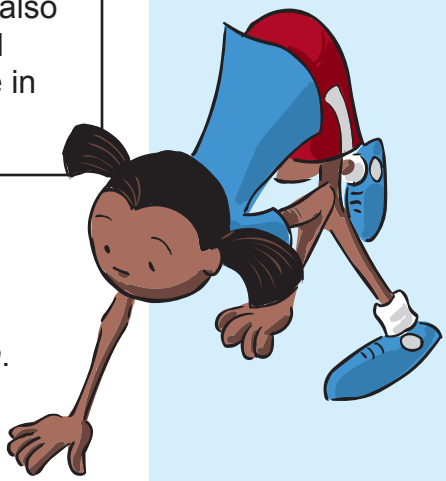
TRAIN LIKE AN ASTRONAUT MISSION HANDOUT

YOUR MISSION: Do a Spacewalk!

You will perform the "bear crawl" and "crab walk" to increase muscular strength and improve upper and lower body *coordination*. You will also record observations about improvements in muscular strength and upper and lower body *coordination* during this physical experience in your Mission Journal.



Many activities require strength and *coordination* so you can support your weight and move without falling over. When you ride a skateboard, do push-ups, crawl across the ground, or lift your backpack, you are developing muscular strength and *coordination*.

MISSION QUESTION: How could you perform a physical activity that would increase muscular strength, as well as improve upper and lower body *coordination*?

MISSION ASSIGNMENT: Coordinated Strength Training

- ◯ Measure a distance of about 12 m (40 ft).
- ◯ **Bear Crawl:**
  Get down on your hands and feet (facing the floor) and walk on all fours like a bear.
  - Try to travel the measured distance.
  - Rest for two minutes.
  - Repeat two times.
- ◯ **Crab Walk:**
  Reverse the "bear crawl". Sit on the ground and put your arms and hands behind you, knees bent and feet on the floor. Lift yourself off the ground (facing upwards).
  - Try to travel the measured distance.
  - Rest for two minutes.
  - Repeat two times.
- ◯ Record observations before and after this physical experience in your Mission Journal.

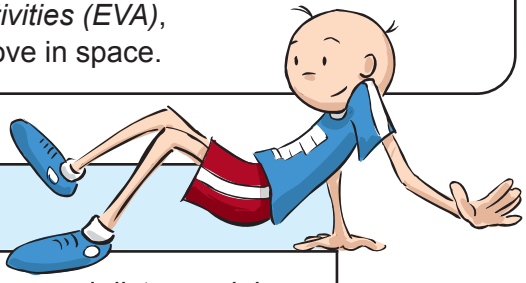
Follow these instructions to train like an astronaut.

Coordination: Using your muscles together to move your body the way you want it to.

Extra Vehicular Activity (EVA): Any human movement activity that takes place in space, outside the space vehicle, commonly called a spacewalk.

It's a NASA Fact:

Just like you, astronauts must develop muscular strength and *coordination*. In a reduced-gravity environment, astronauts are unable to walk like they do on Earth. Instead, they *coordinate* their hands, arms, and feet to pull and push themselves from one place to another. Before their mission, they practice these movements underwater with divers and specialists at the Neutral Buoyancy Laboratory (NBL) in Houston, Texas. Whether inside a space vehicle or outside doing *Extra Vehicular Activities (EVA)*, strong muscles and *coordination* help astronauts move in space.



Fitness Accelerations

- ○ Complete a 6m (20 ft) relay with other classmates. Travel the measured distance doing the crab walk. Return to the starting place doing the bear crawl. Repeat three times. *Measure the distance for your student ahead of time or have the student's measure out the course themselves.*
- ○ Increase the above acceleration by completing an 18 m (60 ft) relay. *Stress to your students that once they complete this acceleration they will have traveled 36 m (118 ft).*
- ○ Continue the above acceleration. This time wear hand and ankle weights.

Participating in physical activities that use your arms and legs to support your body weight will help your muscles become stronger and improve your *coordination*.

Think Safety!

- ○ **NASA engineers must design the surfaces of space vehicles with an astronaut's safety in mind. The surfaces must be free of obstacles so it is safe to move around.**
- Avoid obstacles, hazards, and uneven surfaces.
- Perform this activity only on a smooth surface to avoid injury to hands.
- Stay an arms length distance between you and others while moving. Look where you are going!
- Remember that drinking plenty of water is important before, during, and after physical activities.

Mission Explorations:

- Try moving in a forward direction, then try backward. Do this for both the bear crawl and the crab walk.
- In the crab position, play team soccer with a large inflatable ball.
- Set up a course to travel through.
- Perform these activities as a relay team.
- Keep your feet stationary and use your arms to move your body around in a circle, like the hands of a clock.

Status Check: Have you updated your Mission Journal?