

How To Request A 3 Colour Observation Using the GCSE Option

Requesting an 3 observation from the Liverpool Telescope can be quick and simple to do. This guide will take you through the steps required to utilise the NSO website and make requests of the world's largest fully robotic telescope.

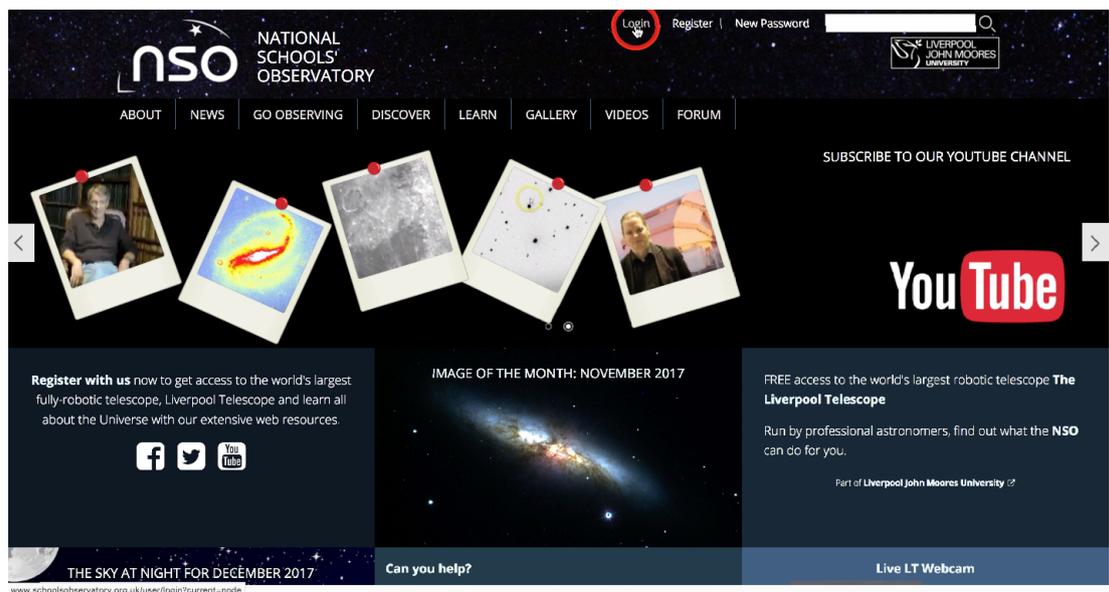
A 3 colour image involves making 3 observation requests of the same object, using 3 different filters. These images are then combined using astronomy software, such as LT Image, to create a 3 colour image.

Stages:

1. Log in to the NSO website
2. Go to 'Go Observing'
3. Select the object you wish to observe
4. Set the parameters of your observation

