

UKAYROC MENTORS AND OBSERVERS

The UK Aerospace Youth Rocketry Challenge (UKAYROC) event was developed by UKRA in cooperation with the Tri-Polus and Space Connections. Both the Sponsors and UKRA want to use this event to spark interest among secondary school students nationwide in pursuing a career in aerospace. UKRA's agenda is also to solidify our reputation as the UK's leading rocketry organization and to foster long-term growth of rocketry as a national educational activity. We want to build the next generation of rocketeers who will fly with us for a couple of years as young people, then become lifetime ambassadors for UKRA.

Each team that enters UKAYROC pays a fee (usually around £100), and for this they get the Team Handbook, a Perfectflite altimeter, a rocket kit, an NAR-produced DVD on how to build a model rocket, demo copies of Rocksim and SpaceCad, and other supporting material. Only the Perfectflite Alt15k altimeter may be used in qualification flights or at the flyoffs as the basis for a reported score.

OBSERVERS. Each team is required, sometime between September and a specific date in March (exact dates are announced each year), to conduct up to two official "qualification flights". The qualification flight must take place in front of a UKRA (age 21 or older) member, and a second independent witness, who verify compliance with the event rules. The rules are posted on the website (<http://www.ukayroc.co.uk>). The key responsibilities of the observer and independent witness are to accurately measure the flight duration, peak altitude from the altimeter, and validate that the egg survived intact. The team then reports the results of that flight Space Connections by the published deadline. Any number of unofficial practice flights is permitted. The observer can be a mentor, or anyone else (including a new UKRA member) who is not related to a team member or employed by their school, but MUST be a UKRA member. The 10 best-scoring teams from these qualification results are invited to a mid-April head-to-head fly-off at Charterhouse School area to determine the final UKAYROC winners.

MENTORS. We ask that mentor volunteers (who do not have to be UKRA members) do all that they can to encourage and support any team member or teacher sponsor who contacts them for advice. This can be done by phone and e-mail for teams that are too far away for easy travel. More detailed mentor guidelines are provided below. Please read the Handbook and rules carefully. PLEASE do not design any team's official entry or help them in the building of it; this is supposed to be a learning experience that the student team members have on their own, without adult participation. It is a contest for students, not their parents, teachers, or mentors.

Thanks for "paying forward" and helping to build the next generation of aerospace professionals and UKRA members.

MENTOR GUIDELINES

It is not required that mentors do all of these things for every team that they mentor. Do what you are comfortable with doing and have time to do. These suggestions for your role with a team are listed in priority order.

1. Make contact with middle or high schools in your area to recruit them to enter UKAYROC by the entry deadline, which is typically late November each year. Once all entries are known, a list of them will be posted on the UKAROC website; please try to make contact with schools in your area that have entered and let them know you are available to them for advice and assistance.
2. Tell students where and how to obtain rocket-building supplies, parts, and motors. There are no "official" parts vendors for UKAYROC, but please encourage them to use the UK vendor community as much as possible.
3. Teach students, or point them toward resources to help them learn, such basic model rocket skills as construction, staging, recovery techniques, and clustering. Remember that UKAYROC is not a high-power rocketry event that necessarily needs the advanced materials and technologies of this aspect of sport rocketry! Encourage them to purchase and read Stine's "Handbook of Model Rocketry" and other books that will help them to get a solid grounding in the hobby.
4. Advise teams on rocketry safety and help them avoid designs or actions that would be unsafe, or that would violate the UKRA Safety Code. Regardless of other guidelines, please intervene with advice if you see a team about to do something that is clearly unsafe.
5. Help students obtain a launch site for their test and qualification flights. UKRA are encouraging teams to use established launch sites of UKRA Affiliated rocket clubs. If the team has a suitable site then offer your advice (on field size) and assistance (as a resource to provide information on rocket safety, UKRA insurance, and CAA NOTAM procedures).
6. Lend teams launching equipment, point them toward groups that already have such equipment the teams could use, or help them design and build a launch system.
7. If you are a current UKRA member, age 21 or older and not related to any team member or employed by their school, you can serve as the official flight observer for teams' local qualification flights. Remember that teams can only make two official qualification flight attempts, and must declare in advance of a flight whether it is such an attempt.
8. If possible and if you wish to do this, provide advice and contacts to teams to assist in their efforts to raise funds to buy their rocketry materials, and/or to finance their trip to Charterhouse if they are selected to attend the final flyoff.

Please remember: No one except the student members of a team may participate in the design, construction, or pre-flight prepping of a rocket that the team uses in a qualification flight attempt or as their rocket for the final flyoff.

MENTOR SUGGESTIONS

These are suggestions for your working relationship with any team that you mentor.

1. Encourage teams not to underestimate how much time it will take to design, build, and test-fly a successful, reliable UKAYROC design. They should start their design and building work earlier and plan to have more test flights than they realize. The average successful team in previous years that made it to the flyoffs had made 15-20 practice flights and had numerous crashes, lost rockets, or other unexpected problems in the process.
2. Have teams "walk before running"; encourage them to actually watch the DVD, read the UKAYROC Handbook, and read the "Handbook of Model Rocketry", then build and fly simple one-stage model rockets (without egg payload, initially) before beginning their TARC design. Apollo Model Rocketry has provided a special "learner" kit in the UKAYROC registration kit. Then have the team fly their UKAYROC design without the expensive altimeter until the design is fully proved in test flights.
3. Encourage teams to act as teams, with division of labor and responsibility among the members and no single person doing it all. Logical tasks for individuals would include project manager, flight simulation specialist, payload specialist, launch and ignition specialist, recovery specialist, parts and component ordering specialist, rocket construction technique specialist, etc.
4. Encourage teams to use a rocketry flight simulation program (SpaceCAD or RockSIM) to verify the stability and likely performance of their model before its test flights. It is cheaper to crash a rocket on a computer than on the field!
5. Encourage teams not to make their rockets more complex than necessary. The complexity may produce ideal flight performance on the computer, but it is likely to lead to discouraging reliability problems in flight testing.
6. Help teams understand the importance of designs that reliably achieve straight-up flights; such designs are far less susceptible to unpredictable performance in windy weather (which may occur at the flyoffs) and have far more repeatable altitude performance.
7. Be positive and encouraging to teams when they face difficulties in construction or in flight testing. Point out to them that the previous winners all had failures in the process but learned from them and persevered to final success. Convince them that they can actually do this, and can succeed at making a good, qualifying flight.