The Association for Science Education
Promoting Excellence in Science Teaching and Learning

Safety and the school pond

School ponds are experiencing a rise in popularity, especially in primary schools. They are being seen as an important part of a wild area and can provide a variety of educational opportunities[1].

Although generally very safe, ponds do present some possible dangers, many of which can be avoided by a little thought at the planning stage. In this article we have outlined some of the hazards and have suggested ways of minimizing them.

HOW BIG?

Some schools have produced extremely good ponds in old bathtubs or sinks. Others have constructed what amounts to a small lake. However, for a good general-purpose pond there is little point in exceeding a size of about 4 metres x 3 metres. Dimensions like this allow the creation of a marsh area at one end and still leave a large open pond area. Alternatively the marsh area could be separate from the pond, in which case the pond itself could be smaller still.

HOW DEEP?

Opinion is not always unanimous on this but we have found the following depths and approximate proportions produce a useful and safe pond.

Any marsh area and two thirds of the pond area should be flat-bottomed and about 25 cm deep. Large stones and rocks should be avoided in this area to reduce the risk of someone hitting their head should they fall in.

The remaining one third of the pond should be divided into two flat-bottomed areas of 50 and 75 cm depth respectively. The 50 cm terrace should occupy about two thirds of this area (i.e. two ninths of the pond) with the deepest terrace occupying the final one ninth of the pond.

The deep terrace is necessary for the coldest winter conditions when it is possible for the bulk of the water to freeze. It is highly unlikely for the deeper water to become frozen even during the harshest winter.

It is not necessary to construct the terraces in concentric circles with the deepest in the middle, however as far as possible the pond should be constructed so that if a person accidentally fell in they would land on the shallow terrace only. if the pond is constructed in a corner, for instance, so that access was from one side only, then the deeper terraces should be on the other side.

If you already have a pond which is larger and deeper than the dimensions suggested then you may wish to consider making it shallower. Large flat stones can be used to raise the bottom level so that anyone falling in could still have a firm base to stand on. Avoid concrete blocks because they may contain chemicals which will

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1 Be aware of the possibilities of diseases such as Weil's disease and Cryptosporidiosis. Cuts and grazes should be covered, and hands washed afterwards.

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leach into the water and kill wildlife, A deep layer of soil is also not desirable since this will form a sludge which could trap anyone who fell in.

CONSTRUCTION STYLE

Most ponds begin as a hole in the ground. There are then a number of methods of making this waterproof, the most common being concrete, flexible rubber lining, and preformed glass fibre. All have advantages and disadvantages which are discussed in a variety of publications (see Appendix).

The main hazard associated with a hole is that people can fall into it. The risk of doing this can be reduced if the edges of the pond are raised some 50cm above ground level. This usually means a brick, stone, concrete or wooden surround has to be made. Clearly this is better from a safety point of view since, especially for younger children, it is difficult to trip over a raised edge. In addition a raised pool has the advantage that it is easier to move in the event of alterations to the school buildings etc.

EDGING

If you are not going to construct a pond with a raised edge then careful thought needs to be given to edging materials. In 'natural' ponds grass quickly grows over the edge of the pond making it very difficult to see where the land ends and the pond begins. It is therefore a good idea to define the edge with paving slabs. These will provide a safe viewing area and dipping platform and should be laid so that their edges only just overlap the edge of the pond. Slabs have further advantages in that they are not slippery when wet and they can restrict trampling of vegetation by defining the area where pupils may normally stand.

LOCATION

The pond ought to be clearly visible from the school buildings rather than tucked in an out-of-the-way corner. An obvious site, whilst making the pond more apparent to would-be vandals and the like, may in fact lead to less vandalism because of its openness. It will certainly be safer since anyone is more likely to be seen in the event of an accident. Do not, however, site your pond on or near an obvious pathway, official or otherwise. Through traffic with associated running and chasing, increases the risk of accidents. Occasionally school grounds are used as short cuts by the local community. A pond on or near such a route could be a significant hazard especially after dark.

