TRAIN LIKE AN ASTRONAUT MISSION HANDOUT

YOUR MISSION: Jump for the Moon

You will perform jump training with a rope, both while stationary and moving, to increase bone strength and to improve heart and other muscle *endurance*. You will also record observations about improvements in stationary and moving jump training during this physical experience in your Mission Journal.

Stronger bones will allow you to run, jump, work and play with less chance of injury. A stronger heart and more muscular *endurance* will allow you to be physically active for a much longer time! You are already improving bone strength and heart and muscle *endurance* when you repeatedly hop on one leg, jump rope or jump to rebound a basketball.

MISSION QUESTION: How could you perform a physical activity that would increase bone strength, as well as heart and other muscle *endurance*?

MISSION ASSIGNMENT: Jump Training

- ◯ **Stationary:**
  - With a jump rope, try to jump in place for 30 seconds.
  - Rest for 60 seconds.
  - Repeat three times.
  - When mastered, proceed to moving.
- ◯ **Moving:**
  - Try to jump rope while moving across a smooth surface for 30 seconds.
  - Rest for 60 seconds.
  - Repeat three times.
- ◯ Repeat jump training two more times.
- ◯ Record observations before and after this physical experience in your Mission Journal.

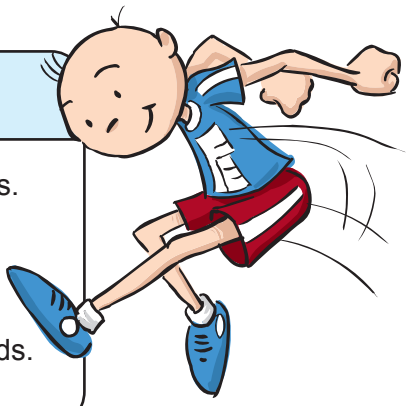
Follow these instructions to train like an astronaut.

Your bones will become stronger when you do exercises that support your weight, such as running or jumping. By jump training over time, you can strengthen your heart and train your muscles to work longer without getting as tired. After training, you may find that some activities which made your muscles tired and your heart beat fast have become easier.

It's a NASA Fact:

On Earth, your weight on your bones provides a constant stress. You maintain your bone strength just by doing regular daily activities like standing, walking, and running! In space, astronauts float – unloading that important stress and weakening their bones. Therefore they depend on nutritionists and strength and conditioning specialists at NASA to plan food menus and physical activities that will help them keep their bones as strong as possible while in space. Stronger bones will help astronauts stay safer while performing all of their assigned tasks – whether in a space vehicle, on the moon, Mars, or once back on Earth. Since some tasks may involve regular lifting and moving of objects, astronauts often rely on the strength of their bones and the *endurance* of their hearts and other muscles for successful completion of these tasks.

Fitness Accelerations



- Jump rope in place for 60 seconds without stopping. Rest for 30 seconds. Jump rope side to side for 60 seconds. Repeat this activity three times.
- Jump rope for 30 seconds doing a straddle jump. Rest for 30 seconds then do a straddle jump for 60 seconds. Repeat this activity three times.
- Jump rope in place for 30 seconds. Jump rope side to side for 30 seconds. Straddle jump for 30 seconds. Rest for 30 seconds. Do this three times.

Think Safety!

- **Just like an astronaut's gloves are sized to fit their hands, your equipment must fit you as well!**
- Make sure the length of your jump rope is correct for your height.
  - Stand in the middle of the rope and raise the ends under each armpit. If the handles barely touch – it fits!
- Always bend your knees slightly as you land to be safe. Maintain at least two arms length distance between you and others while jumping rope. Avoid obstacles and uneven surfaces. Look where you are going!
- Remember that drinking plenty of water is important before, during, and after physical activities.

Endurance: The ability to perform an exercise or a physical task over a long period of time.

Mission Explorations:

- Count how many jumps you can perform in a given time period.
- Join a track team and do the long jump and triple jump.
- Try dancing, which also requires jumping and landing.
- Organize and hold a jump-a-thon at your school.
- Jump as high as you can and land softly.

Status Check: Have you updated your Mission Journal?