

GCSE Astronomy Observational Skills Task Criteria

1. Design Observations

In this section you should:

- a. Produce a list of feasible target objects, location, date, time (and observing instrument)
- b. Use astronomical data to select the most appropriate target object, location, date, time (or observing instrument)
- c. Generate an initial observing programme that will allow you to solve the problem posed by the title of your chosen task, including health and safety considerations
- d. Make refinements or improvements to your observing programme, following the results of initial trials

2. Make Observations

In this section you should:

- a. Conduct unaided observations using techniques such as averted vision, dark adaptation
- b. Conduct aided observations using equipment such as binoculars, telescopes and cameras
- c. Ensure that all observations are accompanied by the necessary observational details including:
 - i. Date
 - ii. Time
 - iii. Location
 - iv. Seeing conditions
 - v. Optical instruments used
- d. Ensure that sufficient observations are made to produce accurate data for the specific task

3. Analyse observations

In this section you should:

- a. Identify patterns or trends from a series of drawings or photographs
- b. Present numerical data in the form of graphs or charts
- c. Perform calculations
- d. Perform basic digital image processing, including the adjustment of image brightness, dynamic range and the use of false colour

4. Evaluate observations

In this section you should:

- a. Compare the results of your observations with professional images or accepted values in order to assess their accuracy
- b. Where possible, calculate a quantitative assessment of their accuracy
- c. Identify the effects of light pollution on naked-eye observations
- d. Identify the effects of light pollution, exposure time and filtering on photographic observations
- e. Recognise some of the major artefacts that can affect astronomical images, such as scattered light, diffraction spikes, cosmic rays and trails from satellites, aircraft or meteors
- f. Identify the major causes of error in the conclusions
- g. Suggest and implement improvements to the observing programme