It can be a good idea to site the pond near a wall to close off access to one side, however not so near the wall that children climbing on it could fall directly into the pond. As stated earlier, the deeper areas could then be arranged on that side to reduce possible hazards. Remember too that the wall will cast a shadow which could affect plant growth in the area.

Do not site the pond under deciduous trees which will shed their leaves into it. After only a few years such a pond becomes filled with a thick sludge of decaying material which is unpleasant, potentially dangerous if pupils fell in, and will eventually turn the pond into a swamp or marsh.

SECURITY

The problems of children falling into a pond are perhaps greatest not with pupils during school hours but with youngsters during out-of-school time, weekends, holidays etc. With infants however, the risk of a child straying into the pond area may be present during school hours too. To prevent this, the pond should be enclosed by some sort of barrier. A low wall would be suitable, as would a hedge or fence of some sort. Anything which will prevent small children accidentally wandering into the pond area and falling in, but will not restrict visibility unduly. It is not necessary to surround the pond with a high wall or fence and a securely-locked gate.

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Enterprising youngsters will undoubtedly be able to climb over such an obstacle and once inside become less visible and more at risk. In some cases, where a pond is within a wild area, the boundary of the wild area with its rampant vegetation has proved an effective barrier despite being physically quite insubstantial.

It has been suggested that some form of metal grille which fits over the pond is a good idea. This would undoubtedly prevent children from falling in but, to be really effective, it would need to be secured down. Otherwise youngsters could lift the grille, fall in under it and become trapped. The grille does, however, need to be removable in order to study the pond itself. Grilles which conform to these requirements may exert quite an influence over plant growth and could intrude into the educational value of the pond. There is also a high risk that the metal from the grille will very quickly contaminate the water and kill sensitive species. The Safeguards committee does not on the whole think grilles are very useful and believes that effective enclosure of the pond area makes a grille unnecessary. It is important, however, for you to decide whether or not in your particular circumstances a grille is a good idea.

With regard to security, it is sensible to consult the school caretaker before going ahead and constructing a pond. It is the caretaker who will be responsible for security (and possibly maintenance) during weekends and holidays and s/he will probably have views on location etc which need to be considered. There is also a great deal to be said for involving parents in the construction. Not only are they a good source of labour, but they will feel a commitment to supervising the pond informally during evenings, weekends and holidays. Finally, during the consultation process, do not forget to include the other teaching staff. A pond is often a whole-school resource and security and general supervision are easier to achieve if all staff share the responsibility.

Much of the previous advice is fine if you are making a pond but not so useful if you already have one. In this case you should adapt your pond to conform to the spirit of the suggestions. If it is very deep then think about filling it. Consider access and whether it needs to be restricted in some way. With all ponds it is necessary to consider both educational value and safety. To be effective a pond needs to be secure and sufficiently restricted so as to encourage wildlife. Properly constructed such a pond is also likely to be safe.

APPENDIX Publications which include advice on pond construction

Wildlife Gardening Resource Pack

BCTV (British Conservation Trust Volunteers) 36 St Mary's St, Wallingford, Oxfordshire, OX10 0EU.

Planning an Outdoor Studies Area in the School Grounds

Devon Educational TV Service, Hoe Centre, Notte Street, Plymouth PL1 2AR.

Schools Nature Project; and Planning your School Nature Garden (two publications)

Urban Spaces Scheme, Dept of food and Biological Sciences, North London Polytechnic, Holloway Road, London N7 8DB.

Planning and Constructing Ecological Study Areas on School Sites

Curriculum Resource Centre, University of Exeter, St Lukes, Exeter EX1 2LU.

Developing a School Nature Reserve

The secretary, The National Association for Environmental Education, West Midlands College of Higher Education, Goreway, Walsall WS1 5BD.

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Water Wild Life Pack

The Environmental Resource Centre, Old Broughton School, McDonald Road, Edinburgh EH7 4NN.

Nature by Design—a teachers guide to practical Nature conservation

The Urban Wildlife Group, 11 Albert Street, Birmingham B4 7HA.

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