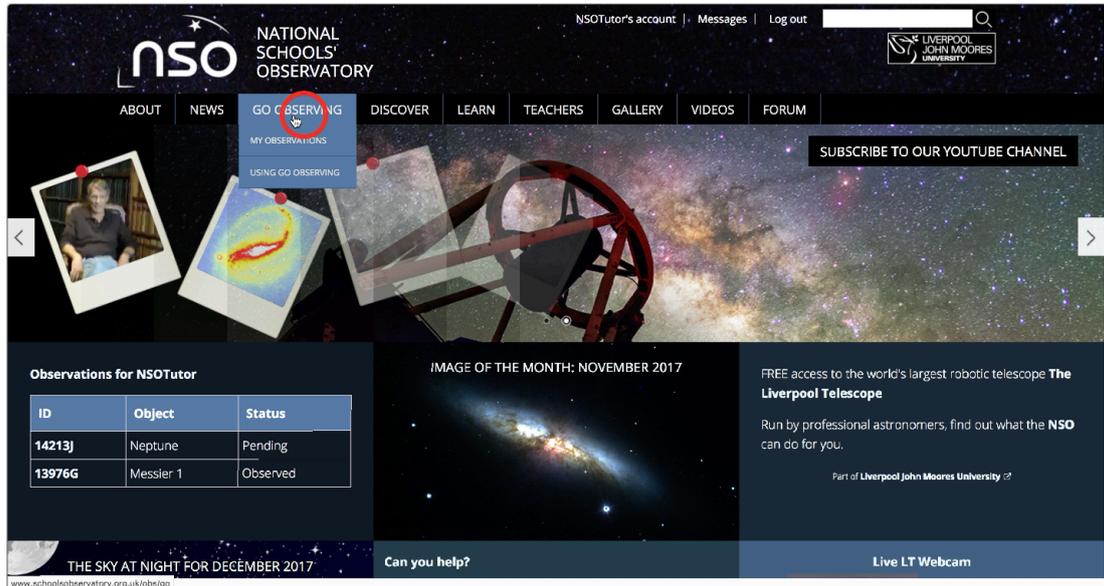
1. Log in to the NSO website

We must first ensure we are logged into the NSO website which is done by clicking the 'Login' link at the top of the screen. Alternatively if you have not yet created an account, this can be done by clicking the 'Register' link, which is also at the top of the screen. Registering is free and takes only a couple of minutes.



2. Go to 'Go Observing'

After logging in we need to select 'Go Observing' from the top menu, this is the section of the NSO website that deals with making requests from the Liverpool Telescope.



The screenshot shows the NSO website interface. At the top, there is a navigation menu with the following items: ABOUT, NEWS, GO OBSERVING (circled in red), DISCOVER, LEARN, TEACHERS, GALLERY, VIDEOS, FORUM. Below the menu is a banner image featuring a telescope and a starry sky. A table titled 'Observations for NSOTutor' is visible, listing two observations. To the right, there is a section for 'IMAGE OF THE MONTH: NOVEMBER 2017' and a promotional message about free access to the Liverpool Telescope.

ID	Object	Status
14213J	Neptune	Pending
13976G	Messier 1	Observed

Select the 'GCSE Astronomy' option.

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Home » Go Observing

Go Observing

Request your own observations from the Liverpool Telescope.

Whether you're collecting data for a school project or here to process your own spectacular image of the cosmos, this is a great opportunity to use the largest autonomous telescope in the world.

