

UKRoC 2023 Mission

1. ROCKET REQUIREMENTS

Rockets must not exceed 650 grams gross weight at liftoff. The overall length of the rocket must be no less than 650 millimeters (25.6 inches) as measured from the lowest to the highest points of the airframe structure (including fins) in launch configuration. They must use two body sections which may be of any length and diameter. One must contain the egg and altimeter, the second must contain the motor. The two sections must separate after apogee and be recovered separately by parachute (each section must have its own parachute). Rockets flown at the Finals will be required to have a paint or other decorative coating applied to any wood, paper, or fiber exterior surface of the rocket and will be assessed a 5-point flight score penalty on their first flight at the Finals if they do not. Rockets may not be commercially-made kits designed to carry egg payloads with the only modification being the addition of an altimeter compartment. They must have only one stage.

2. PAYLOAD

Rockets must contain and completely enclose one raw hen's egg of 55 to 61 grams weight and a diameter of 45 millimeters or less, 56 to 59mm long, flown in any orientation. They must be returned from the flight without any cracks or other external damage. The egg will be issued to the teams by event officials during the Regional Qualifying Events and National Finals, but teams must provide their own egg for their test flights.

3. DURATION SCORING

The flight duration goal is a range of 42-45 seconds. Flights with duration in the range of 42-45 seconds get a perfect duration score of zero. Duration scores for flights with duration below 42 seconds will be computed by taking the absolute difference between 42 seconds and the measured average flight duration to the nearest 1/100 second and multiplying this by 4. Duration scores for flights with durations above 45 seconds will be computed by taking the absolute difference between 45 seconds and the measured average flight duration to the nearest 1/100 second and multiplying this by 4. These duration scores are always a positive number or zero.

4. ALTITUDE SCORING

The altitude performance goal for qualification flights is 850 feet. The altitude score will be the absolute difference in feet between the altitude performance goal in feet and the altimeter-reported actual flight altitude in feet (always a positive number or zero).

5. ROCKET MOTORS

Rockets must be powered only by commercially made model rocket motors of "F" or lower power class that are listed on the UKRoC Approved Motor List posted on the [UKRoC website](#). Any number of motors may be used, but the motors used must not contain a combined total of more than 80 Newton-seconds of total impulse based on the total impulse ratings in the UKRoC list. Motors must be retained in the rocket during flight and at ejection by a positive mechanical means (clip, hook, screw-on cap, etc.) and not retained simply by friction fit in the motor mounting tube. Rockets must not contain any pyrotechnic charges except those provided as part of the basic commercially made rocket motor used for the flight, and these must be used only in the manner prescribed in the instructions for that motor. Teams are strongly advised to use a single composite motor if they wish to compete in the International Rocket Competition where a single motor is mandatory.