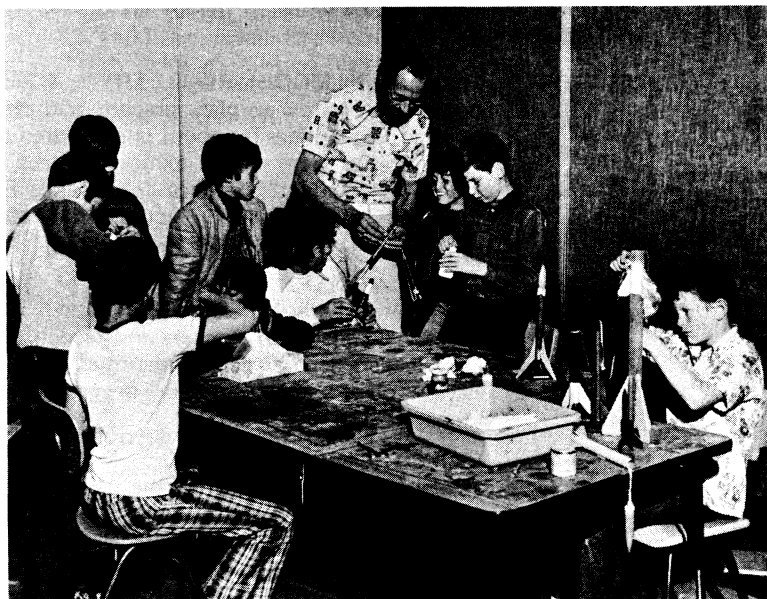
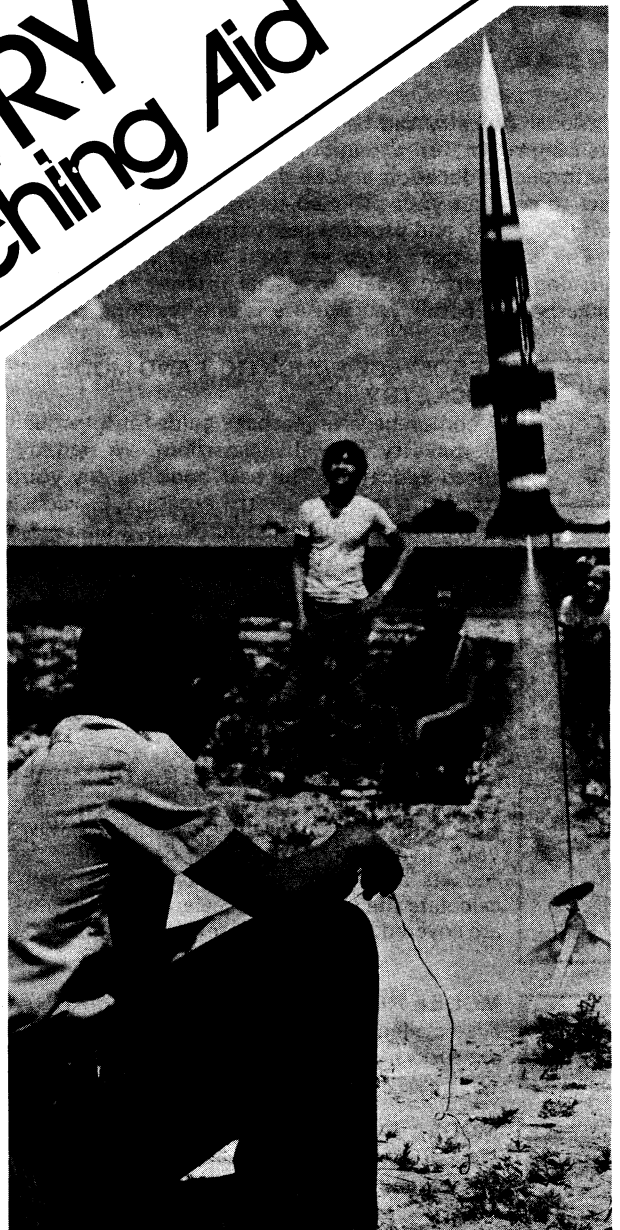




A SUBSIDIARY OF DAMON

# PUBLICATION AIDS AVAILABLE FOR MODEL ROCKETRY The Space Age Teaching Aid



## WHAT IS MODEL ROCKETRY?

Model rocketry is a scientific, educational hobby. It involves "hands-on" learning experiences in building and launching small, lightweight rockets made from cardboard, balsa, and plastic parts. The rockets are launched in miniature "space missions" using safe, commercially manufactured model rocket engines.

