

Aided Observation Task

B11

Demonstrate the Range of Objects in the Messier Catalogue

What IS the Messier Catalogue?

The Messier Catalogue is perhaps the most famous astronomy catalogue there is, detailing deep-sky objects such as [galaxies](#), [globular clusters](#) and [nebulae](#). It's a 'what's what' of some of the best objects to see in the night sky with a telescope.

But the Messier Catalogue didn't start out as a list of desirable astronomical objects: rather, it was comet-hunter [Charles Messier](#)'s record of targets to avoid in the night sky.

He was hunting for new comets but was distracted by other 'fuzzy' objects in the heavens and in May 1764 decided to start keeping a record of them to avoid subsequently mistaking them for real comets.

There are 110 objects in the final version of the catalogue labelled M1 to M110.

<https://www.skyatnightmagazine.com/space-science/messier-catalogue/>

What types of objects can be found in the Messier Catalogue?



Clockwise from top left:

Globular Clusters

Planetary Nebulae

Open Clusters (Top and Bottom)

Diffuse Nebulae

Galaxies

(See all the Messier objects here:

<https://www.skyatnightmagazine.com/space-science/messier-catalogue/>)

How do you plan your Aided Observing Task B11?

1. Use the 'Go Observing' facility at the National Schools Observatory
2. Choose the GCSE Astronomy tab and then Observing a Galaxy or Nebula
3. Request observations of a sample of available Messier Catalogue objects
4. Select the full range of different types of objects
5. Decide whether to ask for one or more than one of each type
6. Request a suitable observing period for your request
7. Choose appropriate exposure times and filters
8. Decide whether you will accept observations for any Moon phase or observing conditions, or only dark phases and perfect conditions
9. Submit your requests and keep checking to see if they have been made
10. Download the FITS files and produce standardised images for each object so that you can compare them fairly

FURTHER ADVICE ON CHOOSING OBSERVATION PARAMETERS FOLLOWS

Advice on choosing exposure times:

- If it is a dimmer object, say a nebula or a galaxy, choose a longer exposure time
- If it is an object full of bright stars, such as a globular or open cluster, chose a shorter exposure time
- The NSO only lets you choose 30s; 60s; 90s or 120s

Advice on choosing filters:

- Remember that you will need to compare your images so don't use different filters for different objects
- The V filter is the 'visual' filter which measures in wavelengths nearest to the peak sensitivity of the human eye
- If you are feeling more ambitious, you could submit three requests for the same object using R,G and B filters and then reconstruct a colour image by following the tutorial on the NSO website
- You could decide to find out what the objects look like in different wavelengths and choose UV, HA or IR filters - as long as you do the same thing for each object

Advice on choosing observing conditions:

- The poorer the observing conditions you are prepared to accept, then the more chance there is that your observation will be made
- However, full Moon conditions make the sky very bright, especially if the object is near the Moon in the sky, and you will get poorer quality images
- If you are prepared to accept fuzzy or poor quality images, this will increase your chances of getting the full range of objects you have chosen

Advice on displaying your images:

- Images from the Liverpool Telescope will not display instantly as they are in a special format called FITS with the extension .fits rather than .jpeg
- You will need to download and use astronomical software to see them
- If you use a Windows device you can download and use LTImage

<https://www.schoolsobservatory.org/obs/software/ltimage>

There are also video tutorials on how to use it.

- If you don't have a Windows device then SalsaJ is a good alternative

<http://www.euhou.net/index.php/salsaj-software-mainmenu-9/download-mainmenu-10?task=view&id=8>

- Or DS9:

<https://sites.google.com/cfa.harvard.edu/saoimageds9>

I have made a video tutorial on simple use of DS9 here:

<https://studio.youtube.com/video/nOv03hHgvPE/edit>

Have fun doing your Aided Observing Task!

