**Physics Single-concept Films Collection 1 (Project Physics)**

The Physics Single-concept Films Collection 1 demonstrates concepts

that are very difficult or impractical to produce in the typical classroom.

The DVD contains an audio track for optional use.

The Teacher's Guide includes descriptions for each video and activities for

taking measurements. The frames per second rate for the original film

loops is noted at the beginning of each chapter. The DVD playback

rate is 30 frames per second. The DVD includes a barcode directory

for use with Pioneer DVD players, such as the DVD-V7200/7400,

that support barcode commands. The Teacher's Guide is on a CDROM

in an Adobe Acrobat Portable Document Format (PDF).

It may be accessed with a Macintosh or Windows computer. The

Teacher's Guide includes a lesson for each video. The lessons may be

printed, copied to a disk or read directly from the CD-ROM.

These materials were originally created as Project Physics film loops

and were produced in 1968 by the National Film Board of Canada

with support from the U.S. National Science Foundation. The

American Association of Physics Teachers (AAPT) and its

Instructional Materials Center produced these videos in 1993 to help

bring proven instructional resources into today’s classrooms. In 2001,

Ztek Co., Lexington, Kentucky converted the videotapes to DVD

and the teacher’s guide to CD-ROM.

The narration and teacher’s guide were prepared by Charles R. Lang,

Omaha Westside High School, Marcia Berkamp, Wichita Collegiate

School and Robert G. Fuller, University of Nebraska-Lincoln.

**Contents:** (min:sec)

**Unit I: Motion**

1. Acceleration Due to Gravity I (1:30)

2. Acceleration Due to Gravity II (1:54)

3. Vector Addition—Velocity of a Boat (1:56)

4. Analysis of a Hurdle Race I (2:01)

5. Analysis of a Hurdle Race II (1:56)

6. A Matter of Relative Motion (1:55)

7. Galilean Relativity—Ball Dropped from Mast of Ship (1:31)

8. Galilean Relativity—Object Dropped from Aircraft (2:04)

9. Galilean Relativity—Projectile Fired Vertically (1:33)

**Unit II: Motion in the Heavens and Modern Physics**

10. Retrograde Motion—Heliocentric Model (1:46)

11. Retrograde Motion—Geocentric Model (1:40)

12. Kepler’s Laws (1:11)

13. Jupiter Satellite Orbit (2:01)

14. Thomson Model of the Atom (2:03)

15. Rutherford Scattering (2:14)

16. Collisions with an Object of Unknown Mass (1:55)

**Unit III: Momentum and Energy and Waves**

17. A Method of Measuring Energy—Nails Driven

into Wood (1:40)

18. Gravitational Potential Energy (2:10)

19. Conservation of Energy—Pole Vault (2:06)

20. Conservation of Energy—Aircraft Takeoff (1:40)

21. Recoil (2:09)

22. Find the Speed of a Rifle Bullet I (1:42)

23. Find the Speed of a Rifle Bullet II (1:16)

24. Superposition (1:42)

25. Vibrations of a Wire (2:00)

26. Vibrations of a Drum (1:50)

**Unit IV: Collisions**

27. One-Dimensional Collisions I (1:48)

28. One-Dimensional Collisions II (1:59)

29. Two-Dimensional Collisions I (1:29)

30. Two-Dimensional Collisions II (1:26)

31. Scattering of a Cluster of Objects (1:10)

32. Dynamics of a Billiard Ball (1:58)

33. Inelastic One-Dimensional Collisions (2:06)

34. Inelastic Two-Dimensional Collisions (2:00)

35. Colliding Freight Cars (1:30)

Level: 7+

Media: CD-ROM

**With these 35 videos on DVD, demonstrate concepts**

**such as relative motion, conservation of energy and**

**vector addition. Videos include an audio track and a**

**Teacher’s Guide on CD-ROM.**

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