Model rocketry can be very educational because the students learn the concepts involved in the construction and the flight of their rockets. The students have so much fun that the motivational value of model rocketry is very high. You can teach them as much about rockets, space travel, and related subjects as you wish while their interest is high.

Every classroom and every school library should have adequate reference materials. Let your students use the publications described in this brochure to pursue individual interests and to do special projects.

# Estes publications

Model rocketry can be treated as a fun demonstration, an exciting activity, a science project, or a miniature technology. Our introductory teacher's guide, "Aerospace Education and Model Rocketry", tells you how to prepare yourself, how to conduct your program (either as a fun project, as an exciting learning activity, or both), and provides many suggestions for additional activities.

The publications listed on these pages provide you with great resources for pursuing numerous areas of special interest. The more you know about model rocketry, the better you can use it as a teaching aid.



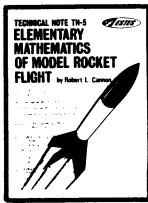
## AEROSPACE EDUCATION AND MODEL ROCKETRY

A comprehensive teacher's guide for introducing model rocketry into the classroom. Written by experienced educators. The best book for any youth leader starting a model rocketry program. Provides step-by-step guidance, suggested activities, a bibliography, and more. 36 pages. (02816 - \$1.25)



## SPACE AGE TECHNOLOGY

A new, comprehensive textbook on man's achievements in rockets for space missions. Well-illustrated. Co-authored by an aerospace educator and a space scientist-engineer-educator. 52 pages. (02813 - \$1.25)



## ELEMENTARY MATHEMATICS OF MODEL ROCKET FLIGHT

How heights reached can be determined, how to make your own altitude-measuring device, how fast model rockets and other objects can move, and how to calculate the speed and acceleration of model rockets are covered. Technical Note TN-5. (84704 - \$.35)



## MODEL ROCKETRY TECHNICAL MANUAL

An excellent reference on virtually everything in model rocketry. Every rocketeer should have one. 16 pages. (02819 - \$.35)



## MODEL ROCKET CONTEST GUIDE

Use in planning model rocket contests for school classes and school-sponsored clubs. Contains details on types of competitive events and suggestions on all facets of contests from organization of planning committee to championship awards. Includes sample score sheet. 18 pages (02815 - \$.60)



## ESTES GUIDE FOR AEROSPACE CLUBS

The perfect source book for organizing and operating a successful model rocket club or EAC chapter. A comprehensive guide, idea source, and reference for club organization and activities. A must for active clubs. Written by one of the most successful club leaders in model rocketry. 34 pages. (02817 - \$.60)



## ALPHA BOOK OF MODEL ROCKETRY

The ideal "first book" for beginners in model rocketry. The things you and your students will want to know before, during, and after your first flights. Includes a Flight Data Sheet to record the first four missions. 32 pages. (02820 - \$.60)



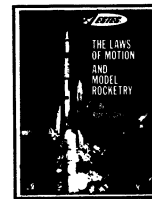
## MODEL ROCKET LAUNCH SYSTEMS (Second Edition)

Contains a wealth of information. Photographs and clearly drawn schematics make it easily understood. The electrical theory of launchers is explained, and a number of special study problems are included. 20 pages. (02811 - \$.35)



## CAMP LEADER'S MODEL ROCKETRY MANUAL

Presents complete information on introducing model rocketry successfully into camp programs. Author is an experienced camp leader and a professional educator. 10 pages. (02822 - \$1.00)



