

Estes Industries

Guide for Rocket Clubs

Published as a service to their customers by Estes Industries, Inc., Box 227, Penrose, Colorado.

Why Form a Club?

Formation of a model rocket club offers several potential advantages to the members. A club provides the best opportunity to share ideas and to engage in projects beyond the resources or abilities of a single person. In a club the skills of individuals in such areas as electronics, mathematics, rocket design, writing, and physics are available to others so that the group can have activities a single rocketeer would not have the knowledge to carry out. The club offers an opportunity to pool resources to build and operate launching sites and advanced equipment, and to obtain a club laboratory or shop.

The club which has a responsible adult advisor or sponsor can obtain community approval and support much more readily. This is especially valuable in communities where model rocketry is still new to the greater part of the population. By organizing a club, it becomes much easier to gain publicity necessary for community recognition and support.

Organization of a club provides an unexcelled chance to participate in many different activities. Among other things, the club can conduct contests, develop research programs, obtain and show films, sponsor educational activities, and give demonstrations. By organizing, of course, the club can compete with other clubs in the areas of altitude, duration, and similar contests, as well as in special research programs to develop and apply scientific devices.

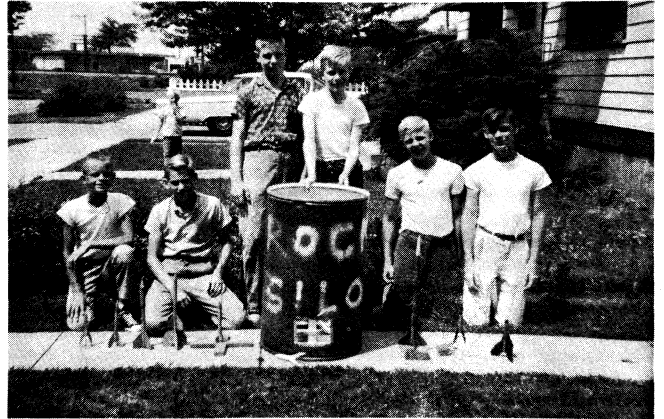
Organizing the Club

The first step in organizing a club is to get several individuals interested in model rocketry. The informal activities of a few persons can serve as a basis for getting more persons interested in model rocketry. Try to find an adult sponsor or advisor who is interested in rocketry. The sponsor can be either an individual or a group. The best bet for a sponsor or advisor is the father of one of the members of the club. If several of the fathers can be interested, it will be even better, since model rocketry is an activity which can be enjoyed by adults as well as young people, and several adults can usually accomplish more in working with the club and the community than one alone. (The adult members don't need to be scientists or rocket experts, either.)

If it is impossible to obtain the father of one of the members for an advisor, there are undoubtedly several civic organizations in the area which will quite possibly be interested. Such groups as the Lyons Club, city recreational committee, Rotary Club, Optimists Club, lodge, and grange, as well as school science teachers, church groups, and aero-space firms, if approached properly, will often be quite willing to help the club form, support it, and provide the needed adult help in its regular activities.

When approaching an adult group for support, the best thing to do is to explain what model rocketry is, the difference between the model rocketeer, the "Basement

Bomber," and the amateur rocketeer, the educational and recreational possibilities of model rocketry, the "safety first" attitude in model rocketry, the safety record now established, why the group is organizing, and why the support of an adult group is desired. If the approach is made in a diplomatic manner, the chances are that the club will receive the enthusiastic support of the adult group. Even in the first group approached does not feel that it is possible for it to help the club, persistence in contacting other groups should pay off quite well. If a direct approach to the various civic organizations in the community doesn't get results, try an appeal through the local newspapers.



The neighborhood group can be a good start in organizing the club. Imagination is important here.

The most important single item in forming a model rocket club is to develop a sound system of organization. The accompanying constitution is only a suggested form, and the individual circumstances of the group should be carried foremost in mind when adopting a club constitution. The organization of the group should provide for a democratic system of government, orderly meetings, reasonable membership policies, sound finances, and interesting activities.

