

The Outdoor Classroom 1

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School buildings are often situated within extensive grounds. These grounds are designed as play areas for the children and all too often are the first areas to suffer when finances are limited. Increasing the perceived value can be achieved by designing the grounds so as to improve the school living / working environment. Fulcrum Consulting have published a series of leaflets on methods of improving the soil, air and water quality on the school site and beyond. Emphasis is placed on the importance of good environmental practice, the recycling of materials and making use of local resources. The aim is to inspire schools to develop a sustainable management policy which, in the long term, will provide a low cost play and educational resource.

Creating Soil

Many school grounds in urban and suburban areas have compacted ground often composed of building rubble covered with a shallow top soil. Growing plants



under these conditions is disheartening. The first step in developing the grounds is to find a way to improve the soil. Purchasing soil is very expensive and quality is difficult to control. Far better is to create soil on site. In itself, this is an ongoing, educational experience.

Soil is created when organic material decomposes in air. The process is known as composting. The fertility of the soil depends on the original organic material and on the conditions of composting. The wide range of organic materials, from leaves to tree prunings to food waste, requires different composting conditions.

Leaves can be decomposed by placing them in a meshed

container which prevents them from flying away whilst still allowing air to pass through them. The leaves are broken down by the action of soil microorganisms that need oxygen. This process takes approximately 18 months to 2 years.

Woody hedge prunings, flower stems and general green waste can take a long time to break down. A way of putting this green waste to immediate use is to build it into a mound and cover with grass turfs, leaves and the existing thin top soil. The organic material breaks down within the mound and slowly releases nutrient and heat to the growing plants. Depending on the organic material used to create the core of the mound, this can remain fertile enough to grow strong plants for up to 5 years.

Waste organic material from school kitchens or fruit peelings and apple cores from childrens' snacks require specialised vermin proof, ventilated, composters. The composting of food waste has the added advantage of keeping school bins free of material that attracts wasps in the summer months. Human excreta, for those schools with composting toilet facilities, will create a highly fertile soil. At present this is only of academic interest since few schools have these facilities but

for new build it is worthy of consideration. The composting process destroys pathogens. Prior to artificial fertilisers, human waste was the main source of replenishing soil fertility. Collection and composting of urine from urinals is another option. The high nutrient value and sterility of urine makes it a high grade organic waste. It can greatly increase the rate of composting of solid organic materials such as shredded woody waste, leaves, straw or waste paper. Fulcrum have produced a series of leaflets giving further details on innovative composting techniques.

Clean Air

Schools are often situated on busy roads. It is important for the good health of school children that they are protected from the air pollution associated with these roads. Some consideration should also be given to identify and minimise the sources of air pollution within school buildings. Small dust particles (referred to as PM10's because they are under 10 micrometers in size) and ozone are now considered to be the most damaging components of air pollution. Cocktails of car exhaust fumes, consisting of nitrous oxides, carbon monoxide and volatile hydrocarbons (VOC) are thought to adhere to these

particles. Because of their small size, they are drawn deep into the lungs causing inflammation and tissue damage. Children who have lung related illnesses, such as Asthma, Bronchitis etc are the most susceptible. Extensive research has shown that plants, through their action in slowing down wind velocity can cause these particles to fall out of the air, in the same way as a dam can cause deposition of particles in water.

The best wind break is not walls, but hedges. It is for this reason that hedgerows have become one of the major landscape features of this country with every region having its own particular method of hedge construction. In addition to creating a barrier to air pollution, hedges provide sound and visual privacy for school playgrounds, attract a range of wildlife, provide a good crop of fruit and nuts for the Nature and Food Technology Classes and wood prunings for use in Technology classes.

Willow has particular applications for schools, from provision of fuel to provision of construction material.

Fulcrum leaflets give information on the effects of vegetation on the living environment and the wider benefits for schools.

Water

Schools are only occupied for part of the year and so watering becomes a problem particularly over the summer holidays. A

water supply in the growing season is vital for the growth of healthy plants. Water retaining planting schemes will lead to greatest success. Hanging baskets and shallow planters should be avoided. When possible, bare earth should be covered with a bark mulch, stones or leaf mould.

Chlorinated tap water is not ideal for plants. A method for collecting, storing and distributing rain water is the environmentally preferred option. This can be linked in to various water features - a small pond or stream where wildlife can be encouraged, a scale model of a local river showing major towns and landscape features, a water measuring device or a water powered gadget. School roofs usually cover a large surface area and so water collection can be appreciable. Environmentally lowers water demand in periods of drought and diverts water from water treatment works during rain storms. At such times the increased flow means that water cannot be successfully treated before being released into the local river and is the reason for many incidences of river pollution. Water conservatin measures and reuse is an important initiative to minimise overall water consumption. The irrigation of school grounds with grey water is possible but requires filtration and therefore greater maintenance than rain water systems. Plumbing systems can be installed in new buildings to store, filter and reuse

grey water for flushing toilets and urinals. Waterless urinals are also readily available. In some areas of Britain, water can be extracted from beneath the ground. The initial drilling costs can be high but if water quality is good it can provide a healthy, free and autonomous water supply. Fulcrum leaflets give the necessary information in order to use alternate water supplies.

USEFUL ADDRESSES

Black Environment Network
www.ben-network.org.uk
 Help ethnic minorities to take part in mainstream environmental work.

BTCV (British Trust for Conservation Volunteers)
www.btcv.org.uk
 A supportive practical conservation group. Provide expertise on design, creation and management of urban green spaces and their use for education. Also do research, training and conferences on urban ecology.

Centre of Alternative Technology
www.cat.org.uk Llyngwern Quarry, Machynlleth, Powys SY20 9AZ Tel: 01654 702 782
 Run an environmental information package for schools. Home of Green Teacher magazine.

Common Ground
www.commonground.org.uk
 Runs projects which combine practical action with a sense of the cultural significance of surroundings. Initiatives include 'Parish Maps, 'Local Distinctiveness, 'Save our Orchards' and 'New Milestone'.

Groundwork Foundation
www.groundwork.org.uk
 Promotes environmental improvements through partnerships with the public, private and voluntary sector.

Henry Doubleday Research Association (HDRA)
www.hdra.org.uk Ryton Gardens, Ryton on Dunsmore, Coventry CV8 3LG.
 Researches and promotes organic growing methods.

Learning Through Landscapes
www.ltl.org.uk Tel:01962 846258
 Work to develop school grounds into

FULCRUM LEAFLETS

The Outdoor Classroom 2, Where to find Inspiration

Creating Soil

Green Waste - creating Fertile Beds
 Food Waste

The dry toilet -Dealing with Human Waste

Clean Air

Plants and Indoor Air Quality
 Hedgerow and use in the Technology Class
 Willow- Contribution to Building Services

Water

Conserving water Supplies
 Alternate Water Supplies & Purification
 Groundwater Abstraction