

UKRoC 2021 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. All portions of the rocket must remain connected or tethered together from takeoff until landing and the rocket must recover by 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; and must return it from the flight without any cracks or other external damage. The eggs will be issued to the teams by event officials during the Regional Qualifying Events and National Finals, but teams must provide their own eggs for their test flights.

3. DURATION SCORING

The flight duration goal is a range of 40 to 43 seconds. Flights with duration in the range of 40 to 43 seconds get a perfect duration score of zero. Duration scores for flights with duration below 40 seconds will be computed by taking the absolute difference between 40 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 43 seconds will be computed by taking the absolute difference between 43 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 800 feet (244 metres). 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.