Galaxies

Moon

Planets

Stars

GCSE Astronomy

Advanced Options

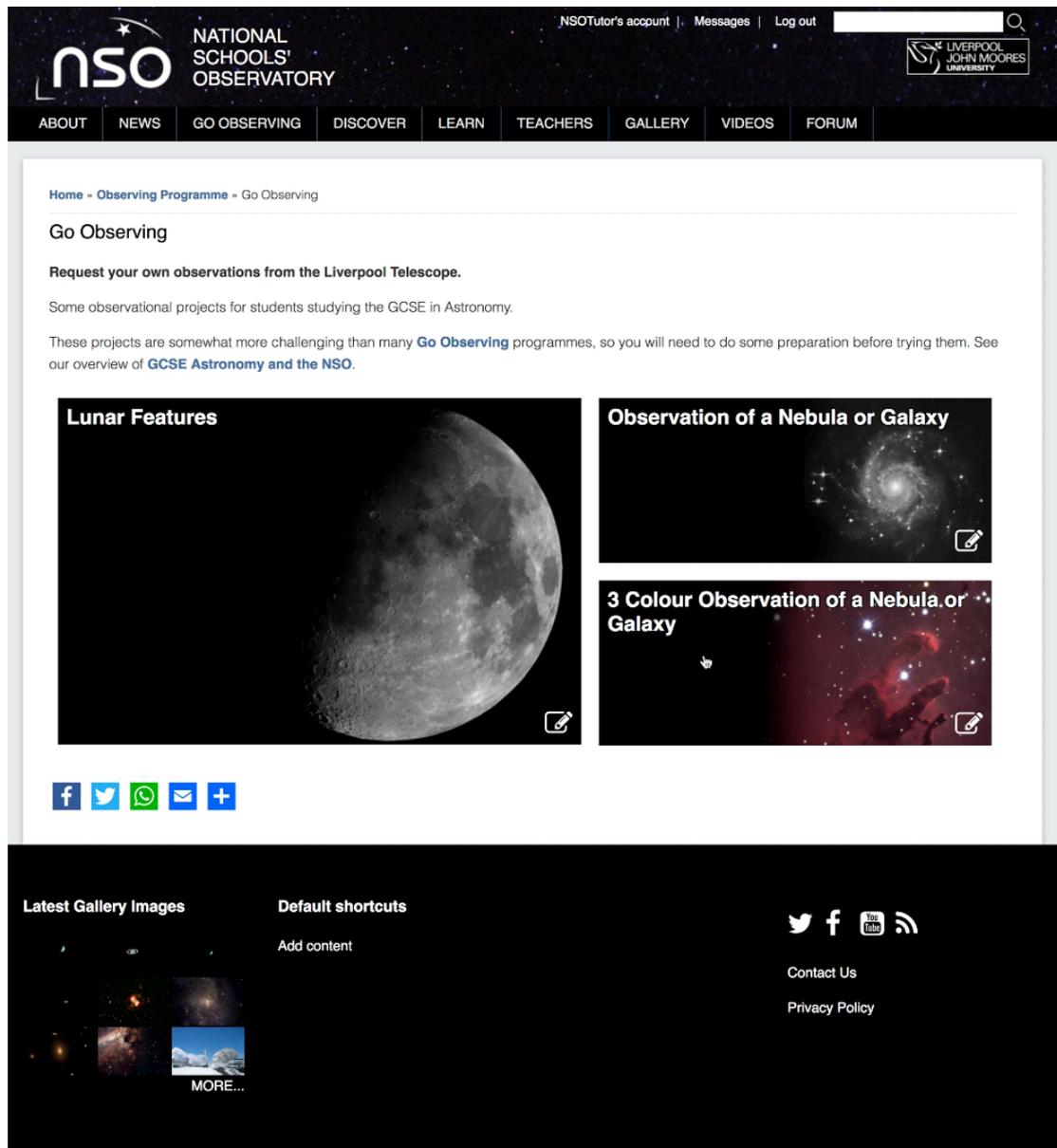
Weather Archive

Data Archive

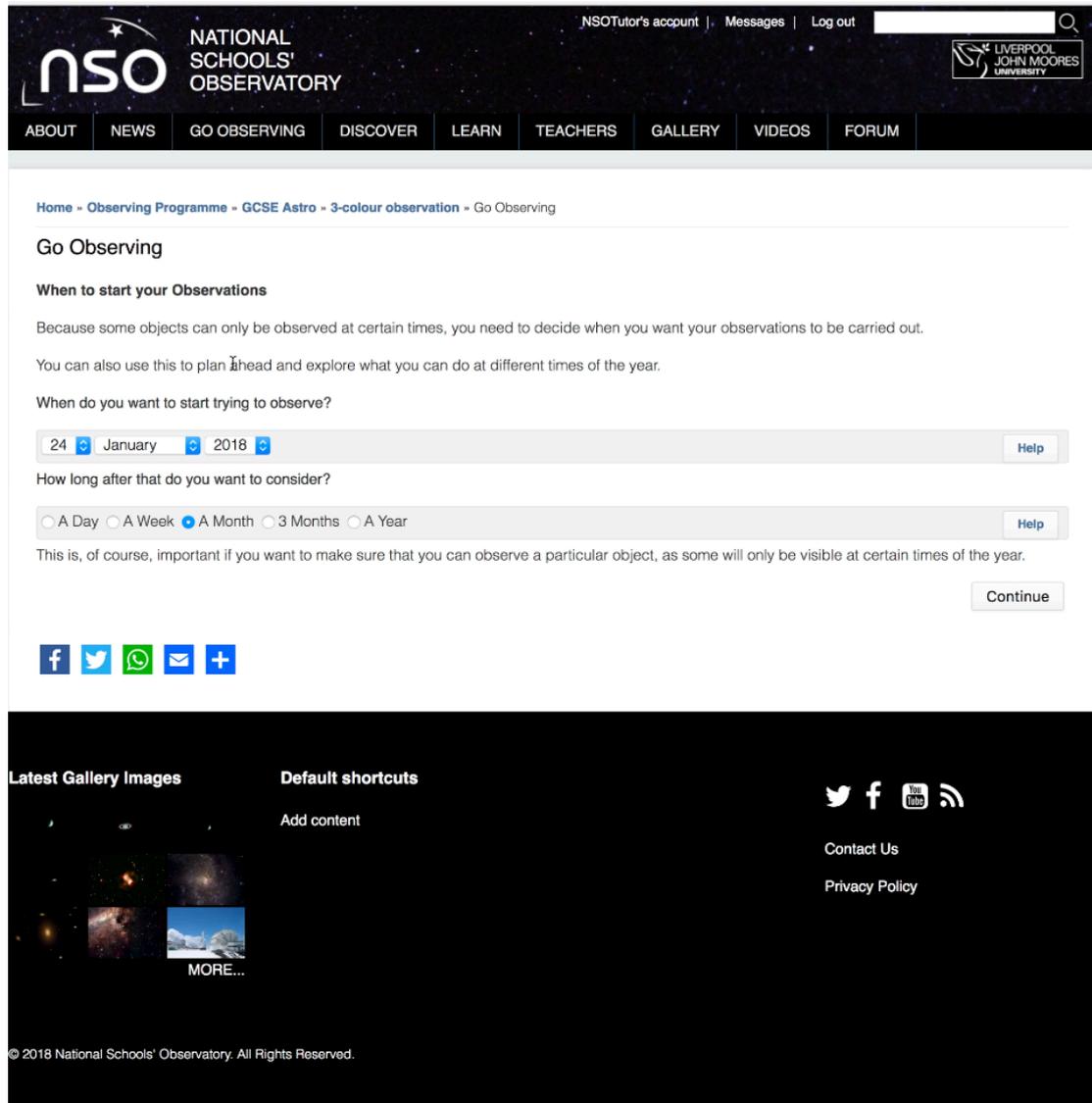
f t w e +

3. Select the object you wish to observe

You'll then be presented with several options, select the one called '3 Colour Observation of a Nebula or Galaxy'.



You will then be asked to select the date you wish the telescope to start trying to take your observation and how long you wish the telescope to keep trying. Make your selections and then click the 'Continue' button.



The screenshot shows the 'Go Observing' page on the National Schools' Observatory website. The page has a dark header with the NSO logo and navigation links: ABOUT, NEWS, GO OBSERVING, DISCOVER, LEARN, TEACHERS, GALLERY, VIDEOS, FORUM. The main content area is titled 'Go Observing' and includes a section 'When to start your Observations'. It explains that some objects can only be observed at certain times and provides a form to select a date and time. The form shows '24 January 2018' selected. Below the date selector, there are radio buttons for 'A Day', 'A Week', 'A Month' (selected), '3 Months', and 'A Year'. A 'Continue' button is at the bottom right of the form. At the bottom of the page, there are social media icons for Facebook, Twitter, WhatsApp, Email, and a plus sign. The footer contains 'Latest Gallery Images', 'Default shortcuts', and 'Add content' with a 'MORE...' link. It also includes social media icons for Twitter, Facebook, YouTube, and RSS, along with 'Contact Us' and 'Privacy Policy' links. The copyright notice at the bottom reads '© 2018 National Schools' Observatory. All Rights Reserved.'