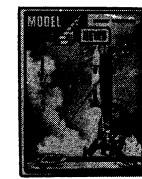
## LAWS OF MOTION

The three laws of motion are explained in terms which most students of eleven years of age or older can understand. Simple examples and experiments are included to make the learning more meaningful. A self-test is provided for each law. Answers are provided inside the back cover. 12 pages. (02821 - \$.35)



## ESTES LAND ROCKET COMPETITION GUIDE

Complete instructions on how to set up a contest using the new Estes Land Rockets. Setting up the race area (either indoors or outdoors), general rules for competition, and specific rules for 16 different events are included. 4 pages. (84621 - \$.35)



## LIBRARY COLLECTIONS

**MODEL ROCKET NEWS LIBRARY COLLECTION** provides copies of previous issues of Model Rocket News permanently bound for easy reference. (84775 - \$7.00)

**MODEL ROCKETRY LIBRARY COLLECTION** provides copies of virtually every Estes publication except issues of Model Rocket News. An excellent reference book on all aspects of model rocketry. (84789 - \$7.00)

Both volumes available. (02818 - \$12.00)



## PROJECTS IN MODEL ROCKETRY

Suggestions on how to plan, prepare, and present research projects. Ideas for about one hundred projects. Projects range from simple exhibits to true research work. An excellent reference for Science Fair project possibilities. Official Projects for the Estes Aerospace Club. 12 pages. (02831 - \$.60)



## ESTES CATALOG

The current Estes catalog. The "bible" of model rocketry. Available to teachers and recognized youth group leaders at 20¢ each in quantities of 5 to 50 for distribution to their students or group members. 80 pages. (99150 - \$.35)



## ROCKETRONICS CATALOG

A special catalog listing all of the items in our Rocketronics line. The Transroc transmitter and its accessories are fully described. Technical data is provided along with information on how to record and interpret information sent back by the Transroc. 8 pages. (900,169 - \$.35)



# TECHNICAL REPORTS & TECHNICAL NOTES



## ROCKET STABILITY

All about rocket stability. Easy-to-read, tells how rockets are designed to fly properly. Contains before-launch tests to assure rocket stability. Technical Report TR-1. (84721 - \$.35)



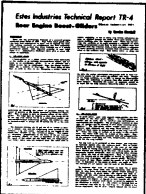
## MULTI-STAGING

Tells all about the latest in multi-staging techniques. Complete, easy-to-understand, and well-illustrated. A necessity for designing, building, and flying multi-stage birds. Technical Report TR-2. (84722 - \$.35)



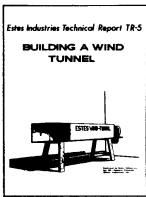
## ALTITUDE TRACKING

The classic work on simple altitude tracking of model rockets. Thoroughly covers basic tracking and altitude computation. Easy-to-understand and apply. Technical Report TR-3. (84723 - \$.35)



## REAR ENGINE BOOST GLIDERS

Basic information for the design and operation of rear engine boost gliders. Covers construction techniques and glide characteristics. Technical Report TR-4 (84724 - \$.35)



## BUILDING A WIND TUNNEL

Full plans and information for building a simple wind tunnel to study rocket stability. Covers motor and handpowered versions, finding center of pressure, checking multi-stage rockets, etc. Great for advanced rocketeers. An excellent class or club project. Technical Report TR-5. (84725 - \$.35)



## CLUSTER TECHNIQUES

The complete report on clustering engines in model rockets. Thoroughly illustrated, easy-to-understand. Essential for the student modeler who wishes to loft larger payloads. Technical Report TR-6. (84726 - \$.35)



## FRONT ENGINE BOOST GLIDERS

Valuable information on designing, building, and flying front engine boost gliders. Fully-illustrated. Recommended reading for any of your students who wish to build better gliders or get the best performance from the ones they have. Technical Report TR-7. (84727 - \$.35)



