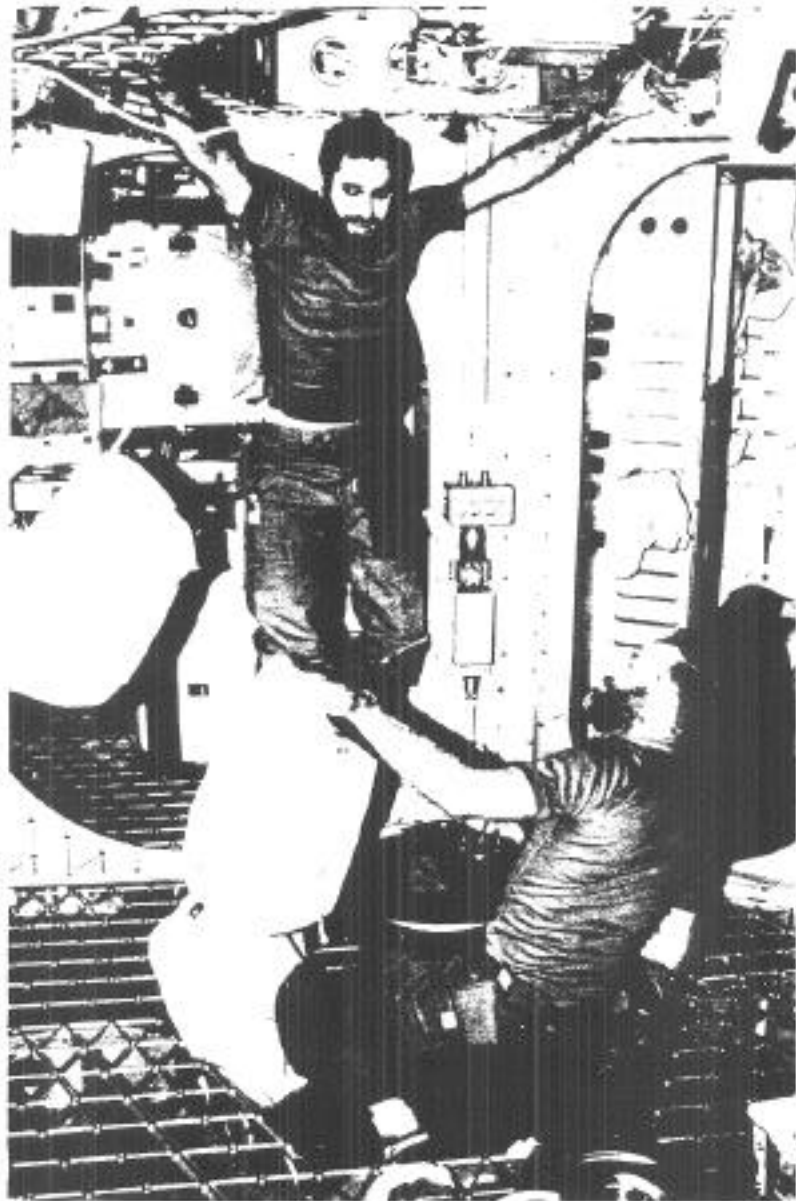


A Teachers Guide for the Videotape
Segment 3

Starts at 04:10:
Run Time 02:01.

MOVING ASTRONAUTS



NASA
National
Aeronautics and
Space
Administration

FILM FOOTAGE FROM NASA SKYLAB MISSIONS

Edited and Produced for the AAPT
by Thomas Campbell
and Robert Fuller



I. Introduction

On earth we are constantly attracted to the earth by a force which we call weight. In many ways, this force confines our motion and the motion of objects about us. What would it be like in space flight where we are weightless?

At first we might be clumsy, finding it difficult to control our limb and body motion, much as a newborn colt has difficulty standing for the first time. Then we would learn through practice to control our body. Before long we would be moving about with confidence, having adjusted to our new environment.

This film will let you see what it is like to be weightless and have complete freedom to move about. Although the astronauts in the film seem to move their bodies from one place to another easily, they were clumsy at the beginning of their missions. As time went by, each crew member learned to control his body movements. As you will see, the methods used by astronauts to move about in space are much different from those on earth.

This film is divided into three main parts. Every part shows body motions which start in the same way. These three parts of the film are identified by the following titles (see the Film Synopsis below):

- A. "Spinning and Moving at the START"
- B. "Moving at the START"
- C. "Not Moving and Not Spinning at the START"

II. Film Synopsis

Opening Scene: Astronaut Bean rotates and flips across the dome area of the Orbital Workshop (OWS).

Film Title: Moving Astronauts

Scene: Body motion in Skylab.

Title: Spinning and Moving at the START

Scene 1: Astronaut Garriott spins across the locker area of the OWS.

Scene 2: Astronaut Gibson somersaults from the floor of the OWS toward the dome mounted camera.

Scene 3: Bean somersaults from the dome of the OWS.

Scene 4: Gibson spins himself from the floor of the OWS.

Title: Moving at the START

Scene 1: Bean, with no initial rotation, does a toe touching exercise with interesting body motions.

