# What is green and blue infrastructure?

Green and blue infrastructure forms an essential part of healthy communities and ecosystems across predominantly urban contexts such as Brighton & Hove, as well as rural contexts. It is a fundamental component of sustainable growth and is widely recognised as a key tool in enabling both local and global communities to tackle environmental, societal and economic challenges.

The concept of green and blue infrastructure is now widely adopted and used to describe the network of natural and semi-natural features, including 'blue' assets such as coastal environments and ponds, and 'urban greening' assets such as green walls, green roofs, street trees and Sustainable Drainage Systems (SuDS). It is not limited to traditional green spaces such as parks and can include various assets which thread nature into streetscapes or to increase connectivity from the strategic down to the local scale.
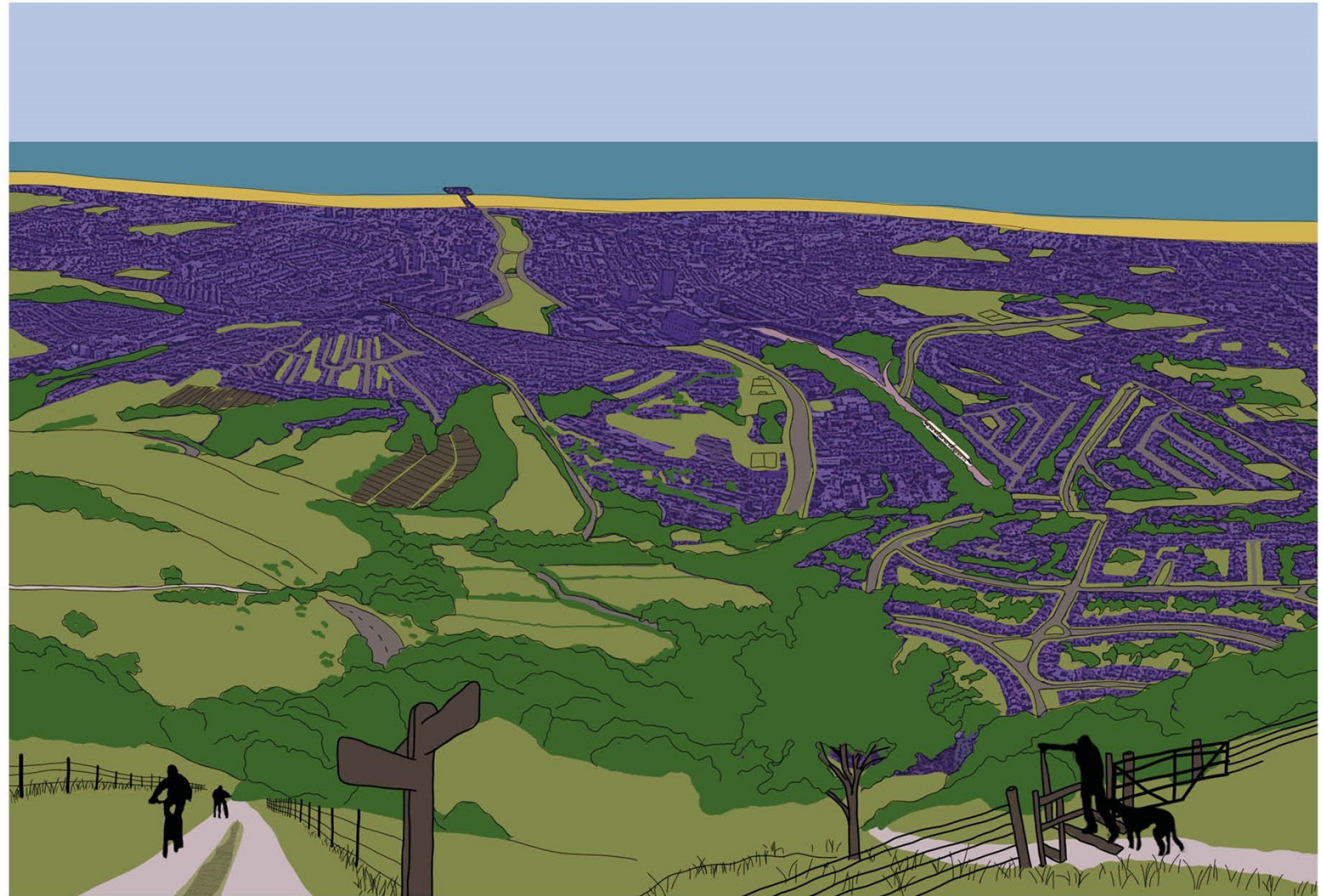
Linear linkages
Public Rights of Way (PRoW), promoted routes, cycle infrastructure, railway corridor

Managed and natural green spaces
Nature reserves, parks, formal and informal open space, allotments and publically accessible nature conservation sites

Elements of the built environment
Road verges, street trees, private gardens, amenity space, urban greening

Aspects of the wider landscape
wider habitat areas and the coastal environment

Benefits of green and blue

Green and blue infrastructure is defined by its multi-functionality, with a single asset having the ability to provide a number of benefits to people, wildlife and wider environmental functions. It is this variety of societal, environmental and economic benefits that enables green and blue infrastructure to play an important role in the delivery of sustainable, healthy places. This can be achieved through the use of nature-based solutions which seek to protect or enhance nature in a way that helps tackle climate change, whilst also benefiting biodiversity and human well-being.