You will then be asked to select which object you wish to observe. Simply click the name of the object to proceed.

Home - Observing Programme - GCSE Astro - 3-colour observation - When to Observe - Go Observing

Go Observing

Choosing a suitable object to observe

There are many objects in the universe that you *could* observe, but a lot of them are not suitable for this particular telescope - they might be too big or small, or they might only be observable from a different part of the world and so on.

Here we have gathered together a number of objects that are generally suitable. However, not all can be observed all year, so you need to choose carefully.

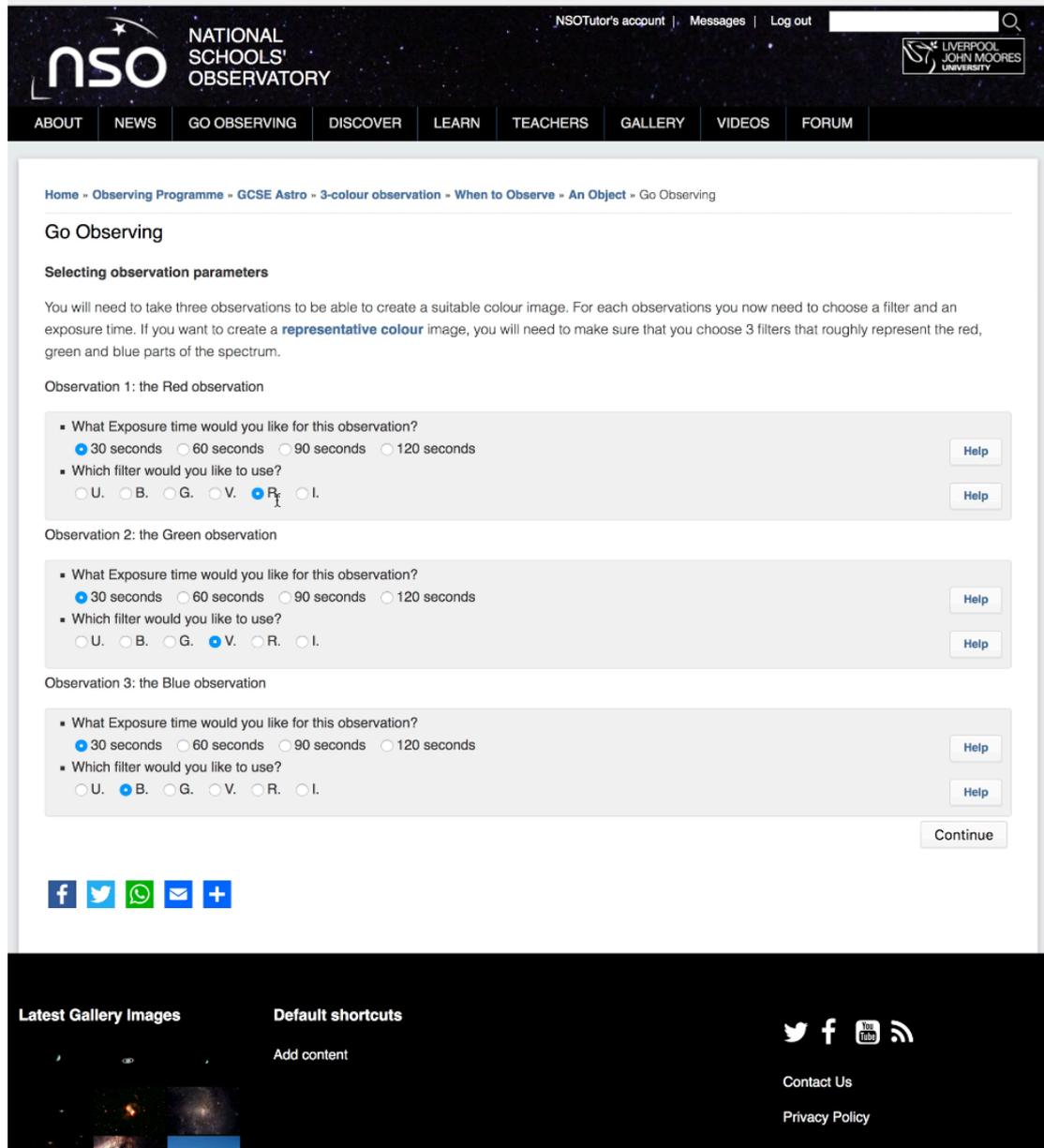
Choose one of the objects in the list below

