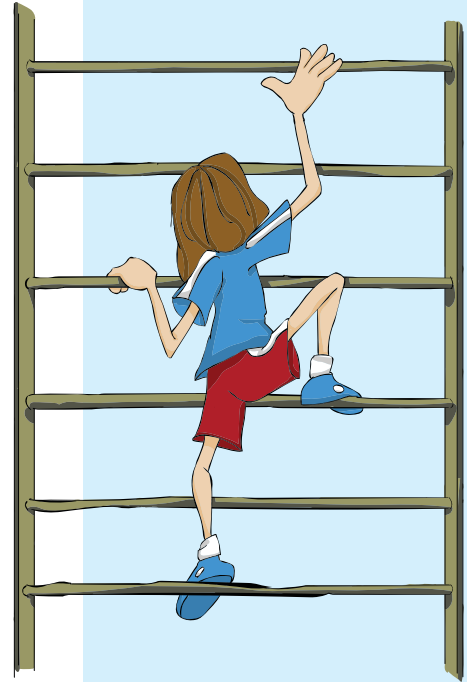
YOUR MISSION: **Let's Climb A Martian Mountain**

You will perform a climb training activity on wall bars or a rock wall to improve your sense of balance and coordination and strengthen your muscles. Space explorers in a far future might need to be good and stable climbers to explore mountainous landscapes on planets in our Solar System, like the impressive volcanoes on the Martian surface.

Being agile requires the ability to be efficient when moving, able to react and adapt your movement quickly, with the correct sense for strength and speed as well as balance and coordination. Some daily activities that require agility include walking up and down stairs, going through an obstacle course, hiking outdoors, or playing tag. To climb, you need to stay focused and be self confident.

MISSION QUESTION:

How could you perform a physical activity that will improve your sense of balance, muscle strength and ability to reach an objective?



Climbing improves upper body strength, which is extremely important for the stability of your body, a better posture, balance, and participate in most kind of sports. Improving agility will make it easier for you to move around objects quickly and safely. Reaching the top of your climbing path can help you enhance your self confidence by completing a goal. Climbing increases body awareness and mental discipline, which is important in everyday life, also when studying or focusing on a subject.

MISSION ASSIGNMENT: **Climbing Training**

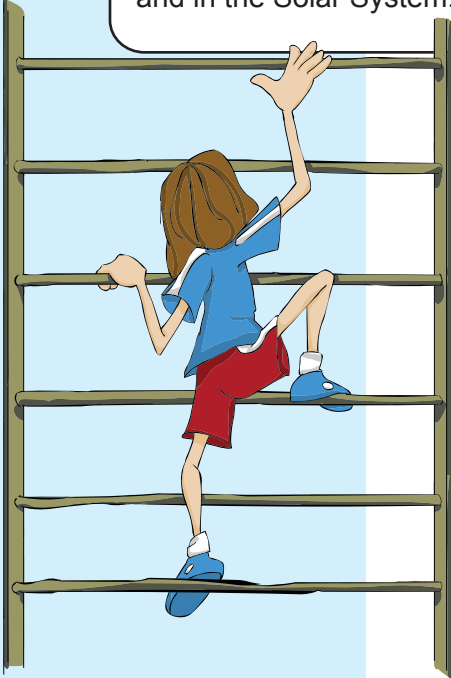
- ☐ To perform the exercise, you will need to be in a gym equipped with series of inclined wall bars or rock wall and a mat.
 - ☐ Climbing:
 - ⇒ Climb the wall bar/ rock wall as high as you can, following your teachers' recommendations.
 - ⇒ Touch the highest bar.
 - ☐ Descend the wall bar/ rock wall jumping:
 - ⇒ Sit on a bar or step of the ladder or rock wall.
 - ⇒ Hang from the step of the ladder or rock wall and keep hanging.
 - ⇒ Jump and stay still.
- ☐ Record observations before and after this physical experience in your Mission Journal.

Follow these instructions to train like an astronaut.

It's a Space Fact

During the basic training and sometimes in preparation of a space mission, astronauts perform activities aimed at strengthening upper body muscles, whole body stability and balance, flexibility and agility. European Space Agency (ESA) astronauts mostly train on artificial walls, however climbing can also be done outside on the rock or in a climbing garden with challenging stations several meters of the ground. ESA astronaut Paolo Nespoli is keen on rock climbing and he is not the only one. NASA astronaut Scott Parazynski said that 'one of the best ways to prepare for a spacewalk is rock climbing. It takes a lot of strength and endurance'. Similarly in preparation for a space mission, also climbing activities requires a training, mental focus and physical fitness.

Planets of the Solar System feature impressive mountains: Olympus Mons is the tallest mountain on Mars and in the Solar System: it is 3 times as tall as Mount Everest!



Agility:

The ability to quickly and easily change the position of your body.

Muscle Strength:

Ability to overcome a force/resistance by contracting your muscles.

Self Confidence:

To believe in yourself, to believe that you are able to accomplish what you set out to do, to overcome obstacles and challenges

Fitness Acceleration

- ☐ Climb and descend the bar wall or rock wall 3 times in a row.
- ☐ When descending the bar wall or rock wall, do it from the back side of the bar wall or backwards on the rock wall. How difficult is this to complete?
- ☐ When climbing the bar wall or rock wall, do it from the back side of the bar wall.

Think Safety!

Scientists and Astronaut Strength, Conditioning & Rehabilitation (ASCR) Specialists working with the astronauts must make sure they have a safe environment in which to practise, so that the astronauts can't get injured.

- ☐ A warming-up and cooling-down period is always recommended.
- ☐ Avoid obstacles, hazards, and uneven surfaces.
- ☐ Wear appropriate attire for cycling such as a helmet and knee and elbow pads that allow you to move freely and comfortably to climb in Jump from a height you feel comfortable with and always under your teacher's supervision.

Mission Explorations

- ☐ Find a gym which is equipped with climbing artificial walls for children to try the true experience of climbing.
- ☐ Try to climb a rope: many gyms are equipped with hanging ropes. How high can you go?
- ☐ Organize a hiking trip to the mountains.

Status Check: Have you updated your Mission Journal?