

How to set up and maintain a freshwater aquarium

Keeping an aquarium is an immensely enjoyable and rewarding hobby for both adults and children alike. This leaflet aims to help you in what to consider when setting up and maintaining a freshwater aquarium and to ensure that your fishes' welfare needs are met.

As a general rule you should, within reason, buy an aquarium as big as possible. Ideally, it should be able to accommodate your chosen fish once they are fully grown. Otherwise, you must be prepared to buy bigger set ups as your fish grow.

Aquarium sizes range from nano tanks through to large custom-built aquariums of much bigger capacities. As larger aquariums contain more water, they will be more stable and less susceptible to variations in temperature, pH etc than small aquariums.

Positioning your aquarium

Once your set up is ready, position your aquarium so it is:

- ▶ Out of direct sunlight and away from sources of heat or draughts.
- ▶ On a flat level surface or stand (which can take the weight of a full tank indefinitely).
- ▶ Away from loud noises, vibrations and sudden movements.

Maturing your aquarium filter

Once your aquarium has been filled and the water has been dechlorinated (either by letting it stand for 24 hours or through use of a commercial dechlorinator), switch on your equipment. It is advisable to leave the aquarium for between 24 to 48 hours to settle. This ensures that the correct temperature is reached (if it is a tropical set up) and that the equipment is working correctly. You will need test kits to regularly measure that the water quality is suitable for fish, these should test for ammonia, nitrite, nitrate and pH.

Your aquarium filter then needs to 'mature'. Waste products from your fish and any leftover uneaten food contribute to ammonia (NH_3) levels, which together with nitrites (NO_2^-) are highly toxic to fish. However, there are bacteria (known as nitrifiers) which can quickly break down ammonia and nitrite to the much fewer toxic nitrates (NO_3^-). These beneficial bacteria will not be present in a new aquarium filter, so the process of maturing your filter involves growing a population of these bacteria in the filter media and there are two common methods of doing this: 'Fish-in' and 'Fish-less' cycling.

The 'Fish-in' method involves adding a small number of 'hardy' fish to the aquarium. Note that this method should only be used with great care, and under guidance from your OATA retailer, to safeguard the welfare of your fish. Your OATA retailer will be able to advise on what fish are most appropriate for your aquarium depending on



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how mature your aquarium is, and the water chemistry of your aquarium.

The 'Fish-less' method involves adding a calculated dose of ammonia to your aquarium over several weeks. You will need to use an ammonia-based aquarium maturation product and follow the instructions included. There are also proprietary bacterial cultures available, which when used as per the manufacturer's instructions, can help to 'kick start' maturing of your filter.

Whichever method you use, ammonia and nitrite levels should initially successively rise and then fall, while nitrate (the end product of filtration) levels will usually continue to rise. It is important if you have added fish, that the levels of these waste products do NOT rise above the guidelines given below. Regular partial water changes will be required as will regular water testing to monitor for any changes and to take action as necessary. Frequency and volume of water changes will depend on stocking levels and other factors: ask your OATA retailer for advice. Once the levels of ammonia and nitrite have dropped to zero and stay at zero continually, your aquarium filter is mature and stocking can continue slowly. Bear in mind, that each time you add more fish or increase feeding, a 'mini' maturation process will be required for your filter to allow for the numbers of beneficial bacteria in your filter to build up to deal with the extra amounts of waste produced.

	Coldwater/Tropical Freshwater home aquaria
Ammonia (NH ₃)	Zero mg per litre
Nitrite (NO ₂ ⁻)	Zero mg per litre
Nitrate (NO ₃ ⁻)	Check species specific care sheets Note: Nitrate levels in tap water can vary widely between different areas. Do seek advice from your local OATA retailer on safe nitrate levels for the fish you keep.

Adding your fish

Before adding any fish, seek advice from your OATA retailer in choosing the type of aquarium you would like to keep and the species you are interested in. OATA has a range of free care sheets which cover the majority of commercially available species. Some fish species need to be kept in shoals whilst other species are territorial and/or aggressive and will not live together peacefully. Different species may also prefer different water types, flow rates etc, and will have a preferred temperature range.

