Design Your Own Dark Sky Park

Investigation or Challenge:

In this activity, students will create their own Dark Sky Site from discussions undertaken during role play as key stakeholders. This requires input and information from the different users of a Dark Sky Park or Urban Amenity area.

Students will be assigned one of the following stakeholder groups to represent their views:

- Lighting Planners/Designers
- Visiting Stargazers
- Conservation Rangers
- Local Residents

The challenge for the learners is to represent the interests of different stakeholders with a meeting to investigate the key requirements for establishing a dark sky site in their locality. The views of stakeholders will be considered and presented at the end of the session. The results will then the design of a map and brochure providing information on the attractions within the site and useful information for the visitor.

The dark sky place should take residential areas into consideration, maintaining visitor safety whilst allowing night sky views free from light pollution.

Duration: Long (60+ minutes)

Class Level: Junior/Senior

Curriculum Links

Strand: *Environmental Awareness and care,* ***Role Play***

Strand Unit: *Caring for the Environment, Science Engagement, Biodiversity*

Skills Development: *Observing, questioning, predicting, investigating and experimenting, recording and communicating, designing and making.* Literacy and Numeracy

Content Objective(s) / Learning Outcome(s):

- Caring for my locality
  - begin to realise that people, animals and plants depend on each other;
  - become aware of ways in which the environment can be polluted or harmed;
  - identify, discuss and implement simple strategies for improving and caring for the environment;
  - develop a sense of responsibility for taking care of and enhancing the environment.
- The local natural environment
  - become aware of, explore and discuss some aspects of natural environments in the immediate locality of the school;
  - record and communicate experiences and observations using simple drawings, plans, displays, models and sketches;
  - identify, explore and discuss aspects of some major natural features in the local environment.
- Understand the importance of dark sky places and the role they have in protecting our natural night sky heritage and nocturnal habitats

Engage

Trigger questions

- What is a Dark Sky Place? [Show pictures of Dark Sky Park / Reserve in Ireland]
- Why are they special?
- What can we see in the sky on a clear night? (referencing Modules 1 & 2)

Wondering

- Who would visit a Dark Sky Place? (leading to stakeholder groups)
- Who would benefit from a Dark Sky Place?
  - Make a list or a drawing of people/animals
- What do you think of when you look at the stars?
  - Drawings
  - Freewriting

- What kind of animals live in a Dark Sky park (what might be special about them)? (Module 4)
- How can we assess the quality of a dark sky park. (Citizen Science in Module 3)

Exploring

- What is Light Pollution? (Module 3)
- Why is darkness important? (Module 4)
- Where are the best places for visitors go at night to experience a dark sky free from light pollution. (Module 3)
- What kind of lighting could be Dark Sky Friendly? (Module 3)

Challenge

Explore

Ask groups to discuss and list the most important features of a Dark Sky Park.

- How can busy areas be safe at night without causing light pollution?
- What kind of information will be useful to visitors?
- How can we preserve our dark skies and still have artificial light in our lives?
- What are dark sky parks and reserves? (ref Module 3)
- Why would the following stakeholders be involved in creating a Dark Sky Place?
  - Lighting Planners/Designers
  - Visiting Stargazers
  - Conservation Rangers
  - Local residents
- What other stakeholders might be involved?
- What benefits could a dark sky place bring to:
  - A community?
  - Wildlife?
  - Visitors?
  - Scientists?

Plan

Consider visitor needs:

- What can visitors expect and what facilities could improve their experience?
- What information would help visitors to plan their visit?
- How can local communities benefit from the presence of a Dark Sky place?
- How can safety be maintained at night?

Stakeholders:

- Consider the stakeholder needs, interests and concerns about a Dark Sky place in the area.
- Using role play to develop views of the stakeholders.
- Looking at a suitable site for a dark sky park. Consider the factors that will be important such as:
  - Light Pollution
  - Viewing sites & Access
  - Biodiversity at night
  - Information on Astronomy
  - Safety

Make

In stakeholder groups, learners will brainstorm the needs of each of their groups and compile lists accordingly
Asking questions like:

- Where can visitors park?
- What kind of lighting should be used and where?
- Where would be a good place to view the night sky?