The first step in organizing the club is to bring together as many interested persons as possible for a meeting. A temporary chairman and secretary should be chosen, and someone should explain the reasons for the formation of the group immediately. A count should be taken to determine if enough people are actually interested in participating in the club to make formation practical. In order to have an actual club, there should be at least six members, although an organization of fewer persons is possible. For a really active group, ten or more members is a desirable figure for which to aim. The larger the group, the more activities can be held. Those interested should then be signed up as members, and the meeting can proceed to the adoption of a constitution or a set of by-laws. So that this can proceed smoothly and rapidly, a suggested constitution should be prepared ahead of time, and presented to the meeting for adoption or alteration and adoption. The group should elect a first set of officers at the first meeting. A secretary and a president are the two most important officers for the club during the

organizational period, and the best possible persons for these positions should be chosen. Before the close of the meeting a suitable time, location, and date should be chosen for the next meeting. Time permitting, the first group activity should also be selected and organized.

Conducting the Meeting

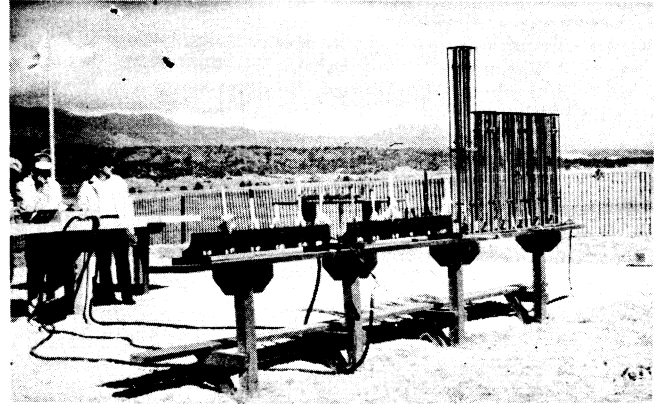
The meeting should begin on time. Failure to do so regularly will result in a later starting time each meeting, until finally no one will show up. The meeting is called to order by the president, followed by the reading of the minutes and the treasurer's report. Next, old business, matters left over from previous meetings, is considered, and when all of it has been attended to, new business is handled. The meeting can either be adjourned at a preset time or when all business has been taken care of.

In conducting a meeting it is important to remember that everything must be handled in an orderly fashion. When the president calls the meeting to order, all private conversations are to cease, and until the close of the meeting, members speak only when called on by the president. Business may either be brought up by the president or by a member when recognized by the president. The normal procedure is to discuss a matter briefly, then have a motion and a second to the motion, followed by a brief discussion of the motion, and then a vote on the motion. Some motions such as a motion to adjourn, to postpone consideration of a question to a future meeting, or to vote on a previous motion do not require discussion, and should be voted on immediately.

In conducting a meeting, two motions should never be on the floor (under consideration) at once unless the one affects the other. So if a motion has been made to hold a rocket launching on Saturday the 24th at 2 pm, the only other motions which would be in order before a vote has been taken on this motion would be: (a) A motion to amend the previous motion. For example, "Mr. Chairman, I move that the previous motion be amended to read "Saturday the 24th at 1 pm." The motion to amend, if seconded, is discussed, then voted on before the vote on the original motion. (b) A motion to postpone discussion. For example, "Mr. Chairman, I move that the previous motion be tabled until the next meeting." If this motion (which requires no discussion) is seconded and passed, discussion on the previous motion is ceased until the next meeting, and the group goes on to discuss other matters. (c) A motion to close discussion. For example, "Mr. Chairman, I move the previous question." This motion is to be voted on immediately, without discussion, and without a second. If passed, then the original motion is voted on immediately, and if the "secondary" motion is not passed, discussion on the original (primary) motion is resumed.

A motion which is not seconded within a brief period "dies for lack of a second." That is, it is dropped from consideration. Note the wording used in the motion: "Mr. Chairman, I move that. . ." This is the proper form for a motion to take, and is required by most major organizations, as it helps eliminate confusion by forcing the rest of the motion to take a logical form. It is highly incorrect to say: "I make a motion. . ." both grammatically and as far as the rules for conducting meetings are concerned. It is recommended that the president of the organization study a copy of Robert's Rules of Order, available at most public libraries. It might also be wise to appoint a club parliamentarian, whose duty it will be to study the rules of order and advise the group on correct procedure whenever necessary. In fact, a point of order (the calling of attention of the group to some irregularity in procedure) is the only thing which can be done without recognition by the chairman. If a member of the club is proceeding contrary to the established rules for conducting meetings, any other member may interrupt with a point of order, and if the point is actual, it must be followed.