To find out more about each one, click on the . You can come back and change your choice later if you wish.

Object Name	General type	Coordinate
NGC23	 A Spiral Galaxy with a Bar	00:09:53, +25:55:26 (J2000)
BD57_22	 (Not classified yet)	00:10:46, +58:46:10 (J2000)
Bow Tie Nebula	 An Hill Region	00:13:01, +72:31:19 (J2000)
NGC146	 A Diffuse Nebula	00:33:06, +63:18:00 (J2000)
NGC153	 A Spiral Galaxy with a Bar	00:34:03, -09:42:19 (J2000)
NGC157	 A Spiral Galaxy with a Bar	00:34:47, -08:23:47 (J2000)
Caldwell 18	 An Elliptical Galaxy	00:38:58, +48:20:15 (J2000)
Messier 110	 An Elliptical Galaxy	00:40:22, +41:41:07 (J2000)
ARP168	 An Elliptical Galaxy	00:42:42, +40:51:55 (J2000)
NGC225	 A Diffuse Nebula	00:43:39, +61:46:30 (J2000)
Skull Nebula	 An Hill Region	00:47:03, -11:52:19 (J2000)
NGC309	 A Spiral Galaxy with a Bar	00:56:43, -09:54:50 (J2000)
IC63	 An Emission Nebula	00:59:10, +60:53:18 (J2000)
NGC358	 A Diffuse Nebula	01:05:11, +62:01:18 (J2000)
NGC488	 A Spiral Galaxy	01:21:47, +05:15:24 (J2000)

4. Set the parameters for your observation

At this point you are asked to determine the exposure time for each of your three observations. You can also select the filters to be used in each, although by default these are already set to red, green and blue. Once you have made your selections click the 'Continue' button.

