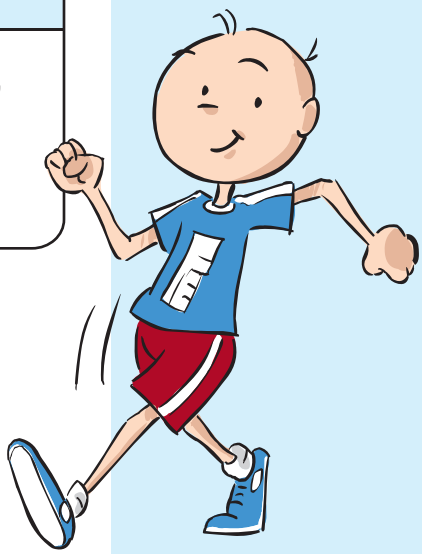
National Aeronautics and Space Administration

FIT EXPLORER MISSION HANDOUT

YOUR MISSION: Base Station Walk-Back

You will perform a walk, progressing to 1600 m (1 mi) to improve lung, heart, and other muscle *endurance*. You will also record observations about improvements in this *walk-back* physical *endurance* experience using your lungs, heart, and other muscles in your Mission Journal.



Being physically active is an important way to keep your muscles strong and your heart and lungs healthy. When you are shopping at the mall, touring a museum, or on the way to and from class at school, your muscles, heart, and lungs benefit. They get stronger by being worked for long periods of time.

MISSION QUESTION: How could you perform a physical activity that would improve lung, heart, and other muscle *endurance*?

MISSION ASSIGNMENT: Endurance Training

- ◯ Measure a course with the following distances:
  - 400 m (¼ mi)
  - 800 m (½ mi)
  - 1200 m (¾ mi)
  - 1600 m (1 mi)

  This could be laps around the playground, track, gym, or your neighborhood.

- ◯ At your own pace, walk, jog, or run the measured distance.
  - Start by trying to complete 400 m (¼ mi).
  - Slowly work to increase the distance by 400 m (¼ mi).
  - Over time, your goal should be to complete 1600 m (1 mi).

- ◯ Record observations before and after this physical experience in your Mission Journal.

Follow these instructions to train like an astronaut.

Base Station:
A home-base on the moon or Mars where astronauts will be stationed.

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

Rover:
A go-cart-like vehicle that astronauts drive on the moon and potentially the Mars surface.

Walk-Back:
The task of walking a distance up to 10 km (6.2 mi) which astronauts must be able to complete to in order to return to their base station.

It's a NASA Fact:

When exploring the moon or Mars, astronauts will complete many physical tasks such as setting up science experiments and power systems around the base and collecting rock samples. They will also walk or drive the *rover* long distances in order to explore the surface. If their *rover* breaks down, they must be able to walk up to a distance of 10 km (6.2 mi) back to their base station. Astronauts are examined by research scientists in NASA's Cardiovascular Laboratory and they train with NASA strength and conditioning specialists to strengthen their lungs, hearts and other muscles before their mission. This helps NASA to know the crew member is physically prepared to complete their mission tasks and to perform a *walk-back*, if necessary.

MISSION COMPLETE: Test Yourself!

These should be done over time:

- ○ Completely travel the measured distances of 400 m (¼ mi) one time without stopping.
- ○ Completely travel the measured distances of 800 m (½ mi) one time without stopping.
- ○ Completely travel the measured distances of 1200 m (¾ mi) one time without stopping.
- ○ Completely travel the measured distances of 1600 m (1 mi) one time without stopping.

By improving your ability to walk a measured distance, you may find that running a race, walking uphill, or carrying a heavy backpack while walking will become easier over time.

Think Safety!

- ○ **Astronauts must be careful of overheating due to the release of body heat while wearing a thick spacesuit.**
- ▭ Always wear appropriate clothes and shoes for walking.
- ▭ Avoid obstacles, hazards, and uneven surfaces.
- ▭ Remember that drinking plenty of water is important before, during, and after physical activities.

Mission Explorations:

- ▭ Perform the activity as a relay team event.
- ▭ Trail walk or hike a measured distance.
- ▭ Compete in "fun-runs", races, or join a track team.
- ▭ Walk with your family or friends instead of using other transportation.

Status Check: Have you updated your Mission Journal?