Messier Challenge

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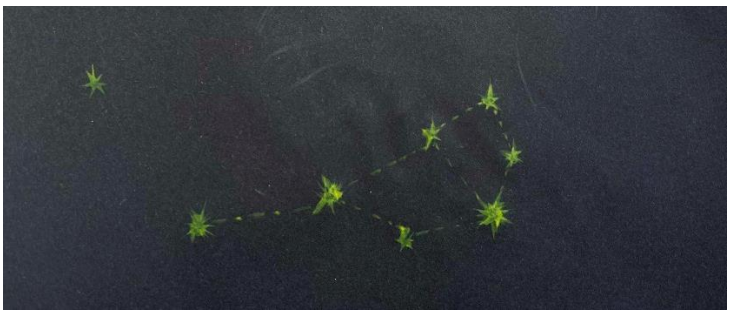
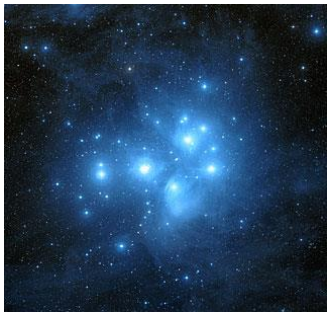


(Credits: Nikolay Damyanov, ESA/ESO/NASA, Alexandraa Nikolova, Frioui Imene and Spitzer Space Telescope)

The NASE 2024 proposal for the celebration of the International Day of Light (IDL) consists of observing Messier objects any day between March 20 and September 23, 2024, sending photographs or drawings of the observed objects along with the final table and vote, for the favorites! This project appears on the UNESCO IDL website among the events proposed for the entire world.

The table with data, photo or drawing of the observed object and 2 or 3 photos of the students carrying out the activity must be sent before September 23, 2024 to newsletter.nase@gmail.com

In 2024, the NASE-UNESCO proposal for the International Day of Light (IDL) invites you to raise your eyes to the starry night and discover the “jewels” found in the “toolbox” that we know as the Messier Catalog, in an invitation that adds the discovery of non-stellar celestial objects detectable even without instruments, the location in the celestial sphere of said objects, using NASE tools and sharing the stories that the sky tells us or inspires us.

The French astronomer Charles Messier (1730-1817) discovered more than a dozen comets and from his observation work, he differentiated these objects from others, tenuous (like nebulae) or extended ones formed by stars (like clusters or galaxies) and so on. created a list of objects discovered by himself that appeared to be comets but were not. The compilation of that list, together with Pierre Méchain, is known as the "Messier catalog" It is one of the most famous lists of astronomical objects, and many of the objects included in it are still referenced by their Messier number.

The Messier Object List was originally published in 1771 and included only 45 objects; In 1774 Messier himself completed it to include 103 objects. Other astronomers used Messier's notes to eventually finalize the list with 110 objects, as we know it today.

This catalog was compiled by European astronomers from central Europe and therefore there are no objects below declination 35º South, for this reason in the list of objects proposed for the NASE 2024 challenge within the framework of the project with UNESCO-IDL, there have been added a few more and the program is called “Messier Challenge.”

Fig 1: Charles Messier. Fig. 2: The Messier Catalog is a list of 110 astronomical objects published between 1774 and 1781. (Credit: Wikimedia)

The essential objective of this project is to observe at least one of the objects listed in Table 1, make a drawing or take a photograph of it, and accompany it with photos of students doing the activity. Observation can be done with the naked eye, with binoculars or with a telescope if one is available: these possibilities are related to the visibility of the object or objects selected to carry out the activity, since in addition to those that are distinguished if aided by instruments, weaker ones have been included. Next, simply send the report to the email address newsletter.nase@gmail.com indicating the name of the

teacher and students along with a brief description of the observed object and a drawing or photo of it.

For more advanced groups: you can send objects from the Messier catalog (https://en.wikipedia.org/wiki/Messier_object) that do not appear in Table 1 if you wish, but in any case it is necessary to send a photographic image or a drawing of it.

Table 1: List of objects simple to observe

Name	Messier Object	Description	Magnitude	Location
The Pleiades	M45	Open Cluster	1.4	Taurus
The Hyades		Open Cluster	0.5	Taurus
Andromeda Galaxy	M31	Galaxy	3.5	Andromeda
Orion Nebula	M42	Nebula	4	Orion
Ptolemy Cluster	M7	Open Cluster	3.5	Scorpio
Omega Centauri		Globular Cluster	3.9	Centaurus
The Jeweler		Open Cluster	4.2	Crux
Greater Magellanic Cloud		Galaxy	0.9	Gold/Mensa
Lesser Magellanic Cloud		Galaxy	2.7	Tucan

TIPS FOR OBSERVATION

1. Choice of place. To avoid “light pollution” you must observe in a place away from roads and towns. You should also avoid the proximity of street lamps or isolated lights.