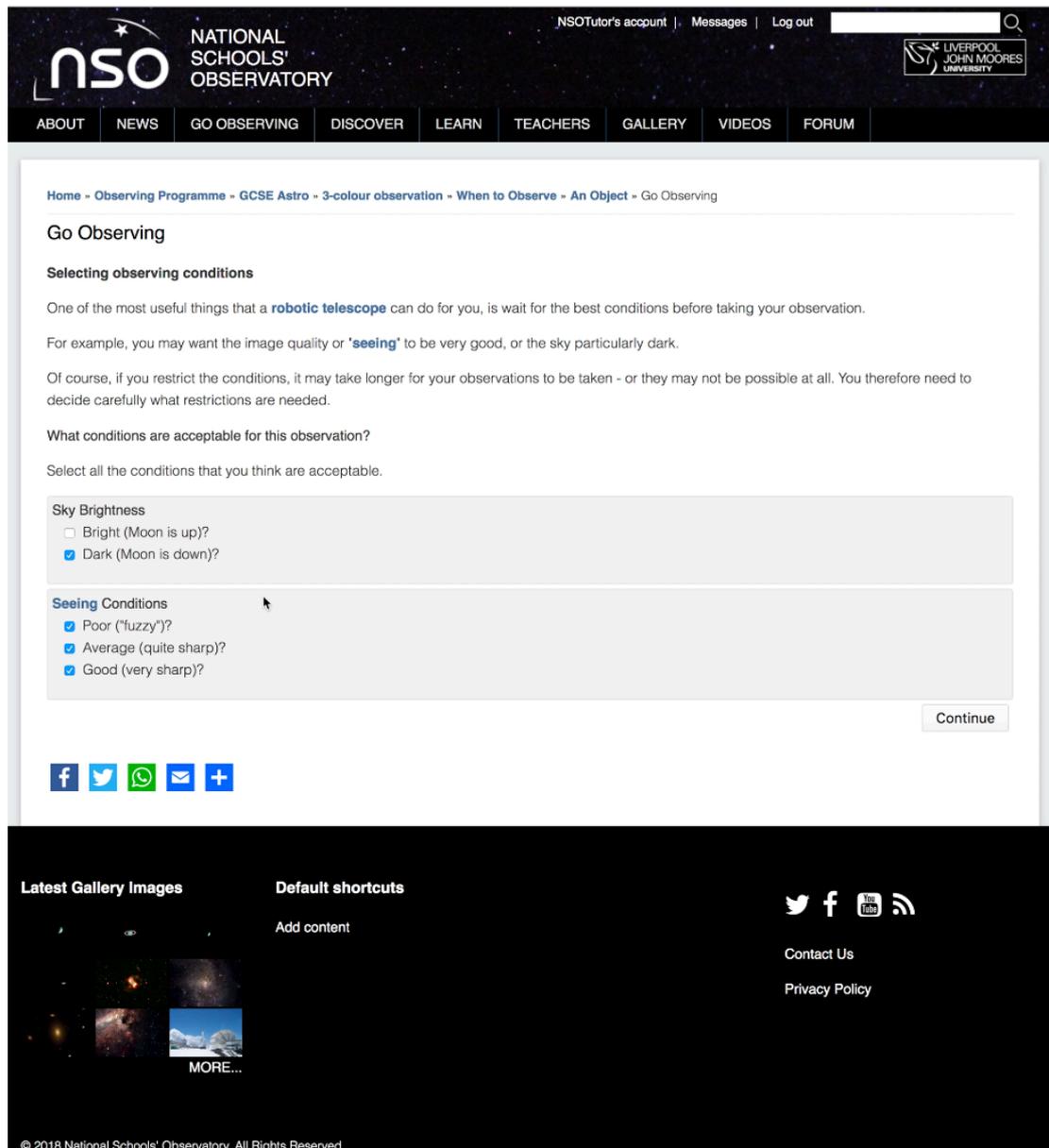


The screenshot shows the NSO website interface. At the top, there is a navigation bar with links: ABOUT, NEWS, GO OBSERVING, DISCOVER, LEARN, TEACHERS, GALLERY, VIDEOS, FORUM. The main content area is titled 'Go Observing' and 'Selecting observation parameters'. It contains three observation forms:

- Observation 1: the Red observation**
 - What Exposure time would you like for this observation?
 - 30 seconds
 - 60 seconds
 - 90 seconds
 - 120 seconds
 - Which filter would you like to use?
 - U.
 - B.
 - G.
 - V.
 - R.
 - I.
- Observation 2: the Green observation**
 - What Exposure time would you like for this observation?
 - 30 seconds
 - 60 seconds
 - 90 seconds
 - 120 seconds
 - Which filter would you like to use?
 - U.
 - B.
 - G.
 - V.
 - R.
 - I.
- Observation 3: the Blue observation**
 - What Exposure time would you like for this observation?
 - 30 seconds
 - 60 seconds
 - 90 seconds
 - 120 seconds
 - Which filter would you like to use?
 - U.
 - B.
 - G.
 - V.
 - R.
 - I.

At the bottom of the forms, there is a 'Continue' button and social media icons for Facebook, Twitter, WhatsApp, Email, and a plus sign for more options.

Next you will be asked to select whether your observation requires the Moon to be down and what level of seeing is required. Again, make your selections and click the 'Continue' button.



