Rocketry and Space

Description

From the fascinating history of rockets to the basic principles of rocket flight, students receive a thorough introduction to the field of rocketry and space in this exciting curriculum. Students draw upon Newton's laws of motion and make a paper rocket in order to obtain specific data to help project flight estimates and distances. As students learn more about rockets, including the role of center of mass, pressure in rocket stability, and the functions of different model rocket parts, they build an actual model rocket and are able to launch it under direct supervision by the instructor. Also included in the Rocketry and Space curriculum is RockSim, a computer simulation program through which students design, build, and launch a simulated rocket.

Skills

- Read and interpret drawings and plans
- Compute average distances traveled by a rocket
- Measure distances, lengths, and dimensions
- Construct a rocket

Knowledge

- Newton's Laws of Motion
- Effect of center of mass and center of pressure on rocket flight
- Factors in rocket performance
- Common parts and features of rockets

Activities

- Activity 1 - Introduction
- Activity 2 - Newton's Law
- Activity 3 - Single Stage Design
- Activity 4 - Two Stage Design
- Activity 5 - Design Your Rocket
- Activity 6 - Rocket Controls
- Activity 7 - Preflight Activites
- Activity 8 - Rocket Assembly
- Activity 9 - RockSim Software
- Activity 10 - Post-Test and Wrap-Up
- Activity 11 - Bonus Activities
- Activity 12 - Challenge
- Activity 13 - Open-Ended Challenge
- Activity 14 - Careers
- Activity 15 - Internet

Standards

Math/Measure Science Problem Solving Reading

Module Includes:

Student Workbook, Instructor's Manual, Installation CD, Rocket Launch Controller, Rocket Launch Pad, Tape Measure - 25 ft, Safety Glasses (2), Cutting Board, Rocket Builders Marking Guide, Fin Placement Disc, Organizer Tray, Rocket Simulation Software, Headphones (2), Rocketry and Space Supply Kit for 24 Students

Computer, printer, and supplies are required and sold separately.

Requirements
Module requires a computer workstation.
Special supervision must be taken when students launch their rockets.

Curriculum Specifications

The student workbook contains concise hands-on procedures, illustrations, screen captures, and photographs, which reinforce the multimedia content. Special attention is placed on interesting and relevant graphics to encourage visual learning. DEPCO Studio is an effective curriculum delivery system that uses the power of the computer to deliver educational content. By using interesting digital videos, full-color animations, professional quality narrations, challenging interactions, relevant photographs, and computer aided instruction (CAI), DEPCO has modernized the way subject matter is taught. Curriculum consists of 15 units: 10 basic

activity days with Pre-Test, Post-Test, and Activity Review Questions, and 5 enrichment activities that include vocabulary reinforcement, problem-solving, open-ended challenges, careers, and Internet activities. An instructor's section includes: lesson plan outlines, installation instructions, and answer keys.