

UKRA, MAP-Silver Level – Assessor Advice & Guidance

Document reference	MAP-S-GUIDE
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Who is this document for:

This document has been written to support people performing the assessment of the UKRA MAP scheme. It is also recommended reading for the flyer and RSO's.

Introduction:

The UKRA MAP Silver award is primarily designed to be a follow on from the MAP Bronze award. It is designed to provide more complex challenges than Bronze, with more choice of elective tasks.

It is not mandatory to carry out the Bronze award first. Where both the flyer and assessor are happy a flyer with some model experience may proceed directly to the MAP Silver award.

To get the best out of MAP it is important not to treat it as an exam or test but rather a structure for model rocket flying, we hope an enjoyable one.

The assessment is divided into **three** components:

1. Core tasks
2. Elective tasks
3. Question and answer session

The details are in the Assessment Requirements document.

The estimated effort in this award is estimated to be about three times that of the bronze award, so reasonably completed in seven to ten days with two or three flying days. Though the flying component probably could be completed in a single day it is not designed to do this and is not recommended, it is not a race!

UKRA would appreciate any feedback on the MAP system, at any of the three levels. We would particularly appreciate any ideas for new electives.

Glossary:

With the release of R1-0 the MAP glossary has moved to the UKRA-MAP.ORG website.

Document Set

Please be familiar with the following documents prior to conducting a Bronze level assessment:

- MAP-S-GUIDE – General guidance aka this document
- MAP-S-AR– Award requirements document, the primary document that the assessment is performed against.
- MAP-S-REC – Separate record of achievement steps

MAP Description for Silver Award

The MAP silver level exists to provide a rocket flyer with a set of challenges, that are more complex than the bronze level. Unlike Bronze these tasks cannot, realistically, be completed in a single day.

Progress is recorded on a separate paper record sheet, MAP-S-REC. The flyer normally looks after this until it is completed. This is an “honesty based” system. There is no benefit to anyone to falsely claiming activities that have not been completed, or that were completed by others.

This is not an entry level award; some model rocketry knowledge is expected prior to commencing work. It is anticipated that the flyer will fulfil the tasks themselves. As a result, this is not a suitable award for the youngest flyers. Help in the form of simple tasks such as carrying equipment, assisting putting a rocket on the launch pad are fine, but building kits or answering assessor questions are for the flyer alone.

IMPORTANT: There are requirements for adult supervision within some safety advice and guidance especially as it relates to pyrotechnic motors. Safety always take precedence over MAP.

Running the Assessment

A flyer is assessed on a number of core activities, listed in MAP-S-AR, these need to be observed by an assessor. The assessor cannot be the RSO, (range safety officer) on duty at the model range. The assessor may also be different people for different tasks.

Tasks do not need to be performed in the order listed.

An assessor can be anyone with a good understanding with building and flying model rockets, who feels happy to perform the assessment. The assessor should be thoroughly familiar with the Silver award documents. Note: An assessor does **not** require UKRA MAP awards to assess and approve others.

At silver level, the assessor may choose to allow a task to be retaken, at their own discretion. Where a task is incomplete or fails due to some external factor a retake is encouraged.

A key consideration for the assessor is, “am I assessing the flyer?” At the silver level you are not able to witness all tasks, so discussion and Q&A are the guides here.

Make sure that the flyer is not merely accompanying somebody else actually doing the work.

The rocket used

- Full kit rocket or scratch built.
- Built by the flyer.
- Conventional, pyrotechnic, single use motors approved in the UK
- Motor, or motors acceptable to the RSO, and in accordance to safety guidance up to 20NS total impulse.
- The rocket used must comply with all site requirements, such as safety code, BMFA insurance etc.
- Unless required for a specific elective the rocket must be a single piece, with no detachable components.
- Unless required for a specific elective the rocket may fly with or without a payload (such as camera, sounder or tracker.)

- The rocket may use streamer, parachute, or helicopter recovery. Tumble recovery is NOT considered acceptable for the MAP Silver award core tasks, though it could form part of the project elective.

Assessor Advice and guidance

Observing preparation:

At Silver level observe the preparation for flight is a key requirement. This is in addition to standard RSO considerations at the time of launch. This is a significant change from the Bronze award. As normal, any RSO safety concerns take precedent over MAP.

