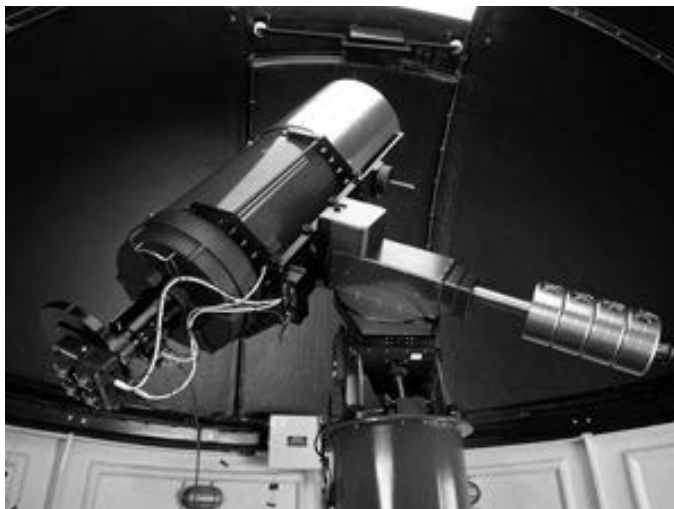


**Introduction**

This worksheet will guide you to use the *SPiRiT* telescopes to capture images of deep sky objects. *SPiRiT I* and *II* are state-of-the-art robotic telescopes that allow you to capture images of the night sky from anywhere on Earth, using an Internet browser.

This activity has two parts. In Part 1 you will select and take images of four objects in the night sky; then in Part 2 you will research and publish a report on each object.

Observing time on the *SPiRiT* telescopes is limited. Your group has been allocated the following 30 minute interval to image four deep sky objects.



Date: ..... Time: ..... to ..... pm

Telescope (*SPiRiT I* or *SPiRiT II*): .....

You may like to meet at one of your group's homes where you have access to a fast Internet connection.

Meeting place address: .....

At the above time, follow instructions in Step 2 of the *Introduction to SPiRiT* quick guide to log on to the telescope at <http://spice.wa.edu.au/spirit/>

Enter your user name and password.

Your user name is ..... and password is .....

**Part 1: Acquiring your images**

**Planning (in-class)**

Select one object from each category of the target list. Record the name or catalogue number of each object in this table.

CATEGORY	NAME OR CATALOGUE NUMBER
1	
2	
3	
4	

### Using the SPIRIT telescope

Follow the instructions in step 3 of the *Introduction to SPIRIT* quick guide and image each of your four selected objects. Each image must be captured separately in the 30 minutes of telescope time you have been allocated.

While the telescope locates and images each object, complete details of images in the following table.

object 1	target object	date	time
	duration	file name	
weather conditions / comments			
object 2	target object	date	time
	duration	file name	
weather conditions / comments			
object 3	target object	date	time
	duration	file name	
weather conditions / comments			
object 4	target object	date	time
	duration	file name	
weather conditions / comments			

Record any error messages, problems or general comments about your observing session here:

### Important!

As soon as you have imaged your four deep sky objects, log off (**Observatory info / Log off**) so the next group of students can use the telescope. You can continue to browse your images in your download folder.

## Part 2: Working with your images

### 1. Download your images

Follow the instructions in step 4 of the *Introduction to SPIRIT* quick guide to download your images.

### 2. Write a report on each object

Create a separate Microsoft Word (or equivalent) document for each object, add a title and insert an image.

Write a brief (one-page) report on each of the four objects you imaged. Each report should include:

- name and/or catalogue reference number of the object,
- the image you obtained,
- names of students in your group,
- date and time you took the image,
- exposure (duration) and weather conditions at the time, and
- a short description of the object and the class of astronomical objects it belongs to.

Name and save each document.

### 3. Research the objects

In order to write the short description of each object, you should:

#### *Find relevant information*

For each of the four objects you imaged, locate one or more websites that contain relevant information. Make notes on the object, including what it is, what it looks like and any special features it may have.

Note: The objects you imaged are identified by their Messier catalogue number, such as M 80 or their New General Catalogue (NGC) number, such as NGC 4144. When you input a Messier or NGC number into an Internet search engine, you'll be directed to sites that contain these letters and numbers, but not all are relevant to astronomy – so be selective.

#### *Describe the object*

Write a paragraph, in your own words, to describe the object and add your description to your report. Be sure to define any words that are unfamiliar to you.

#### *Classify the object*

When you selected your objects to image, you chose one from each of four categories. The categories are: *galaxies*, *nebulae*, *globular star clusters* and *open star clusters*.

Find a description of each of these categories, make notes and then use them to classify your images. Include this classification in your report on each object.

### 4. Publish your work

Publish your images as single A4 pages, a poster or in electronic form.

Submit your completed reports to your teacher for inclusion in a class astronomy image gallery. Your reports will be judged on the quality of the images and the accuracy of the scientific information in your descriptions.

Your teacher and fellow students will select the best images and submit them to the SPIRIT image gallery for entry in an 'Image of the month' competition and publication on the SPIRIT website. Certificates will awarded each term for the best images.