

OPAL for Secondary Social Studies



OPAL, or Open Air Laboratories, is a *Big Lottery* funded Citizen Science project that aims to engage communities with science across Scotland and gather useful data about the natural world around us. There are seven possible scientific surveys to complete, each with a different focus and topic area.

Water Quality: assess the water quality in your local pond or lake by investigating the species present.

Air Quality: assess the quality of the air around you by identifying pollution sensitive lichens on trees.

Biodiversity: identify invertebrates and assess the variety of life in your local hedgerows.

Bugs Count: identify mini-beasts in different natural and man-made habitats in your local area.

Tree Health: observe, identify and inspect your local trees to look for signs of diseases and/or parasites.

Soil and Earthworm: assess soil characteristics and identify earthworm species in your local area.

Climate: look at how humans influence the weather we experience. (*Data no longer being uploaded*)



The OPAL surveys give schools a perfect opportunity to engage their learners with **Citizen Science** and **Outdoor Learning** whilst covering key areas of **Curriculum for Excellence** and **National Qualifications**.

OPAL Surveys for Social studies

OPAL surveys are an ideal tool to explore the link between human society and its impacts on the natural world, particularly within the '**people, place and environment**' unit at levels 3 and 4 and within the '**Global Issues**' unit for National 3-5 Geography.

Students can explore the health of local ecosystems, consider human influences and suggest possible implications and improvements, exploring concepts such as biodiversity, ecosystems, invasive species, climate change, urbanisation and pollution.

Relevant Outcomes and Experiences in Social Studies at S1-S3 (Levels 3 & 4)

I can identify the possible consequences of an environmental issue and make informed suggestions about ways to manage the impact.

SOC 3-08a

I can discuss the sustainability of key natural resources and analyse the possible implications for human activity.

SOC 4-08a

I can develop my understanding of the interaction between humans and the environment by describing and assessing the impact of human activity on an area.

SOC 4-10a

I can investigate the climate, physical features and living things of a natural environment different from my own and explain their interrelationship.

SOC 3-10a

National 3, 4 & 5 Geography

For National 3, 4 & 5 Geographers, conducting an OPAL survey will develop fieldwork skills, including map skills and GIS, furthering the understanding of core course content particularly for the ‘Global Issues’ unit relating to ‘*the impact of human activity on the environment*’. By assessing their local areas, learners can develop their sense of place including where their locality fits into a much wider national and international context.

Relevant Course Units:

Human Environments – issues in changing urban landscapes (e.g. biodiversity loss, bio-indicators and pollution)

Global Issues – the impact of human activity on the environment (land-use change, habitat destruction, air/water/soil pollution, invasive species, foreign pests/diseases, biodiversity loss and climate change)

Added Value – data collected as part of an OPAL survey could form part of an added value project and course assessment.

Why not use OPAL as part of your National 3-5 projects? E.g.

“Investigating lichen communities as indicators of pollution with increasing distance from the city centre”

“Investigate changes in landuse on earthworm abundance and diversity”

“Compare freshwater invertebrate communities in different urban ponds”

“Comparing invertebrate communities in deciduous and coniferous woodlands”



****Use the contact at the end of this document to discuss opportunities and sources of information******

Responsibility of all practitioners:

Health and well-being	Literacy	Numeracy
By engaging with active outdoor learning and meaningful scientific investigation, students will develop independent views/opinions and gain confidence in new settings. An enjoyable OPAL experience will promote physical, mental and emotional well-being.	Students will interpret the OPAL survey packs and follow the scientific procedure described using new specialist vocabulary. They will need to record information and communicate their findings with peers and teachers alike.	Students will need to collect quantitative measurements about a habitat or ecosystem and record this information numerically and graphically for display. Comparing results and drawing conclusions is a key element of an OPAL survey.