Please consider the following:

- Make sure you are happy that the flyer is responsible for the flight, not just assisting somebody else. This is the concerned parent problem.
- Ask a few detailed questions regarding rocket, motor, recovery etc. This is primarily looking for a good understanding of preparation for flight.
- When the rocket is placed on the launcher see if the flyer is the primary actor. We would expect fitting the ignitor and cable connections etc.
- Significant flying preparation activities are carried out by the flyer, or the flyer is in charge. This includes all use of Ground Support Equipment. Examples here would be arming the launch system and presenting any flight card is required and talking to the RSO.

Observing flights:

When assessing a flight apply general RSO good practice, the assessor and/or RSO may stop the task at any time if they have any concerns. For the Silver level please take particular note of the following:

- The flyer carries out the of the activity themselves, any assistance is simple and not instructive. EXAMPLES: Helping a child put a rocket on a launch rod that is too high for them is acceptable, inserting the motor and hooking up the controller cable is not.
- The flyer understands the launch controller and its operation.
- Within the limits of the safety code and site requirements the flyer operates the GSE themselves.
 - The flyer inserts or operates any key or other safety device
 - The flyer is following RSO instructions
 - The flyer presses the button, closes the contacts etc
- Recovery mechanism correctly deployed
- Recovered substantially intact:
 - The rocket MUST be recovered to complete a task
 - Scratches to paint, chips etc due to impact with trees, stones on the ground etc are acceptable, as are small holes in parachutes.
 - Any damage that would prevent the rocket from flying again without repairs is not acceptable for completion of a task.
- Any and all motors are still in place

- Typically, all motors must have fired and thrust for completion of multi-motor designs some latitude can be given here as long as the rocket has sufficient power to weight ratio to fly correctly and reasonably straight.

Poor lift, insufficient altitude or other flight related concern.

Look for any issues that could indicate poor construction, or poor understanding of the rocket. Examples might include incorrect CG/CP, poor motor selection, or badly installed recovery mechanism.

If such a flight is observed, then the task may be considered incomplete and will need to be repeated.

The Q&A and assessing behaviours at Silver:

For the Silver MAP award, a short formal question and answer session is required. This need happen only once for the whole assessment. It is recommended that is carried out after core and elective tasks but UKRA understands that this isn't always possible.

Please consider the following:

- The flyer needs to realise that the Q&A conversation is part of the assessment
- Ideally, do not carry out the assessment at the range head, pick somewhere less distracting.
- Is the flyer the one answering the questions, watch out for the concerned parent problem.
- Make sure the flyer understands this is not an exam, and you aren't counting right and wrong answers.
- The assessor is looking for a good understanding of how a model rocket works, its core components and how it is safely operated.
- Expect to take no more than about 10 minutes
- Be prepared to stop and restart the Q&A later if that seems appropriate
- Try and avoid making notes, or referring to written material during the Q&A, remember this is not an exam.
- The flyer should be able to explain the elective tasks as well as the core tasks in some level of detail.

Continuing the assessment

As this assessment is unlikely to complete in a single day, the record document is completed as much as possible and **given to the flyer**. It remains the responsibility of the flyer to look after this document and pass it back to the assessor when the next state is carried out.

Completion of Silver Level and next steps

Completion of the Silver level activity is described in the MAP-S-AR document.

The Gold award follows silver, and details can be found in document reference MAP-G-GUIDE and MAP-S-AR.

Only one MAP award should be attempted on a single day.

Guidance on the use of scratch built rockets

The MAP Silver elective allows for the use of scratch built rockets. This advice applies to rockets that are built from components from parts of other rockets, other kits, construction materials supplied for rocketry or any other materials.

Where a rocket isn't entirely built from a manufacturers kit and built following the instructions this guidance applies to the assessment.

NOTE: This section applies only to MAP assessment of the model. It is a separate task to confirm that the rocket is compliant with site and safety code rules. This is for the flier and the RSO's not the MAP assessor, though advice can be given the assessor never supersedes the RSO.

Please consider the following:

- Check to see that materials used are those commonly used in model rocketry. Pay particular attention to heavy, hard, or metal components. Why are they there and why are they used.
- Make sure the flyer knows how the design was arrived at.
- The assessor need not perform static or dynamic balance checks, rather ask the flyer how they know that CP/CG is appropriate.
- Selection of recovery method
- Engine choice for both power and delay.
- Has the rocket flown before? If so, has it done so in this configuration
- The current release of MAP only allows 3D printed parts at Gold level. Do not use 3D printed parts at the Silver award level.