## MODEL ROCKETRY STUDY GUIDE

Presents a logical program for any student who wants the most from model rocketry. The planned sequence of activities through three levels of skill guides a student on his path to becoming an expert model rocketeer. A glossary and self-test are provided for each section. A final exam is provided for those who wish to qualify for the Estes Expert Rocketeer Award. Technical Report TR-8. (84728 - \$.85)



## DESIGNING STABLE ROCKETS

Based on standard engineering practices, this report presents a method of designing rockets for proper stability on paper before any construction work is done. Technical Report TR-9. (84729 - \$.35)



## ALTITUDE PREDICTION CHARTS

Explains a relatively simple method by which aerodynamic drag and other atmospheric effects can be taken into account in predicting rocket peak altitudes. Includes suggestions for research projects. Technical Report TR-10. (84730 - \$1.25)



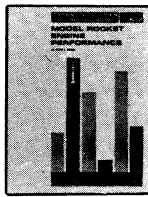
## AERODYNAMIC DRAG OF MODEL ROCKETS

Gives practical examples of ways to minimize aerodynamic drag and improve performance. All factors that influence drag are explained with the aid of graphs and illustrations. Technical Report TR-11. (84731 - \$1.25)



## MODEL ROCKET ENGINES

Information on engine types, classifications, design, and performance. Time-thrust curves for Estes 1/4A through C engines are provided. Designed for reproduction on overhead projection transparencies. Technical Note TN-1. (84700 - \$.35)



## MODEL ROCKET ENGINE PERFORMANCE

This brochure explains the operation of model rocket engines. Well-illustrated, this 8-1/2" X 11" publication contains equations for calculating engine performance. Technical Note TN-2. (84701 - \$.35)



## IS THAT PARACHUTE TOO BIG?

Discusses techniques to speed descent rates of parachutes yet prevent damage to rockets. Speeding descent reduces horizontal distance the rocket travels as winds cause it to drift during descent. Technical Note TN-3. (84702 - \$.35)



## THE FINE ART OF PAYLOAD LAUNCHING

Information on payload launching with data on possible payloads, available payload compartments, and suggestions on preparation and launch of payloads. Technical Note TN-4. (84703 - \$.35)

"Prices subject to change without notice."

# Model Rocketry is a proven classroom success

Every year thousands of teachers launch their classes into exciting model rocketry programs. Not only do the students have fun, they learn much while doing it.

Read the following statements to see what teachers have written us about their own model rocketry programs. Some followed our outlines closely, and others developed their own programs. They were all successful. The rockets plus the students' enthusiasm did much of the work for them so they had time to tailor the activities to meet their own objectives.

"I have incorporated rocket construction and launching in accordance with your educator's guide. This program is most successful, rewarding, and motivating."

*From a teacher in Missouri*

"Model Rocketry plays such an important role in Aerospace Education the nation over, and especially here at...."

*From a college professor in Utah*



"I and my students would like to thank your company for the educational treat made possible because of your products. The boys whose picture is enclosed found this topic one which stretched their imagination beyond belief. Some of the boys were poor students before this project was undertaken. Now they have found the world of science can really be fun along with learning."

*From a high school teacher in Minnesota*



"I can't stress enough the value of model rocketry to our treatment plan. Many of our boys, due to emotional problems, have difficulty in math and related subjects. We have found that model rocketry helps our children in these areas due to the fun nature of the activity."

*From a teacher in a special school in Missouri*

"We were looking for a way to get the kids interested in math, science, etc. We had tried about everything when we hit on this idea of rockets to integrate into all of our subject matter from math to spelling. The fact that the kids got to see their accomplishments was, perhaps, the most important part of the program."

*From an elementary teacher in Oregon*

"My first adventure in teaching model rocketry was a great experience, and brought a very good response from the administrative staff and community."

*From a high school teacher in Ohio*

"I think model rocketry is an excellent teaching aid. I have been using it for almost 10 years now, and the interest level is always high."

*From a junior high school teacher in Kansas*



We could provide similar statements from hundreds of other teachers who have found model rocketry a very effective aid. Please try model rocketry, and prove for yourself its effectiveness as a teaching aid.



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