Developing skills in Social Studies

Skills developed in Social Studies	OPALs contribution
Observing, describing and recording	Exploring local habitats, identifying species, assessing environmental characteristics and recording results on survey sheets or digital software.
Comparing and contrasting to draw valid conclusions	Interpreting findings to draw conclusions on habitat and ecosystem health e.g. biodiversity comparisons of natural and man-made habitats.
Exploring and evaluating different types of sources and evidence	Using a range of identification guides and understanding their limitations e.g. rare species etc
Development of curiosity and problem solving skills and capacity to take initiatives	Using apparatus effectively to collect data and modifying the method to improve accuracy and overcome problems.
Interacting with others and developing an awareness of self and others	Conducting surveys in teams with peers. Communicating methods and results with each other and resolving conflict.
Planning and reviewing investigation strategies	Plan and conduct a 'real' scientific investigation including sampling strategies and avoiding bias or sampling error.
Developing the capacity for critical thinking through accessing, analysing and using information from a wide variety of sources	Drawing links between observations, processes and impacts by using the survey to assess characteristics of the area and draw conclusions about what these results mean.
Discussion and informed debate	Discussing opinions about issues surrounding the surveys. Why are local ecosystems important and what can be done to improve their health.
Developing reasoned and justified points of view	Building a picture of local environments through first hand experience. What is biodiversity like here? Why is it this way?
Developing and using maps in a variety of contexts	Uploading data onto the OPAL national network allows a cartographic view of your data relevant to other parts of Britain.
Developing and applying skills in interpreting and displaying graphical representation of information	Results will be uploaded and graphed on the OPAL network using simple GIS technology to display data.
Developing an awareness of sequence and chronology	Understanding natural history and cycles of change. E.g. tree age, reproductive cycles and climate change.
Presentation skills – oral, written, multimedia	Learners will present their findings to the group but further presentations to the whole school about their study are very possible

John Muir Award: Completing an OPAL survey will work towards gaining the John Muir Award. Gaining scientific information about local environments including biodiversity or invasive species is a key component of **conservation** in addition to the **sharing** of these results afterwards with a national scientific network.



Achieving course aims for National 3-5 Geography

Geography main course aims	OPAL's contribution to meeting course aims
A range of geographical skills and techniques.	Conducting a 'real' scientific inquiry following conventional fieldwork procedures. Identifying locations using 6-figure grid references and GPS devices, geo-locating photos and data, sampling strategies and techniques, identification of species and assessment of environmental characteristics e.g. landuse, soil pH, water quality.
Detailed understanding of the ways in which people and the environment interact in response to physical and human processes at local, national, international, and global scales.	Investigating local habitats and ecosystems to assess abundance and biodiversity in relation to human activities in the area such as land-use changes and habitat loss. Environmental assessments of air and water quality using bio-indicators. Presence of introduced diseases/pests or invasive species. Results at local scale uploaded and can then be placed at national and international scales.
Detailed understanding of spatial relationships and of the changing world in a balanced, critical and sympathetic way.	Assess local ecosystems and compare results to nearby locations, other places in Scotland and the UK to ascertain ecosystem health.
A geographical perspective on environmental and social issues	Assessing the impacts of humans on local ecosystems and the subsequent implications for industry, tourism and quality of life in Scotland.
An interest in, and concern for, the environment leading to sustainable development	Engaging learners with the environment in their local areas to encourage stewardship and conservation for future developments. Actively promoting environmental protection and further potential projects.

Learning for Sustainability (LfS)

Integrating LfS into experiences and outcomes is now part of the professional standards for teachers but is something that can easily be integrated with an OPAL experience.

LfS has three components – outdoor learning, sustainable development and global citizenship. By conducting a survey learners are engaging with outdoor learning, understanding the link between the natural and human landscapes and contributing their findings to a national scientific network.



For more information, to order OPAL survey packs or to arrange for a community scientist to visit your school please contact us using the details below:

Field Studies Council: Millport

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enquiries@field-studies-council.org