

MISSION X

TRAIN LIKE AN ASTRONAUT



CLIMB A MARTIAN MOUNTAIN

Team Leader Guide

MISSION OVERVIEW

Students will do climbing exercises on a rib or a climbing frame to improve their balance, muscle strength and coordination.

LEARNING OBJECTIVES:

- Train the upper body muscles by exercising how to climb, hang and swing.
- Make and record observations about improvements in climbing and coordination skills.

Skills: climbing, agility, coordination, muscle strength.

FAST FACTS

Subject: Physical Education

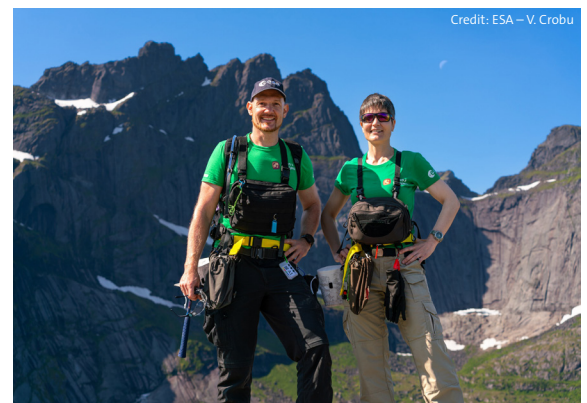
Age: 8-12

Lesson Time: 15-30 min

Location: gym, training center or an area where ribs, climbing wall or climbing frame are available

INTRODUCTION

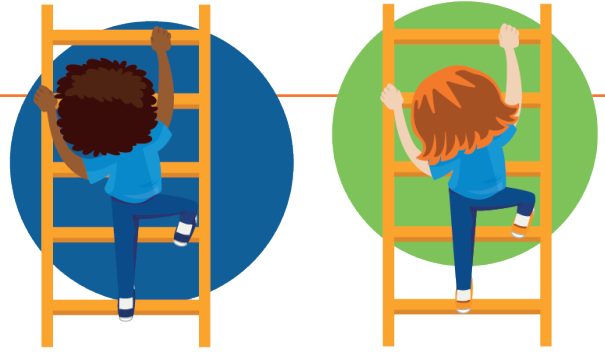
The planets in our solar system have impressively high mountains. Did you know that Olympus Mons is the tallest mountain on Mars and in the Solar System? It is 3 times as tall as Mount Everest! Astronauts may therefore need to be good and stable mountaineers in the future to explore those landscapes on other planets. During their preparations for a space mission, astronauts do climbing exercises to strengthen their upper body, whole-body stability, balance and flexibility. Astronauts practice climbing on artificial walls, a cliff face or in a climbing area. Climbing improves upper body strength, which is very important for body stability and balance. Climbing activities also require mental focus, which is necessary to prepare for a space mission.



↑ ESA astronauts Alexander Gerst and Samantha Cristoforetti stand in a Norwegian fjord, fully equipped for their first field expedition on lunar geology.

By doing this activity, students will also strengthen their agility, making it easier to move quickly and safely. Being agile means being able to move efficiently as well as reacting and changing movements quickly and having the right sense of strength, speed, 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!

LET'S TRAIN LIKE AN ASTRONAUT!



MATERIALS

Team Leader

- Access to ribs/climbing frame/climbing wall
- Mattress to put under ribs
- A watch or stopwatch

Student

- Mission Journal and pencil

Optional to be used in Mission Adaptations

- Colorful stickers or flags
- A climbing rope

PROCEDURE

Climbing

1. Students climb up a rib/climbing frame.
2. They touch the highest rib (use a bell, if necessary, which the pupils have to hit).
3. Students climb down the ribs or jump down from the height if they dare to jump down and are declared safe by the teacher.
4. Students record observations about the exercise in the Mission Journal, e.g. time recording.

Hop

1. The students climb up and sit on the top rail (or a bit up the climbing frame)
2. From here, the students move so that they are hanging from the ribs.
3. When students are ready, they swing their bodies in a jump and try to land so that they can stand still on the floor.
4. Students write down their observations about the exercise in the Mission Journal, e.g. time recording or how easy/difficult it was to perform the jump.



THINK SAFETY

- A warming-up and cooling-down period is always recommended.
- Avoid obstacles, hazards, and uneven surfaces.
- Students should wear appropriate attire for cycling such as a helmet, knee and elbow pads that allow students to move freely and comfortably to climb in.
- Jump from a height you and your students feel comfortable with and always under your supervision.
- Remember to drink enough fluids.

MISSION ADAPTATIONS



Increase Difficulty

- Climb and descend the bar wall or rock wall 3 times in a row.
- When descending the bar wall, do it from the back side of the bar wall.
- Students must only touch every other bar.
- Try to climb a climbing rope.
- Find a training centre that has artificial climbing walls for kids to let students try the real-life experience of climbing.



Increase Accessibility

- Use visual aids on the climbing bars, such as colorful stickers or flags to increase visibility.
- Use tools that can make a sound, e.g., a bell that students can hit when they come up to the bar to create motivation.
- Don't use timing, but let students climb at a steady pace.



Decrease Difficulty

- Reduce the height that students must climb.
- Don't use timing, but let students climb at a steady pace.



This resource has been adapted from NASA's "Base Station Walk-Back".

Original Credits: Lesson development by the NASA Johnson Space Center Human Research Program Education and Outreach team with thanks to the subject matter experts who contributed their time and knowledge to this NASA Fit Explorer project.