Disorder, horseplay, and the like during the business meeting should not be permitted, as they make it im-



Launching sites such as this can be built by an active club. The facilities pictured are part of a range designed to accommodate up to 100 rocketeers in a contest.

possible to accomplish anything, make the meeting dull and boring, and can eventually cause the entire organization to fall apart. A sergeant-at-arms may be appointed to enforce the rules of the club, even, if necessary, by expelling disorderly members from the meeting.

Duties of Officers

The club president is responsible for conducting the meetings in a business-like manner. He should come to the meeting with an agenda (list of items of business) already prepared, should start the meeting on time, guide the discussion, and terminate it if it should become stalled or pointless. It is also the president's duty to make sure that all members have an equal opportunity to speak, and he should prevent the overly talkative members from monopolizing the meeting. Much of the success the club meets will depend on the ambition and ability of the president.

The club vice-president (if there is such an office in the organization) is responsible for conducting the meetings in the absence of the president. In addition, the club constitution may give him other duties, such as attending all committee meetings, organizing contests, and the like.

The club secretary is responsible for keeping the minutes (record) of all meetings and conducting all club correspondence. The minutes are a step by step record of the proceedings of the meeting, and should contain all matters discussed and all motions, whether passed or defeated. A good secretary is necessary if the club is to be able to operate smoothly from one meeting to the next.

The club treasurer is responsible for all club funds. The treasurer takes care of the collection of dues, the purchase of equipment, the saving of money, and the maintaining of an exact and continuous record of all income and expenditures. Generally club funds should be kept in a bank account, and either the signatures of both the president and treasurer or of the advisor and treasurer should be required for the withdrawal of funds from the bank and the purchase of equipment. No money should be spent without the approval of the club.

Other club officers may be elected or appointed as necessary. These may include a quartermaster to take charge of all club supplies, a range captain to conduct all rocket launchings, a public relations officer to handle publicity, etc.

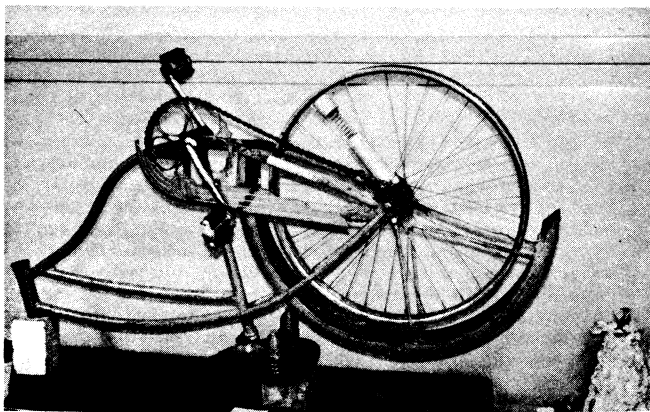
Club Activities

The number of activities a club can hold is limited only by the imagination and ambition of the members. Regular flight days should be held at which the members can test their designs and get altitude data. Contests

can consist of several events, flown at the same time or following each other. Competition is usually held in the areas of altitude, duration, scale, and design. Most of these events were originated by the National Association of Rocketry, and if your group wishes to concentrate on the competitive aspects of model rocketry, it may well be desirable to affiliate with the NAR. Altitude contests are held with models using the same number and type of engines, such as B Altitude in which the models use only one B engine, or A-1/2A Altitude, in which the models are two staged, with A.8-0 boosters and 1/2A.8-4 upper stages. With the many different types of engines now available, a large variety of altitude events is possible.

In running an altitude event, it is necessary to have a fairly accurate optical altitude tracking system, communication between the trackers and the firing officer, and competent data reduction personnel. A variation in altitude events is provided by the requirement that the model carry a payload, usually a one ounce lead cylinder 3/4 inches in diameter. Other rules for altitude events can be determined by the club or its contests and records committee.

There are two common types of duration events, boost-glide duration and parachute duration. To run a duration event it is necessary to have at least one timer with a watch with a sweep second hand. The timer should have a stop watch, although this is not necessary, and two official timers will help make the results more accurate. The rocket is timed from the instant of ignition to the moment the first part of the rocket, other than wadding or the engine, touches the ground. In boost-glide duration the rocket must ascend in a vertical flight under power and return in an aerodynamic glide. A typical boost-glider is the Astron Space Plane. In parachute duration the rocket must be returned to the ground by a parachute. In both events, should the rocket go out of sight the timers stop their watches, and may restart them should the rocket appear again.



