A64 Creating a wildlife pond

Ponds can help with organic food growing by attracting a great range of wildlife to help with pest control. These natural predators include frogs and birds that eat slugs and insects, together with an array of creatures eating other pests. This activity follows on from design principles explained in G4.13. It gives step by step construction advice and maintenance tips.

Resources

- Tools including spade, fork, shovel, wheelbarrow
- Pond liner and liner underlay (special bought materials or soft sand)
- Pond plants as needed

Activity

1 Design your pond with the group.

- **a** Plan safety from the start. See Top tips on next page.
- **b** Use straightforward shapes, eg circle.
- **c** Design a very gradual slope up to 30cm deep. This shallow access suits most wildlife.
- **d** Create sheltered nesting/hunting sites for wildlife around the pond edge, eg marginal plants, log piles, stones, etc. Allow access on at least one side for maintenance.
- **e** Extend pond edges into surrounding habitats for safe wildlife travel around your plot and beyond, eg flowering plants, hedgerows, compost heaps, crops, etc.

2 Following the instructions on the next page for creating a wildlife pond.

Extended activity

Conduct surveys of the creatures your pond attracts. Try to identify each and their place in the food chain, linking to wider learning.

Health & Safety	Be careful digging the hole and laying membrane, taking regular breaks. Be very careful around areas of open water in school, ensuring appropriate protection with netting, barriers and/or metal grids, as well as adult supervision at all times. Check with school site manager and local authority Health and Safety officer if unsure. *See also Health and Safety Guidelines (Section SG1.2)*
Further information	G4.13 Creating a wildlife pond Pond Conservation www.pondconservation.org.uk Pond Liners (Direct) Ltd (example supplier) www.e-pond.co.uk The Wildlife Pond Handbook: A Practical Guide to Creating and Maintaining Your Own Wetland for Wildlife' by Louise Bardsley. ISBN 1843301113

Important notes

Positioning your pond

- Check for underground pipes, electric cables, drains, etc.
- Choose sunny, open areas for best plant growth and wildlife mix, but shady sites still work.
- Link position of pond with other wildlife habitats, eg leafmould piles, rough grass, etc.
- Avoid areas with overhanging trees so leaves don't completely fill the pond in autumn and risk polluting the water. Otherwise stretch a net across the pond to capture the worst of the leafy downfall.
- Choose a level site for an easier build. Also helps avoid fertile water run off from land (that can encourage algae) and frost pockets where cold air gathers on slopes.

Top tip

Design with safety in mind

- Position ponds appropriately for the site, eg obvious, out of the way, restricted access, etc.
- Install a metal grid over the water surface. This can be tricky in wildlife ponds with less distinct and shallower edges.
- Put up chain-link or picket fence barriers. These needn't be unsightly. Try painting them green to blend in.
- Try pond alternatives, such as boggy patches and bowls of clean water. They still offer wildlife a pit-stop for drinking and bathing.

Managing algal growth

Excess algae turns water pea-soup green. This is usual until the natural balance establishes in new ponds and re-establishes in older ponds every spring. However, prolonged algal growth is troublesome, especially 'blanket weed'. This forms dense growth that chokes plants, limits wildlife travel and blocks out light. The growth also looks solid so can be dangerous for children and animals. Unrestricted growth is mostly caused by too many nutrients. Try the following to reduce.

1. Fill ponds with rainwater, eg from natural rainfall or from water butts.
2. Add oxygenating plants to suppress growth of algae by competing with it for carbon dioxide and dissolved mineral salts.
3. Reduce vigour of sun loving algae by keeping at least 50% of water covered with marginal plants, oxygenators and floating plants.
4. Use low nutrient 'aquatic compost' if adding plants in pond mesh baskets. If adding soil for direct planting, use unimproved topsoil.
5. Clean out decaying flowers and plants that can otherwise add nutrients and reduce oxygen content.
6. Don't introduce fish. Their waste adds nutrients and they constantly stir up mud from the pond base. Fish will eat tadpoles and other wildlife species and are better suited to larger, dedicated ponds.
7. Add nets of barley straw. The straw releases chemicals as it breaks down, acting as a natural herbicide to kill the algae.

Example plant suggestions

- Marginals for shallow water and surrounding damp areas, eg bog arum (*Calla palustris*), bogbean (*Menyanthes trifoliata*), lesser reedmace (*Typha minima*), marsh marigold (*Caltha palustris*), etc.
- Oxygenators to provide oxygen for water and compete with algae, eg curled pondweed (*Potamogeton crispus*), etc.
- Floaters, eg water violet (*Hottonia palustris*), water soldiers (*Stratiotes aloides*), etc.

Top tip

Avoid invasive species

These can overtake your pond and escape into the wild, damaging natural ponds. They include Canadian water/pond weed (*Elodea canadensis*), water hyacinth (*Eichhornia crassipes*), etc. See fuller list at www.pondconservation.org.uk

Step by step construction

1. Get started

- Mark out the pond's shape with rope or hosepipe, then remove any plants and strip off turf.
- Dig to make areas of shallow water gently sloping, up to 30cm deep. Make sides no steeper than 20° to stop soil caving in or sliding down.
- Check the rim of the pool is level to stop water spilling over one edge when full. Check using a plank with a spirit level across the top.
- Keep topsoil separate from paler, more compacted subsoil. Topsoil can be used for the pond edge or adjacent bog garden. Dispose of subsoil.

2. Prepare for liner

- Rake over the pond sides and stamp firmly on soil. Remove stones or roots that might puncture the liner. Lay special pond underlay or spread 2.5cm layer of damp sand on all sides to cushion the liner.
- Calculate the required liner. The area should equal the maximum pond length plus twice its depth, multiplied by the maximum width plus twice its depth. Add overlap of at least 15cm.
- Choose the liner. Use either the longer lasting, but expensive, butyl rubber or PVC liner. The former will resist tearing and deterioration by sunlight, bacterial growth or temperature extremes. The latter is reasonably strong and resistant, but may crack if exposed to sunlight.
- Drape liner over the hole leaving overlap on all sides. Weigh down at edges and begin filling with water (ideally rainwater from water butts; tap water otherwise). Move weights as more liner is required, tugging to ensure the liner is straight/neat at contours. Cut off excess when the pond is full.

Laying pond liner for new pond.

3. Wait or get planting

- Add plants after leaving the pond a couple of weeks to settle, preferably planting in late spring/early summer. Aim for diverse planting for diverse wildlife, ideally choosing native plants and avoiding invasive species. See list of suggested plants on previous page.
- Alternatively, wait for wildlife and plants to colonise your new pool of water naturally. Some wildlife will visit within an hour; much more as ecology evolves and debris builds up over a season or two.

4. Keeping going

- Keep maintenance to a minimum to avoid disturbing the pond's natural equilibrium. Remove excess blanket weed and chop back vigorous marginal and oxygenating plants. Little and often is best, during warmer weather. Leave plant debris at the pond edge overnight before adding to your compost heap, so any creatures can return to the water.

Wildlife pond in spring.