UK SPACE AGENCY

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MISSION X

TRAIN LIKE AN ASTRONAUT

AGILITY ASTRO-COURSE

Team Leader Guide

MISSION OVERVIEW

Students will complete an agility course as quickly and as accurately as possible.

LEARNING OBJECTIVES

- Build and improve movement skills, coordination, and speed.
- Make and record observations about improvements in agility.

Skills: agility, spatial awareness, laterality and directionality

FAST FACTS

Subject: Physical Education
Age: 8-12
Lesson Time: 15-30 min
Location: non-slip flat surface such as a gym floor, outside in dry grass, or on a 5-lane athletic track

INTRODUCTION

Agility is the ability to rapidly change directions without the loss of speed, balance, or body control. Every day we come into situations where agility helps us. If you ride a bike, skateboard, play videogames, roller blade, or play any type of sports, you must rely on your agility to be successful in these activities. For example, in the game of football, having good agility skills is extremely important to reduce or eliminate turnovers. Football players are always starting, stopping, and changing directions and speeds. Football champions don't become champions without doing agility training!

Just like an athlete, it is necessary for an astronaut to do strength and agility training. Astronauts that stay in space for 4-6 months are tested on their physical agility before and after their space mission. There is a lot of focus on balance, coordination, and agility. Being in space for long periods of time can affect the astronaut's ability to react to situations in a timely manner. This is observed once the astronauts have returned to Earth. To help astronauts recover their agility after a mission, they run through an agility course that tests their quickness, reaction time, eye-hand coordination, and speed. On Earth, astronauts make sure their agility has returned to the same state as before their mission by staying active with a regular physical fitness routine.

LET'S TRAIN LIKE AN ASTRONAUT!

MATERIALS

Team Leader

- Eight marking cones, or other small, steady objects
- Measuring tape or meter stick
- Paper and pencil
- Watch or stopwatch/timer

Student

- Mission Journal and pencil

Optional to be used in Mission Adaptations

- Swimming noodles placed on the cones

PROCEDURE

The following course should be completed one at a time by each student:

1. Have the student lie face-down on the ground at the starting point. The student should lie on their front (similar to starting a push up) with hands by their shoulders.

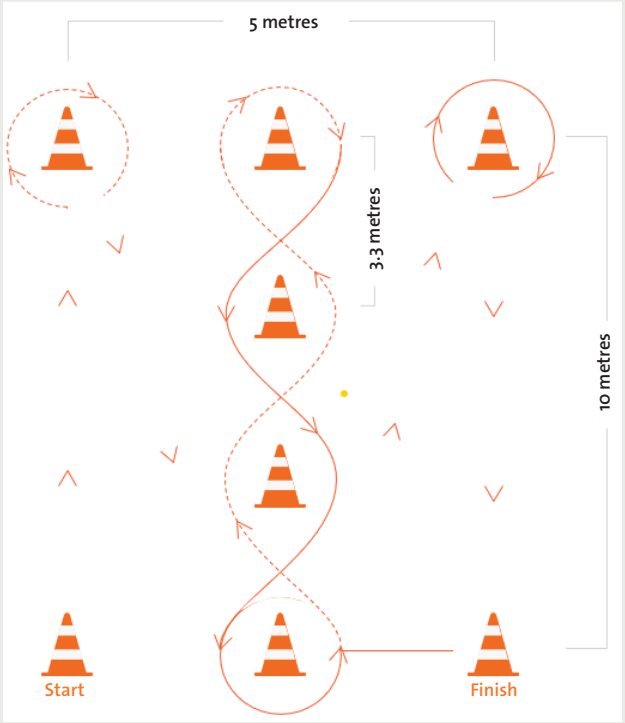
2. Start the stopwatch or clock and give the "Go" instruction. When the time starts, the student should jump to their feet, and run the course to the finish, following these criteria:
   - Complete the course as quickly as possible.
   - Do not touch or knock over any cones. Touching or knocking over a cone is a 2 second penalty added to the students' completed time for each cone infraction.

3. Stop the time when the student crosses the finish line.

4. Have each student record their final time and any penalties that occurred in their Mission Journal.

SET-UP

Set-up the course as shown in the diagram below. Before starting, run the course to demonstrate to the students the proper path to take.



Each student should repeat the Astro-Course at least three times, resting for at least 1 minute before repeating the course.

THINK SAFETY

- Avoid obstacles, hazards, and uneven surfaces.
- Appropriate clothes and shoes should be worn.
- Keep hydrated before, during, and after any physical activity.
- Be aware of the signs of overheating.
- A warm-up/stretching and cool-down period is always recommended.

MISSION ADAPTATIONS

Increase Diffculty

- Make the course larger by adding more cones.
- Reduce the area of the course, using the same number of cones.
- Immediately before starting the course, have students do jumping jacks for 30 seconds.
- Decrease the rest time between trials.
- Change the environment in which the course is performed (i.e. inside to outside).

Increase Accessibility

- Visual aids as directional floor guides, larger cones, pool noodles or balloons placed upward on cones extending visual field to travel through course; colour floor markers; numbers; pictures.
- Start position standing up.
- Increase/widen size of travel pathways for wheelchairs and walkers.
- Incorporate preferred object/peer buddy-partner/motivating item to encourage student to move through course.
- Allow student to move through course seated or lying prone (on scooter).
- Use sound emitting equipment (beeping, jingling) placed along course to touch and move through to end.

Decrease Difficulty

- Limit/reduce the length/ size of the agility course.
- Change the path to create a shorter path, or a path with less turns. For example, have students travel in a single direction, before gradually increasing course complexity.
- Increase the rest time between trials.

This resource has been adapted from NASA's "Agility Astro-course".
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.