Only increase the number of fish you have in your aquarium slowly as the population of beneficial bacteria established when maturing your aquarium filter need to increase every time more fish are added and feeding increases. Overstocking or stocking your aquarium too quickly can result in 'new tank syndrome'. This occurs when there are not enough nitrifying bacteria to cope with the increased waste load, leading to unhealthy levels of ammonia and nitrite which may cause fish to become ill or die.



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Healthy fish have clear bright eyes, undamaged fins, intact scales, no ulcerations or bumps, appropriate swimming behaviour and steady breathing. Do not purchase a seemingly healthy fish if sickly fish are present in the tank with it. Some diseases can be easily carried without fish showing any clinical signs. If in doubt, ask your OATA retailer for advice as they will have in-depth knowledge and experience.

Stocking and aquarium set up

It is not possible to say exactly how many fish your aquarium can hold. The differences in body size, species requirements, water parameters and compatibility of fish available are vast. Ask your OATA retailer for advice on stocking densities for your chosen aquarium and species you would like to keep.

Aim to create a suitable environment for your chosen fish. Remember that decoration and plants take up space but are recommended additions as enrichment for your fish. Live plants help to remove nitrate, and ornaments can provide less boisterous and reclusive fish with a safe retreat.

Diet and feeding requirements vary between species. Some feed at the surface, others will be found throughout the water column, while others will spend most time at the bottom of the aquarium. Some will also have specific dietary needs e.g. algae eaters, and will need specific foods to thrive. Be sure to have suitable food to cater for all of your fishes' needs. When starting with fish it is best to pick hardy species which can live together. Good beginner tropical species include tetras, guppies, mollies, platies, swordtails, corydoras and gouramis, but your OATA retailer may have some other suggestions. Species suitable for unheated aquariums can be found in our "unheated aquarium inhabitants" care sheet.

Do not expect to fill your tank with as many fish as your OATA retailer. They are able to stock tanks more heavily than home aquariums due to their management expertise and advanced filtration systems.

Transporting and releasing your fish

First check that your new fish are compatible with those that you may already own and that the water quality in your aquarium is suitable i.e. levels of ammonia and nitrite are zero. Your OATA retailer will usually sell your fish to you in a plastic bag. Try not to keep them in this for too long. Once purchased, take your new fish home as quickly as possible as fish are easily stressed by bright lights, extreme temperatures, noise and movement.

Once home, your fish will need to acclimatise to their new environment. There are two common methods to do this known as the 'floating bag' and the 'drip acclimatisation' methods. Switch off aquarium lights and take the bag containing your new fish out of its outer wrappings carefully, avoiding exposure to bright light.



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If using the floating bag method, float the bag in the water of your tank for at least 10 minutes to ensure the temperature in the bag is the same as the aquarium water. Whilst the bag is floating, slowly introduce small amounts of aquarium water into the bag containing the fish for up to 20 minutes. Some more sensitive species might require a longer period of mixing, but your OATA retailer should be able to advise you.

If using the drip acclimatisation method, proprietary kits are available whereby water from your aquarium is 'drip fed' into a container holding your new fish and their transport water, until water conditions are the same as those in your tank. This method is ideal if you are introducing a particularly sensitive species, or if your water chemistry in your aquarium is likely to differ greatly from where the fish have come from.

Depending on which method you use, it can take between one to several hours, particularly for more specialised species such as Discus. Once complete, carefully release the fish into your aquarium and dispose of the bag and any excess water appropriately. Monitor your new fish carefully for the first week, paying particular attention to water quality. If in any doubt, contact your OATA retailer for advice.