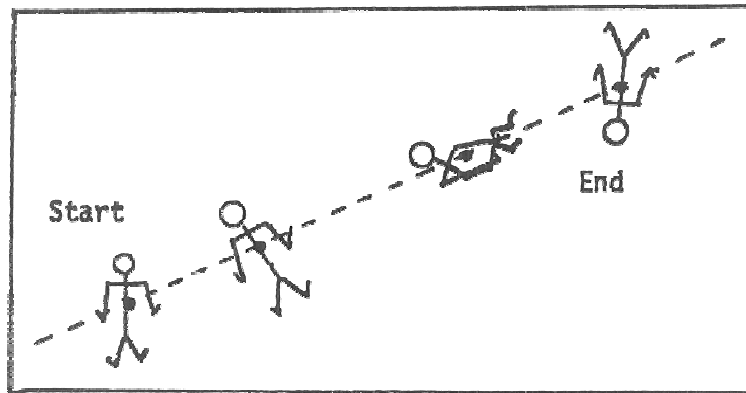
Scene 2: Astronaut Kerwin moves toward the dome of the OWS and changes his orientation during the flight.

Title: Not Moving and Not Spinning at the START

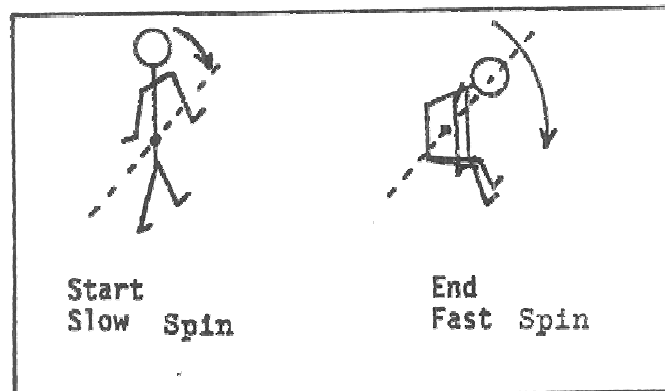
Scene: After being suspended aboard Skylab with no relative motion, Gibson performs a series of body maneuvers which results in a change in his orientation but no net body motion.

Questions and Exercises

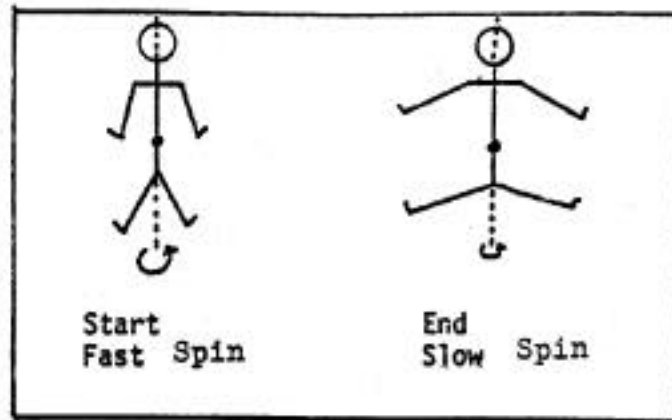
1. Each of the figures below represent a moving astronaut aboard Skylab. After watching the film, see if you can match the drawing with scenes from the film. (You may use the Film Synopsis; write down only the scene number.)



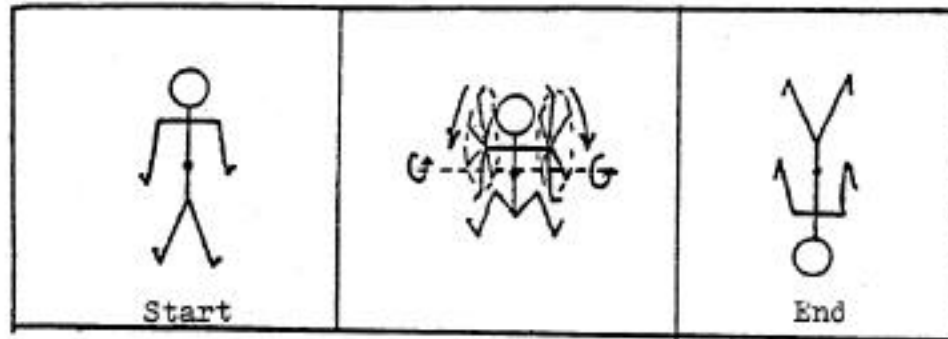
A. Scene Number(s) _____



B. Scene Number(s) _____



C. Scene Number(s) _____



D. Scene Number(s) _____

2. Have you seen anyone on earth move as the astronauts pictured in exercise one moved? What earth activity might produce similar body motions?
3. Watch the film again, this time noting carefully the methods used by the astronauts in starting their motion. Compare these body starting methods to the methods that you use on earth to start your body. (Examples of starting your body on the earth might include starting to walk, starting to run, starting to swim, starting to ride a bicycle, starting to jump, etc.)
4. Repeat exercise two, this time comparing the methods used by the astronauts in stopping their body motion to the methods you use in stopping your body motion on earth.