

## Creating a pond

Water is an important feature in any garden. It helps to provide a wide range of habitats. Wildlife attracted by the water will help to control pests.

If you have no open ground, you can create a small pond in a barrel or old sink.

### Constructing a pond.

A pond must be:

- completely water-tight.
- deep enough to protect the creatures living in it.
- designed so that birds, frogs and other creatures can use it easily.
- put in a suitable place.
- looked after regularly and carefully, particularly if it is small.

### Pond Size

The length and width of the pond is up to you. However, the pond must be at least 60cm-70cm deep at some point. This allows pond-living creatures to survive during freezing winter weather.

## Construction

As well as having a minimum depth, your pond needs a shallow area and at least one sloping side. This allows birds to bathe, hedgehogs to drink, and amphibians like frogs to get in and out of the pond easily.

### Site

The pond or barrel should be in an open, sunny site. Plants and water-living creatures will put up with some shade, but the pond should have full sun for at least half a day. Try not to put it near trees, as the falling leaves will **decompose** in the water and turn it sour. Plant around the edges of the pond to provide shelter for creatures visiting the pond.

### Care and maintenance

**Renovation** of a pond is best done easily in autumn—before **hibernation** starts, but when the breeding season has finished.

Any dead leaves should be removed. Plants that have become overgrown should be reduced in size, and waste removed from the bottom of the pond.

It is better to leave the material that has been taken out, at the edge of the pond for a few days. This means that any creatures hiding in the pile can return to the water.

Don't throw away all the sludge from the bottom. Put a bucketful back as it will contain a huge range of water dwelling creatures.

In spring change about 10% of the pond's water, especially if the level is low. Over winter try to remove leaves as they blow or fall into the pond.

### Materials to line a pond

Probably the best liner for a school pond is a heavy duty butyl rubber liner. This can be moulded to fit any hole shape. The other alternatives are:

- Pre-shaped fibreglass shells (although size and shape is limited)
- Black polythene sheeting (has a fairly short life)
- Concrete (usually costly and not practical for small ponds)

## Making a butyl-lined pond

1. Dig a hole remembering to allow a minimum 60—70cm finished depth in at least one place. You need to ensure that this is the depth when the pond is lined, so the hole should actually be about 75-80cm deep in one place. The pond will also need ledges of different depths and one sloping side.
2. Make sure that the rim of the pond is level; use a board and a spirit level.
3. Clear out all sharp stones from the soil in the hole.
4. Put a 5cm layer of sand all over the pond base and sides.
5. To protect the liner, place a layer of old carpet or cardboard on top of the sand.
6. Place the butyl liner into the pond, over the protective layer allowing an overlap around the rim; 50cm is a good amount. The amount of liner you will need is worked out by the following:  
(length + [depth x2]) x (width + [depth x2]).
7. Weigh down the edges of the liner around the pond rim with stones.
8. Fill the pond with water. As the weight of the water increases, the liner will stretch to fit the hole. As it does, lift the stones occasionally to allow the liner to sink into the hole.

9. If you use tap water to fill the pond wait about 24 hours before adding plants to allow the water to settle.
10. Plant your plants. There are two possible methods; you can use plants in pots that stand on the bottom and on the ledges of the pond; you can put sieved, stone-free soil direct onto the liner about 5cm deep and plant directly into it; or you can use both methods.
11. Cover the spare liner material around the rim of the pond with extra stones, or bury it under soil. It should not be exposed to the sunlight, as this will cause it to rot.

## Plants

Even a small pond can have a wide range of plants as long as they are chosen with care. You should try to have at least one floating plant, a deep-water plant, a shallow-water plant and a submerged plant in a small pond. These will provide plenty of interest, as well as a range of **habitats** for wildlife. If you can, try and have a boggy area near the pond edge.

### Glossary

**Decompose** —when material rots

**Habitat** —where creatures live

**Hibernation** —when creatures hide and go to sleep over the winter

**Renovation** —to clean out and tidy up

# Creating a pond



A student's guide to building and maintaining a pond.



Garden Organic  
for Schools

## Creating a pond

Water is a very important feature in any garden, as it increases the range of creatures attracted to the garden.

