



SPACE ACADEMY

THE UNIVERSE IS YOUR CLASSROOM

DARK SKY @GAINSDUTTONS

Guardians of the Night

A four-session responsible-lighting programme

Protecting natural darkness through science education.

FOUR READY-TO-RUN COMMUNITY SCIENCE SESSIONS

FREE LEARNING | INDOOR ALTERNATIVES | GLOBAL PERSPECTIVES

Schools / Libraries / Astronomy Clubs / Dark-Sky Communities

Your four-session programme.

DARK-SKY ORGANISATIONS, COUNCILS, INTERESTED COMMUNITY GROUPS

A credible community education sequence that links astronomy with care for the night environment.

LEARNING OUTCOME

Participants can distinguish official designations, apply the five lighting principles, communicate a practical improvement and disclose the limitations of their analysis.

RUN IT YOUR WAY

The Academy does not issue dark-sky certification or engineering recommendations. Formal assessments belong with the relevant competent organisations and licensed professionals.

01 Why Dark Skies Matter

45 minute session / What might be lost when the night environment changes?

02 Five Principles in Practice

45 minute session / How can needed lighting be improved?

03 Evidence for Our Environment

45 minute session / What makes an environmental claim reliable?

All content is free and non-accredited. Hosts control safeguarding, access, curriculum relevance and local requirements. No partner or organisation endorsement is implied.

Why Dark Skies Matter



45 MINUTES / THE CENTRAL QUESTION

What might be lost when the night environment changes?

FACILITATOR RUNNING ORDER

- | | |
|---------------|---|
| 05 MIN | Welcome & predict
Invite a low-pressure prediction about the session question. |
| 10 MIN | Explain & model
Introduce the science using a verified resource or a simple model. |
| 20 MIN | Explore & make
Compare two general sky settings and examine the difference between astronomy education, responsible lighting and official DarkSky designations. |
| 05 MIN | Show the evidence
Ask for a conclusion supported by a model, observation or source. |
| 05 MIN | Reflect & close
Name one uncertainty; suggest an optional independent follow-up. |

WHAT COUNTS AS EVIDENCE

A cited explanation of what a dark-sky designation does and does not mean.

Five Principles in Practice



45 MINUTES / THE CENTRAL QUESTION

How can needed lighting be improved?

FACILITATOR RUNNING ORDER

- | | |
|---------------|--|
| 05 MIN | Welcome & predict
Invite a low-pressure prediction about the session question. |
| 10 MIN | Explain & model
Introduce the science using a verified resource or a simple model. |
| 20 MIN | Explore & make
Annotate a fictional community setting with useful, targeted, low-level, controlled and warm-coloured lighting proposals. |
| 05 MIN | Show the evidence
Ask for a conclusion supported by a model, observation or source. |
| 05 MIN | Reflect & close
Name one uncertainty; suggest an optional independent follow-up. |

WHAT COUNTS AS EVIDENCE

A five-point evidence-led improvement sketch and a note on local professional review.

Evidence for Our Environment



45 MINUTES / THE CENTRAL QUESTION

What makes an environmental claim reliable?

FACILITATOR RUNNING ORDER

- | | |
|---------------|--|
| 05 MIN | Welcome & predict
Invite a low-pressure prediction about the session question. |
| 10 MIN | Explain & model
Introduce the science using a verified resource or a simple model. |
| 20 MIN | Explore & make
Study what a satellite can and cannot measure, then compare observational evidence with a proposed community statement. |
| 05 MIN | Show the evidence
Ask for a conclusion supported by a model, observation or source. |
| 05 MIN | Reflect & close
Name one uncertainty; suggest an optional independent follow-up. |

WHAT COUNTS AS EVIDENCE

One evidence table separating measurement, inference and uncertainty.

Make a Night-Sky Learning Display



45 MINUTES / THE CENTRAL QUESTION

How can a community communicate night-sky science accurately?

FACILITATOR RUNNING ORDER

- | | |
|---------------|---|
| 05 MIN | Welcome & predict
Invite a low-pressure prediction about the session question. |
| 10 MIN | Explain & model
Introduce the science using a verified resource or a simple model. |
| 20 MIN | Explore & make
Choose one Moon, sky, lighting or ecological theme and produce a short evidence-based poster with an indoor activity and an identified source. |
| 05 MIN | Show the evidence
Ask for a conclusion supported by a model, observation or source. |
| 05 MIN | Reflect & close
Name one uncertainty; suggest an optional independent follow-up. |

WHAT COUNTS AS EVIDENCE

A community learning poster with a clear claim, source, safe participation advice and limitations.

One Academy. Regional depth.

WORLDWIDE

A global scientific foundation with locally adaptable examples; avoid treating one season, star or climate as universal.

Example: Compare two regions using provided reference materials rather than requiring learners to disclose a location.

Care: Review local learning ages, languages, access, safety and school/council regulations.

NEW ZEALAND DARK SKIES

Southern Hemisphere observing, documented recognised dark-sky places and responsible outdoor lighting in Aotearoa.

Example: A fictional school or public park lighting improvement, with New Zealand Dark Sky Atlas references for officially designated places.

Care: Don't generalise Mori astronomical traditions; work with appropriately authorised iwi/hap knowledge holders for cultural teaching.

PACIFIC SKIES

Island and coastal horizons, cloud and humidity considerations, accessibility and environmental questions for Earth observation.

Example: Study a hypothetical coastal site's lighting, then design a satellite measurement for a community environmental question.

Care: Do not assert one island-wide sky, climate or Indigenous navigation story; review locally with community educators.

MIDDLE EAST CELESTIAL LEARNING

Desert and urban observation, strong differences in heat, dust and light, astronomical science and location-specific access.

Example: Compare a hypothetical desert-edge learning setting with a city, including weather, heat-safe indoor alternatives and a lighting task.

Care: Never imply the region has uniform observing conditions or reproduce unverified historic/cultural narratives.

Run, listen and improve.

HOST CHECKLIST

- Confirm learning age, accessibility and local safeguards
- Choose indoor options when weather, mobility or local access require it
- Review scientific source material and adaptation before delivery
- Separate observations from predictions and simplified models
- Keep participant names, accounts and contact details out of learning cards

ONE-PAGE FEEDBACK PROMPTS

- [] Could a participant explain the central science question?
- [] Was the learning understandable without a telescope or night-time visit?
- [] Was a reputable source and one model limitation identified?
- [] What could be improved for a different age, language or region?
- [] Would this format be useful to repeat, and what would you change?

Create a concise community-facing information poster showing a scientifically sourced claim, suggested action, practical trade-off and source citation.

CREDIBLE SOURCES

NASA (Moon and Earth), IAU Office of Astronomy for Education and DarkSky International. See their current official pages for full teaching references.