
Discovering Living Light- an educational project

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Abstract

Bioluminescence, living light, has a wow factor for young and old alike. Here we show how this remarkable phenomenon (1, 2) was exploited to excite pupil curiosity, in a project supported by the Wellcome Trust. Over 16's were introduced to local examples of bioluminescent and fluorescent organisms. This inspired them to discover the biochemistry behind their flashes and glows. Workshops were linked closely to the curriculum, initially giving key information on fluorescence and bioluminescence. Groups then collected marine specimens from the local marina. At the Research lab, they identified different species and tested them for bioluminescence and fluorescence (3), utilising the chemiluminometer and fluorescent microscope. Follow-up workshops allowed participants to extract photoprotein and trigger it with Ca²⁺. This introduced the question, why do some proteins bind calcium, as part of universal calcium switches? (4) Other workshops featured experiments on GFP, and recording bioluminescence using a Photek imaging system. Fieldwork conducted at local beaches identified marine species at different locations. Data was shared with international scientists working on bioluminescence and fluorescence - Professor Steve Haddock, USA and Professor Jerome Mallefet, Belgium. Professor Anthony Campbell led glow-worm hunts. Marine research days involved pupils in on-going bioluminescent research (1, 2), progressing to their own projects. Pupils included their experience in their University applications. Forty-four workshops involved 317 participants. Pupils came from local schools and Pembrokeshire College of further education. More information at <http://darwincentre.com/research/Wellcome>.

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