Maintenance

Your fish are totally reliant on you to keep them healthy, so your aquarium will require regular maintenance. Most tasks are relatively quick and simple:

- ▶ Check the water quality regularly (**at least once a week**) to prevent the build-up of harmful wastes such as ammonia and nitrites. You may wish to test more frequently such as when setting up your aquarium and when adding fish. Also take care to regularly check the water is at the correct temperature.
- ▶ Partial water changes (up to 25% every week) will help remove excess waste chemicals. Before adding new tap water, make sure it's at the correct temperature and is treated to make it safe for your fish. Frequency and size of water changes may vary according to what species you keep, the aquarium size, the number of fish you have and other factors. If in doubt, seek advice from your OATA retailer.
- ▶ Check filters for blockages and fish waste build-up. Never rinse them under a tap, since this will wash away and kill the beneficial bacteria, but instead, use some of the waste water from a routine water change to clean filters.

Remember: never siphon water from your aquarium by mouth. Cover any open cuts before putting your hands into an aquarium and always wash your hands immediately afterwards.



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What to watch out for

All fish will have slight variations in their behaviour or appearance, but keeping an eye on any changes in the following will help to identify any potential problems before they become a real health issue:

- swimming behaviour – hanging at the surface, sitting on the bottom or erratic swimming
- colour – turning a darker or paler colour than normal
- temperament – changes in level of aggression or hiding more than normal
- breathing – gill covers moving at a slower or faster rate than normal
- appearance – development of white spots or fluffy growths, loss of fins or scales
- condition – increase or decrease in body weight and condition
- feeding – reduced intake or lack of interest in food

If you are concerned about the health of any of your livestock, then test your water quality and contact your OATA retailer for further guidance.

Shopping List

Freshwater aquaria can be used to keep either coldwater species e.g. goldfish or tropical species (which must be kept in heated water) e.g. guppies. The type of set up that you choose i.e. coldwater or tropical, will determine what equipment you need to purchase.

As a general checklist, a freshwater aquarium should include:

- Glass or acrylic aquarium with secure lid
- Suitable stand
- Suitable substrate e.g. Gravel, Sand
- Filtration
- Air pump
- Lighting
- Siphon cleaning device
- Bucket (for water changes)
- Ornaments
- Plants (live or plastic)
- Heater (for tropical tanks)
- Water conditioner/dechlorinator
- Thermometer
- Water testing kits (for ammonia, nitrite, nitrate and pH as a minimum)
- Food (suited to your chosen fish)

Water test kits will help you maintain good water quality for your fish so their purchase should be considered a necessity. Many OATA retailers will offer free water testing services and can provide advice on how to test your aquarium water at home.

Five Welfare Needs Checklist:

The Animal Welfare Act 2006 states that all pet owners have a legal duty of care to their pets. Anyone who is cruel to an animal or is found not to be providing the five animal welfare needs, as listed below, can be prosecuted.



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- ▶ A **suitable environment** e.g. appropriately sized tank (with water heater if tropical set up) within a suitable location in your home.
- ▶ A **suitable diet** which meets the needs of your chosen fish.
- ▶ **Behaviour** - Fish are able to exhibit their normal behaviour e.g. hiding places for timid fish, enough room for fish to swim freely.
- ▶ **Companionship** - Ensure you know whether your chosen fish need to be kept with, or apart from, other fish.
- ▶ **Health** - Protected from pain, injury, suffering & disease e.g. you are aware of the daily, weekly and monthly maintenance that your aquarium will need.

- ▶ **Water quality test kits are a necessity not an optional extra**
- ▶ **You must be prepared to look after your fish properly for the duration of their life and provide an aquarium which can accommodate your fish when fully grown**



*Never release your aquarium animals or plants into the wild

It is illegal and for most fish species this will lead to an untimely and possibly lingering death. Any animals or plants that do survive might be harmful to our native countryside. Take care to properly dispose of any soiled substrate (e.g. sand or gravel) or decorations so that non-native organisms do not enter natural watercourses.

Visit ornamentalfish.org to find a full range of how to guides and species-specific care sheets to help you look after your fish successfully.



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