If you have no open ground, a small pond can be created in a barrel or old sink. This is also the solution where expense and safety issues are paramount. A small pond is quite capable of supporting a number of water creatures and providing an ideal teaching resource, allowing students to see the concepts they learn about in the classroom in action

### Constructing a pond.

A pond must be:

- completely water-tight
- deep enough to protect the creatures it contains
- constructed to allow birds, frogs and other creatures to use it easily
- sited to provide a comfortable and suitable growing/living environment for plant and animal life
- maintained regularly and carefully, particularly if it is small

### Dimensions

The length and width of the pond is optional. However, the pond must be at least 60cm deep at at some point. This ensures that pond-living creatures can survive in freezing winter weather. If the pond is shallower it may freeze solid in winter or dry up in summer.

### Construction

As well as having a minimum depth, your pond needs a shallow area and at least one sloping side. This enables birds to bathe, hedgehogs to drink, and amphibians to get in and out of the pond. This will not be possible in a pond with vertical sides only. A large flat stone in the pond centre is also useful.

### Site

The pond or barrel should be situated in an open, sunny position. Although some shade is tolerated by plants and creatures, the pond should receive full sun for half the day. This keeps the water warm. Try not to position near trees. Falling leaves will decompose in the water and turn it sour. Roots can damage the pond liner. There should be planting around the edges of the pond to provide shelter for creatures that are coming and going.

### Care and maintenance

Renovation of a pond is best done in early autumn. This is before hibernation begins, but after the breeding season.

Any dead leaves should be removed, overgrown plants should be reduced and excess sludgy waste removed from the bottom of the pond. Do not remove all the sludge.

Leave the pile of material that has been removed by the edge of the pond for a few days. This ensures that any creatures present can return to the water.

In spring change about 10% of the pond's water, especially if the water level is down. Over winter, try to remove leaves as they blow or fall into the pond.

### Materials to line a pond

The best liner for a school pond is a heavy duty butyl liner. This will mould to fit any pond shape. The alternatives are:

- pre-shaped fibreglass shells (although size and shape is limited)
- black polythene sheeting (has a fairly short life)
- concrete (usually costly and not practical for small ponds)

### Health and Safety

Ponds in schools should be fenced off or have a heavy-duty safety mesh covering them to prevent accidents. Check with your Local Authority for local regulations.

## Making a butyl-lined pond

1. Dig a hole remembering to allow a minimum 60-70cm finished depth in at least one place. When you measure the hole depth remember to take into account the thickness of the liner, carpet and sand. Make sure there are some higher ledges and at least one sloping side in the pond.
2. Ensure that the rim of the pond is level; using a spirit level.
3. Clear out all sharp stones from the soil in the hole.
4. Put a 5cm layer of sand all over the pond base and sides.
5. Place a layer of old carpet/thin cardboard on top of the sand to protect the liner. You can buy protective sheeting made specifically for this purpose.
6. Place the butyl liner into the pond, over the protective layer, allowing an adequate overlap around the rim; 50cm is a good amount. The amount of liner you will need is worked out by the following:  $(\text{length} + [\text{depth} \times 2]) \times (\text{width} + [\text{depth} \times 2])$ .
7. Weigh down the edges of the liner around the pond rim with stones.
8. Fill the pond with water. As the weight of the water increases, the liner will stretch to fit the hole. As it does, lift the stones occasionally to allow the liner to sink into the hole.

9. If you use tap water to fill the pond leave for about 24 hours to allow the chemicals to dissipate.
10. Plant your plants. There are two possible methods; you can use plants in pots that stand on the bottom and on the ledges of the pond; you can put sieved, stone-free soil direct onto the liner about 5cm deep and plant directly into it; or you can have a combination of both methods.
11. Cover the spare liner material around the rim of the pond with extra stones, or bury it under soil, so that it is not exposed to sunlight, as this will cause the liner to deteriorate.

## Plants

Even a small pond can have a wide range of plants as long as they are chosen with care. You should try to have at least one floating plant, a deep-water plant, a shallow-water plant and a submerged plant in a small pond. These will provide plenty of interest, as well as a range of habitats for wildlife. If you can, try to have a boggy area near the pond edge.

### Further Reading

Troubleshooting in a garden pond  
—Garden Organic factsheet

Setting up a pond  
—Garden Organic factsheet

Growing Naturally: A Teacher's Guide to Organic Gardening  
— M. Brown, Southgate 1996

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