

A TEACHER'S GUIDE  
FOR THE  
**SKYLAB PHYSICS VIDEODISC**



by Richard E. Swanson  
and  
Robert G. Fuller

The Department of Physics, United States Air Force Academy

Published by  
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FILM FOOTAGE FROM NASA SKYLAB MISSIONS

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by Thomas Campbell  
and Robert Fuller  
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**NASA**

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### Videodisc Album

CHAP. NO.	CONTENTS	FRAME NO. (INCLUSIVE)	RUN TIME <sup>1</sup>
0	Skylab Physics Title	1-470	0:15:20
1	Table of Contents	471-478	still frames
2	Introduction to Skylab	480-12020	6:24:21
	Overview	480-5231	2:38:12
	Skylab Components	5231-9938	2:36:28
	Skylab Crew Members	9939-12020	1:09:12
3	Reference Frames	12022-15073	1:41:22
4	Human Momenta, No Initial Motion	15075-17486	1:20:12
5	Human Momenta, Initial Translation	17488-18711	0:40:24
6	Human Momenta, Initial Translation and Rotation	18713-21146	1:21:04
7	Acrobatic Astronauts	21148-24884	2:04:17
8	Games Astronauts Play	24886-28970	2:16:05
9	Human Mass Measurement Mass Calibration Data	28972-31020 31018	1:08:09
10	Gyroscopes	31022-34728	2:03:17
11	Collisions	34730-37590	1:35:11
12	Liquid Drops	37592-41385	2:06:14
13	Water Bridges	41387-45640	2:21:24
14	Oscillations	45642-49382	2:04:21
15	Soap and Water	49384-52971	1:59:18
16	Skylab Photographs	52973	still frames
	Introductory Slides	52974-52999	"
	Section # 1 Launch & EVA	53000-53019	"
	Section # 2 Pre/Post Flight	53020-53055	"
	Section # 3 Astronauts in Space	53056-53071	"
	Section # 4 Solar	53072-53074	"
	Section # 5 Earth View	53075-53140	"
	Section # 6 Photos from Space	53141-53212	"
	Credits	53213-53219	"

<sup>1</sup> These are given in (min:sec:frame). There are 30 frames in each second of playing time on television. Frames are numbered 00 to 29. Much of the Skylab film footage was taken at 24 frames per second, so you will see the Skylab activities speeded up. Real time will be equal to (television play time) x 1.25.

## FOREWORD

From May 1973 until February 1974, astronauts from the United States of America spent more than 170 days orbiting the Earth in the National Aeronautics and Space Administration (NASA) Skylab space station. During those days, the nine different astronauts took many pictures, exposing more than 17 miles of 16mm film.

This videodisc is a revised edition of the 12 single concept, silent 8mm Skylab films that were distributed by the American Association of Physics Teachers. Those physics films were edited from the original NASA Skylab mission films by Robert G. Fuller and Thomas C. Campbell from October 1975 to May 1976. While some of the films consist of astronaut activities specifically carried out to illustrate some principles of science, most of the film material was organized to demonstrate the behavior of physical systems in the so-called "zero g" environment of an orbiting satellite by Fuller and Campbell.

This videodisc rearranges the earlier physics films, includes two sound tracks, narration on one and music on the other, and adds an introductory film to provide a Skylab setting for the physics principles illustrated in the various chapters of the disc. This revision of the original AAPT films was carried out by Lt Col Richard E. Swanson and Dr. Robert G. Fuller, Distinguished Visiting Professor, Physics Department, USAFA, during the summer of 1987.

The activities shown in these films were carried out by the three teams of Skylab Astronauts:

### FIRST TEAM

Launched 9:00 a.m. EDT 5/25/73  
Splashdown 9:49 a.m. EDT 6/22/73

Charles Conrad, Jr., Captain, USN  
Paul J. Weitz, Commander, USN  
Joseph P. Kerwin, M.D., Commander, USN

### SECOND TEAM

Launched 7:10 a.m. EDT 7/28/73  
Splashdown 6:19 p.m. EDT 9/25/73

Alan L. Bean, Captain, USN  
Jack R. Lousma, Major, USMC  
Owen K. Garriott, Ph.D., Electrical Engineer

### THIRD TEAM

Launched 9:01 a.m. EDT 11/16/73  
Splashdown 11:17 a.m. EDT 2/08/74

Gerald P. Carr, Lt Col, USMC  
William R. Rogue, Colonel, USAF  
Edward G. Gibson, Ph.D., Solar Physicist

## SKYLAB MISSION SUMMARY

MANNED PERIODS	FIRST	SECOND	THIRD	TOTAL
Launch	5/25/73 9:00 a.m. EDT	7/28/83 7:10 a.m. EDT	11/16/73 9:01 a.m. EDT	
Splashdown	6/22/73 9:49 a.m. EDT	9/25/73 6:19 p.m. EDT	2/8/74 11:17 a.m. EDT	
Duration (day:hr:min)	28:0:49	59:01:9	84:01:16	171:13:14
Revolutions	404	858	1214	2476
Distance	11.5	24.5	34.5	70.5
SEVA <sup>a</sup>	0:37 (5/25/73)			
EVA <sup>b</sup> 1 duration (hr,min)	3:30 (6/7/73)	6:29 (8/6/73)	6:33 (11/22/73)	
EVA 2 duration (hr,min)	1:44 (6/19/73)	4:30 (8/24/73)	7:01 (12/25/73)	
EVA 3 duration (hr,min)		2:45 (9/22/73)	3:28 (12/29/73)	
EVA 4 duration (hr,min)			5:19 (2/3/74)	
Total EVA	5:51	13:45	22:21	41:56
Solar Observatory Photos	30 242	77 600	75 000	182 842
Earth Resources Photos	8886	14 400	17 000	40 286

<sup>a</sup> Standup (in spacecraft hatch) extravehicular activity.

<sup>b</sup> Extravehicular activity (completely outside of spacecraft).

Ref. - *SkyLab, Our First Space Station*, edited by L. F. Belew, U.S. Government Printing Office, Washington D.C. 20402, 1977.