The key benefits of green and blue infrastructure can be grouped as per the categories below (as defined by Natural England, the government's independent advisor on wildlife and the natural environment in England).

Nature rich beautiful places

Green and blue infrastructure supports nature to recover and to thrive everywhere from cities to countryside, conserving and enhancing natural beauty, wildlife and habitats, geology and soils, and our cultural and personal connections with nature.

Active and healthy places

Green neighbourhoods, green / blue spaces and green routes support active lifestyles, community cohesion and nature connections that benefit physical and mental health, wellbeing, and quality of life. Green and blue infrastructure also helps to mitigate health risks such as urban heat stress, noise pollution, flooding and poor air quality.

Thriving and prosperous places

Green and blue infrastructure helps to create and support prosperous communities that benefit everyone and adds value by creating high quality environments which are attractive to businesses and investors, create green jobs, support retail and high streets, and to help support the local economy and regeneration.

Improved water management

Green and blue infrastructure reduces flood risk, improves water quality and natural filtration, helps maintain the natural water cycle and sustainable drainage at local and catchment scales, reducing pressures on the water environment and infrastructure, bringing amenity, biodiversity, economic and other benefits.

Resilient and climate positive places

Green and blue infrastructure makes places more resilient and adaptive to climate change and helps to meet zero carbon and air quality targets. Urban greening features should be designed to adapt to climate change to ensure long term resilience.

Supporting notes for teachers

Evidence of how green and blue infrastructure can

Green and blue infrastructure plays an important role in increasing the resilience of neighbourhoods, notably in relation to adaptation to the impacts of climate change (including increased frequency of storms, heatwaves and droughts) and the creation of healthy environments which address pollution concerns. In addition, more intense rainfall events may increase surface water run-off, with subsequent additional risk of sewerage overflow and the potential for damage to property and people.

Green and blue infrastructure can begin to address these risks through the creation of additional flood storage and by slowing the rate at which overland flow reaches watercourses. Urban greening interventions can also play a fundamental role in the management of surface water run-off in the city through a reduction in the proportion of impervious surfaces.

- Trees and vegetation within a landscape offer a wide range of habitat benefits. For example, one mature oak tree can support over 280 different species of insect[1] and is a vital feeding, sheltering and breeding place for a colossal 2,300 different wildlife species[2].

- Street trees and vegetation can improve air quality – particulate levels can be reduced by up to 60% on tree lined streets compared to those without any canopy coverage[3].

- Access to good quality green space reduces the financial pressure on the NHS by £2.1 billion in the UK[4].

- A typical medium-sized deciduous tree can intercept over 10,000L of rainfall per year, helping to reduce surface water flooding[5].

- Urban greening interventions provide a notable cooling effect, for example a park is estimated to cool temperatures by 1.5 – 3.5oC[6].

- Green and blue infrastructure offers insulating effects which reduce the need for heating and air conditioning. It is estimated that the sheltering effect of trees could save 3-9% of energy bills in the UK[7] and that one mature tree has the same cooling effect as 10 room-sized air conditioners[8].

[1]Friends of the Earth (2020). What's so good about trees? Available at: https://friendsoftheearth.uk/nature/whats-so-good-about-trees

[2]Woodland Trust (no date). Oak Trees and Wildlife. Available at: https://www.woodlandtrust.org.uk/trees-woods-and-wildlife/british-trees/oak-tree-wildlife/#:~:text=Renowned%20in%20history%20and%20legend,to%20eat%2C%20shelter%20and%20breed.

[3]GreenBlue Urban (2016). A Guide to the Benefits of Urban Trees. Available at: https://www.greenblue.com/wp-content/uploads/2016/05/Book-1-A-Guide-to-the-Benefits-of-Urban-Trees.pdf

[4]Public Health England (2020) Improving Access to Green space. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/904439/Improving_access_to_green space_2020_review.

[5]Centre for Urban Forest Research (2002). Fact Sheet #4: Control Stormwater Runoff with Trees. Available at: https://www.fs.usda.gov/psw/topics/urban_forestry/products/CUFR_182_UFfactsheet4.pdf.

[6]Natural England (2020) A Rapid Scoping Review of Health and Wellbeing Evidence for the Framework of Green Infrastructure Standards. Available at: https://publications.naturalengland.org.uk/file/5992890930298880

[7]TCPA (no year) PERFECT Factsheet 3: Green Infrastructure and Climate Change. Available at: https://www.tcpa.org.uk/wp-content/uploads/2022/03/Factsheet-3.pdf

[8]GreenBlue Urban (2016). A Guide to the Benefits of Urban Trees. Available at: https://www.greenblue.com/wp-content/uploads/2016/05/Book-1-A-Guide-to-the-Benefits-of-Urban-Trees.pdf