Create a map of a dark sky park to identify and display good viewing areas for dark sky observations.
Use photographs to create a collage of the selected area.
Create info sheets on the nocturnal wildlife species present in the Dark Sky Park.
Design a visitors brochure highlighting the best things to see in the night sky from your dark sky park.

- Write an equipment list required for stargazing.
- Write information to help local residents improve their lighting.

Evaluate

Learners present the results from their discussion
Design a brochure highlighting the features of the dark sky place and what it has to offer. Include a map, safety messages, park rules, and tours offered.
Include drawings of the night sky views and nocturnal wildlife and suggested visitor facilities

- Have we identified all the stakeholders that might be involved?
- Have we addressed all of the concerns or suggestions that the stakeholder groups have?
- How can we promote our dark sky park?
- What supports do we need to create a dark sky park?
- How does our dark sky park fit in with sustainable development goals?
- Can we have a positive impact on our environment by creating a dark sky park?

Take the Next Step

Discuss other implications of artificial lighting at night.

- Where can we submit Citizen Science observations?

Making connections – when was the light bulb light first invented?

- How has artificial lighting evolved over the years?
- How can we protect our night skies?
- Why are dark skies important for nature?
- What facilities are near the selected dark sky place. This could be hotels/facilitates/ toilets or camping sites.
- Looking at the light pollution map of Ireland – identify other areas in the country to develop a dark sky park?

Equipment/Materials

Classroom setting with minimal adaptation to manage space for the above listed stakeholder group work. Paper and flip chart or whiteboard to present the findings. A clear area and materials for art or freewriting.

[Suggested delivery: Four sets of cards with the stakeholder names / image to represent each group. Cards are shuffled and Learners pick a card to assign them to their group]

Background Information

Light pollution wastes energy and money; has negative effects on wildlife and on people. In Ireland we are lucky to have some of the darkest, most natural skies in Europe. Our goal is to engage younger audiences with some of the key environmental issues that will face the next generation.

Ireland has three protected areas known as Dark Sky Sites:

- Kerry International Dark Sky Reserve, www.kerrydarkskytourism.com
- Mayo International Dark Sky Park, www.mayodarkskypark.ie
- OM Dark Sky Park https://omdarksky.com

A Dark Sky site is a unique place and attracts visitors from all over the world who can no longer see the wonders of the night sky where they live due to light pollution.

This activity follows learning outcomes from the Discover Dark Skies Modules 1-5. The aims are to provide learners with a and educational way to learn about stargazing, dark sky lighting, and the nocturnal environment.

Although the activity is ideal for rural locations with naturally dark skies, it is designed to be transferable to other areas such as urban environments where there may be a public park or green area known to the learners.

Real World Application

Learners will be familiar with the key requirements of a dark sky place and the stakeholders that should be involved in planning such a site. The activity also raises awareness of the impact of light pollution on our environment.

This is a resource developed by Mayo Dark Sky Park, Ireland's only gold tier International Dark Sky Park for schools to take part in, no matter where they are located.

- Visit Mayo Dark Sky Park online:
  www.mayodarkskypark.ie
  www.youtube.com/c/mayodarkskies (example of Mayo pilot)
- Participate in Globe at Night:
  https://www.globeatnight.org/
- Find out about other Dark Skies around the world:
  http://www.darksky.org/
- World Café Method:
  http://www.theworldcafe.com/key-concepts-resources/world-cafe-method/
- National Geographic – Design a Park
  https://media.nationalgeographic.org/assets/file/1003-Design-a-park-v5-final.pdf

More information

- Dark Sky Ireland www.darksky.ie
- International Dark Sky Association www.darksky.org
- Blackrock Castle Observatory www.bco.ie