Research equipment need not be expensive. Apparatus such as this centrifuge for testing payloads may be built for just a few dollars.

In scale events the rocket must be a scale model of an actual guided missile or space vehicle, and is judged on the workmanship, trueness to scale, and flight characteristics, as well as on other points which the club may choose. It is generally best to require that the contestant supply data along with his model to show that it is an actual scale model.

Special events include such things as drag races, in which two rockets are launched simultaneously, and one point is given to the model which achieves first motion, one point to the model achieving the lowest altitude, and one point to the model which touches the ground last. Drag races are run in paired heats, in normal tournament order. Another special event is spot landing, in which the rocketeers, using a launcher which is adjustable for angle of launch, attempt to land their rockets as close as possible to a preset point on the ground. In this event it is necessary to require that

the models contain a safe recovery system, that they be launched within 25° of the vertical, and that their recovery systems deploy at least 50 feet from the ground. For variety, an event can be organized in which rocketeers attempt to fly their rockets as close to a predetermined altitude as possible. For example, if the altitude is 1000 feet, a person whose rocket climbs to 990 feet might be declared the winner, with second place going to the person who got 980 feet, third to 1030 feet, etc. Still more events can be dreamed up by the club, such as Egg Scale Altitude, in which the entry is judged on scale, with achieved altitude added to the scale points, and must carry a grade A large hen's egg in its payload section in flight to qualify, returning the egg undamaged if it is to place. A simpler event might be Odd Ball Streamer Duration, in which the rocket would receive from 1 to 100 points for its oddness, to which its duration in seconds is added to determine the final score.

Design contests can be held to determine the best design in a preset category--single stage, multistage, boost-glider, etc. Judging in these events must be carried out by a person who is not himself a contestant to insure that all designs are judged fairly.

To add extra incentive for participation in contests, points should be given for flying and for placing in an event, these points being accumulated over the year, with the person gaining the most points during this period declared the club champion rocketeer. Points should be assigned on a scale which gives a special advantage to the winner of an event. For example, 6 points might be given for first place, 3 for second, 2 for third, and 1 point for making an official flight in the event. In case of a tie, equal points should be given each person.

Research programs make excellent club projects. One project, for example, could be the design, construction, and use of a high speed wind tunnel for measuring drag on model rockets. Another could be the design of special purpose rockets for payload applications, or the group could specialize in the design of boost-gliders, multi-stage rockets, camera rockets, or special launch facilities. An area which has great potential is in the design and fabrication of electronic equipment such as radio transmitters to withstand the strains of launching with Series II engines, making the components small and light enough so that the equipment does not impair the performance of the rocket.

The club should have a library containing as much useful information as possible. In addition to the information available in the Estes Industries Catalog, such magazines as Science Digest, Scientific American, and Popular Science, as well as some of the many different publications available from the U.S. Government Printing Office, Washington 25, D.C. will be especially valuable in a club library. A file containing rocket plans, especially plans of all rockets built and flown by club members will also be useful. A club librarian should be in charge of the organization and maintenance of the library, and should catalog the library's contents so that selection of material will be easier. For information on running a library, talk to the librarian of either the school library or the public library.

From time to time there will be opportunities for the club to sponsor educational programs for others. A good project might be demonstration of the principles of space flight at a local school, or perhaps it might be possible for the club to hold an assembly on rocket safety in the school. Here again, the imagination and ability of the group will determine the possibilities of the activity.

Above all, in holding club activities it is necessary to remember that the club itself must dream up, organize, and carry out the activity, without depending on others for a step-by-step explanation. One of the major requirements of the scientist is that he be able to decide on a project by himself, locate needed information by himself, and do the work by himself. If he can meet

these requirements, he is then ready to contribute to the activities of the group. The same standards hold true for the scientific organization as for the individual.

Constitution of the West Podunk Rocket Research Society

ARTICLE I: NAME

The name of this organization shall be the MODEL ROCKET RESEARCH SOCIETY of West Podunk, Colorado.

ARTICLE II: PURPOSE

It shall be the purpose of this organization to develop the art of model rocketry through the pursuit of such research programs as the members shall feel useful, and to implement these research programs through the holding of regular contests between society members, through the creation and maintenance of a society library, and through the operation of a society research laboratory. It shall further be the purpose of this organization to aid the cause of rocket safety through educational programs designed to acquaint the public with the high degree of safety gained through following the Model Rocket Safety Code, in contrast with other, non-model, forms of rocketry.