2. Date. The best days are during the new Moon or in the waning phase, because first thing in the evening (which is when we will observe), the Moon has not yet risen.

3. Warm clothing. Even if it is in summer, at dusk the temperature always drops, the wind often picks up (we will be still for a few hours at a time).

4. Observation with the naked eye. To find the chosen celestial object, it is advisable to use a map of the sky or planisphere. It is convenient to have a red flashlight, which does not dazzle like normal white flashlights (in the dark, the pupil opens little by little, and little by little we see weak objects better; when looking at something bright or a white light), the pupil slams shut and the retinal photoreceptors that allow night vision are deactivated and you cannot observe for a while).

5. Observation with the help of the cell phone. There are many applications that tell us what we are seeing by pointing the cell phone at the sky (Stellarium,

Sky Map View, SkyView Lite, etc.) and they can be useful to find the objects in the catalog.

6. Observation with binoculars. Although binoculars magnify little, they collect much more light than our pupil, and allow us to see diffuse objects that are very dim to the naked eye. In addition, the color differences of objects increase. The recommended ones for observing are 7x50 (it magnifies the image 7 times and the aperture of the front lens is 50mm). With higher magnifications the image moves a lot and is difficult to use.

Fig. 3: Observing with binoculars, sitting in the chair. (Credit: Ricardo Moreno).

To observe with binoculars, it is advisable to attach them to a tripod and avoid the vibrations that our hands transmit and make observation difficult. If you do not have a tripod, just use a chair and observe sitting with your back facing forward. We rest our arms on the backrest and the image is prevented from moving. If we don't have a chair, at least rest the binoculars on a car or a tree.

7. Objects of interest. For example, interesting objects to see with binoculars are: The Andromeda Galaxy (M31), the Orion Nebula (M42), Omega Centauri as well as the two Magellanic Clouds and the Milky Way in general.

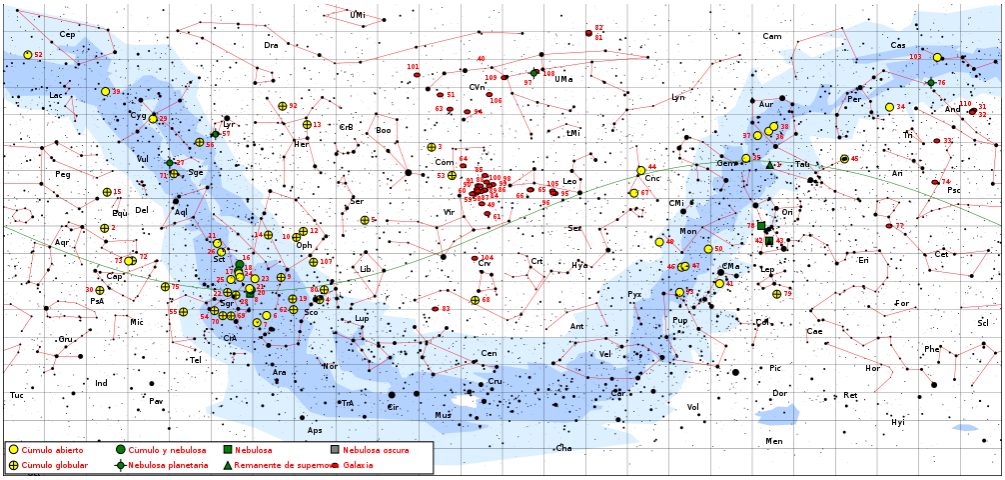

Fig. 4: Complete Messier Catalog Map

NOTE: *The Messier Marathon is an astronomical event that has been held since the mid-1980s with the aim of observing, in a single night, the largest number of objects in the Messier catalog (without electronic search devices). These Messier marathons were held for the first time in the USA and Spain, in the mid-80s. They are usually organized the weekend closest to the New Moon of the equinox on March 21 to have a night of observation with clear sky. dark without moon. For example, in 2024 the new moon is on March 10, so the marathon is scheduled for Saturday, March 9.*

United Nations Educational, Scientific and Cultural Organization

International Day of Light

“Messier Challenge”

To observe one of the proposed objects with the naked eye with binoculars or a telescope if available. Explain what the observed object is, what impression you received when observing and send us a drawing or a photo of the object as well as some photos of the students preparing and carrying out the observation.

Teacher's name		
Student's names		
Name of the observed object/s		
Center where the experience takes place		
City and country	**Day, month, time**	**Latitude**

This table with the data, drawing or photos of the observed object and 2 or 3 photos preparing and carrying out the observation, must be sent before September 23, 2024 to newsletter.nase@gmail.com