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Home » Observing Programme » GCSE Astro » 3-colour observation » When to Observe » An Object » Go Observing

Go Observing

Selecting observing conditions

One of the most useful things that a **robotic telescope** can do for you, is wait for the best conditions before taking your observation.

For example, you may want the image quality or **'seeing'** to be very good, or the sky particularly dark.

Of course, if you restrict the conditions, it may take longer for your observations to be taken - or they may not be possible at all. You therefore need to decide carefully what restrictions are needed.

What conditions are acceptable for this observation?

Select all the conditions that you think are acceptable.

Sky Brightness

- Bright (Moon is up)?
- Dark (Moon is down)?

Seeing Conditions

- Poor ("fuzzy")?
- Average (quite sharp)?
- Good (very sharp)?

Continue

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The final screen in the process asks you to confirm everything is correct before submission. It shows each of your 3 requests, with the selected parameters. You will also see a blue/black bar. This indicates the chance of successfully observing the object. The left hand side of the bar is today, and as it moves towards the right it is indicating for dates in the future. The darker the segment the less chance of success, so a fully black bar would indicate little to no chance of an observation being successful in the timeframe selected. Perhaps the object is not visible in the northern hemisphere at this particular time of year. However, a brighter bar would indicate a very good chance of success.

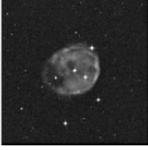
Go Observing

Submit your Observations

You have chosen the Observing Programme **"3-colour observation of a nebula or galaxy"** and you will be using **The Liverpool Telescope**.

Your observations will take place as soon as possible. If the observations cannot be done immediately, we will keep trying for **a month**. If this is not what you want then you can [change the timing](#) .

Sometimes some objects are very difficult to observe, particularly if your observations need very dark skies or unusually good conditions. This may mean that your observations cannot be done for a while. You can use the special Colour Bars to check.

Skull Nebula 	Observation details
 <p>Image: Digitized Sky Survey</p>	<p>Red observation.</p> <ul style="list-style-type: none"> Instrument: IOOpt Filter: R Exposure time: 30 seconds Acceptable conditions: <ul style="list-style-type: none"> Dark (Moon is down) Good "seeing" <p>Green observation.</p> <ul style="list-style-type: none"> Instrument: IOOpt Filter: V Exposure time: 30 seconds Acceptable conditions: <ul style="list-style-type: none"> Dark (Moon is down) Good "seeing" <p>Blue observation.</p> <ul style="list-style-type: none"> Instrument: IOOpt Filter: B Exposure time: 30 seconds Acceptable conditions: <ul style="list-style-type: none"> Dark (Moon is down) Good "seeing"



Do you want to submit this Observing Programme?

If you are sure that you want to submit this program, click on the button below. You will be asked for your username again and your password. Please be careful to enter then correctly!

Please make sure that you read the [Instructions for Submitting Observations](#) carefully first.

Submit Observations



If you're happy with your selection and wish to send the request to the telescope simple click the 'Submit Observation' button, and you'll be shown a confirmation screen.

The screenshot shows the NSO website interface. At the top, there is a navigation bar with the NSO logo, the text 'NATIONAL SCHOOLS' OBSERVATORY', and user options like 'NSOTutor's account', 'Messages', and 'Log out'. A search bar is also present. Below the navigation bar is a menu with links: ABOUT, NEWS, GO OBSERVING, DISCOVER, LEARN, TEACHERS, GALLERY, VIDEOS, FORUM. The main content area is titled 'Submitting your Observations' and includes a sub-header '3-colour observation of a nebula or galaxy has been submitted'. It provides a unique code '14524H' and explains the next steps, including the use of the Liverpool Telescope and the FITS file format. A list of activities is provided for users while waiting. At the bottom of the page, there are social media icons, a 'Latest Gallery Images' section, and a 'Default shortcuts' section with links to 'Contact Us' and 'Privacy Policy'.