Light Pollution

Keywords	Level	Time	Core Skills	Type of Activity
Light Shadows Constellations Citizen Science	Primary 3rd – 6th class	1h 15 min	Modelling Inquiry activity Design & Make	Design and Make IT use of computer based simulation of the night sky

Brief Description

How much of the night sky can we actually see?
How is light pollution reducing our view of the sky? And how can we reduce the effects of light pollution?
Using the computer programme 'Stellarium,' children will explore the view of the night sky with different levels of light pollution. Children will make models of constellations and design and make light shields for model street lights.

Learning Objectives and Curricular Links

SESE Science: Strands: Energy & Forces, Environmental Awareness and Care / Strand Units: Light, Caring for the Environment
Curriculum Objectives: … relationships between material and light.
Identify and discuss a local, national or global environmental issue.
… recognise and investigate human activities which have positive or adverse effects on local and wider environments
SESE Geography: Stand: Natural Environment / Strand Unit: Planet Earth in Space
Curriculum Objectives ... recognise a few of the major star constellations

Materials

Maglites or other small sources of light such as book lights
Assorted shielding material such as foil, paper, cardboard
Tape
Scissors
Stellarium software from http://stellarium.org/

Background Information / Skills required

Children should be familiar with shadows, and the terms transparent, translucent and opaque.
Children should be able to use a mouse, mouse wheel and have basic keyboard familiarity to use Stellarium.

The extent of light pollution in Europe can be seen in this image of Europe taken from space:
http://www.esa.int/spaceinimages/Images/2012/03/Night_lights_in_Europe
For Teacher's background information see:
https://www.scientificamerican.com/article/new-map-shows-the-dark-side-of-artificial-light-at-night/

Summary Activity Description

1. Using Stellarium, children will explore the view of the night sky with different levels of light pollution.
2. Children will make models of constellations.
3. Design and make light shields for model street lights.
4. Extension: Use light meters to measure the light trespass of light fixture models.

Additional Information / Follow on Activities

Children could be encouraged to take part in Globe at Night from their homes. This world-wide activity is designed to gather information on the extent of light pollution.
Participate in Globe at Night: https://www.globeatnight.org/

Participate in Earth Hour: https://www.earthhour.org/