ARTICLE III: MEMBERSHIP

The membership of this organization shall consist of all interested persons, regardless of age, who express a desire to join, pledge to follow the Model Rocket Safety Code, and who pay promptly all dues monies as assessed by the society at its regular meetings.

ARTICLE IV: MEETINGS

Meetings of the Model Rocket Research Society of West Podunk shall be held at least 26 times per year and at such times and places as the membership shall approve by a two-thirds majority vote. Operation of the society rocket range shall not be considered a meeting. A quorum of one half the membership shall be necessary for the transaction of any business, and all meetings shall be conducted according to Robert's Rules of Order, Revised. Consistent failure to attend society meetings without proper reasons shall be considered cause for the dismissal of a member from the society, subject to review by the society Executive Board.

ARTICLE V: OFFICERS

The officers of this organization shall consist of a President, Vice President, Secretary, and Treasurer. The Executive Board of the society shall consist of the four above officers, an adult member who shall be appointed as society advisor, and one elected member-at-large for every twelve members or major part thereof. Officers and Executive Board members may be removed from office by a two-thirds vote of the entire membership.

ARTICLE VI: ELECTIONS

The election of officers and Executive Board members shall take place at the first meeting of the calendar year. Nominations shall be submitted by the members in the meeting, and voting shall be by secret ballot. A candidate must receive at least one half of the votes cast to be elected. All officers and Executive Board members shall serve terms of one year. Vacancies in offices shall be filled by the nomination and election of a society member to fill the vacant office for the remainder of the term, and such nomination and election shall take place at the society meeting at which the vacancy is announced.

ARTICLE VII: DUTIES OF OFFICERS

1. President:

It shall be the duty of the President to preside at all society meetings, to serve as an ex-officio member of all committees, and to represent the society at public affairs.

2. Vice President:

It shall be the duty of the Vice President to preside at society meetings in the absence of the President, to serve as chairman of the Range Operations Committee, and to serve as director of the Library Committee.

3. Secretary:

It shall be the duty of the Secretary to take minutes at all meetings, to handle all society correspondence, to serve as chairman of the publicity committee, and to keep a file of all minutes and correspondence.

4. Treasurer:

It shall be the duty of the Treasurer to collect all society dues, to keep records of all income and expenditures, to keep all society funds safe, and to manage the purchase of equipment, etc., for the society upon authorization by its members.

ARTICLE VIII: COMMITTEES

There shall be four Standing Committees of the society, and such additional committees as the society Executive Board may from time to time consider necessary. The Standing Committees shall be:

1. Range Operations Committee:

The Range Operations Committee shall be in charge of the building, operation, and maintenance of a society firing range and the equipment necessary for it. Members of this committee shall be responsible for the enforcement of safe conduct on the firing range.

2. Laboratory Committee:

The Laboratory Committee shall be in charge of the research work of the society, including the obtaining of equipment, the procuring and maintaining of the laboratory building or room, the assignment of research duties, the recommendation of projects to the society, the enforcement of safe procedures, the compiling and publishing of research results, and the education of society members in the correct approach to research in the scientific method.

3. Library Committee:

The Library Committee shall be in charge of the procurement of all necessary reference material for a complete library, the establishment of lending policies for the society library, the collection of money, if any, assessed for the use of the library, the cataloging of all books and materials according to a suitable system, the care and maintenance of the books and materials connected with the library, and the collection and preservation of published materials dealing with the activities of the society.

4. Publicity Committee:

The Publicity Committee shall be in charge of notifying the public of any society activities which may be of general interest or value, the editing and publishing of a regular society newspaper or magazine, and the arranging of all society demonstrations and educational programs for the public.

ARTICLE IX: AMENDMENTS

This constitution may be amended by a two-thirds majority of the members of the Model Rocket Research Society of West Podunk, Colorado, present and voting at any meeting of the society, provided that such proposed amendments were distributed in written form to all society members at least seven days in advance of the meeting. The society Executive Board may veto any amendment, but if, at the next regular meeting of the society, the veto is announced and a simple majority of those present vote to override the veto, the amendment shall go into effect. The amendment shall also go into effect if the Executive Board shall fail to announce its veto at the first regular meeting following the original vote on the amendment.