Preparing the aquarium

Set up the aquarium following the step by step instructions in the Activation Guide. Making sure the water preparation chemicals have been added leave the aquarium for at least 24 hours with the air pump running before introducing the first fish.

Plants can be added at this stage.

Stocking

You must resist the temptation to fill your aquarium with fish straight away. One small goldfish (1" to 1.5") or three small shoaling fish (such as white cloud mountain minnows) can be introduced.

Wait at least 28 days before adding any more fish.

A gap of 28 days should be left between each addition of fish. Never add more than one goldfish or three small shoaling fish at a time. Buying too many fish at a time can kill the fish or at least make them very ill.

establishing your aquarium

Fish Type	Each Month	Maximum Stock
ancy goldfish (basic fantails)	1	2-4
nall shoaling fish nows, danios, etc)	3	12-18

If transferring fish from an existing aquarium to a new aquarium the fish must be moved over gradually as described above.

Feeding

Always feed sparingly - overfeeding is the biggest cause of aquarium problems.

Measure out food carefully, do not use a 'pinch'. There are no exact rules for feeding fish but as a rough guide:

1-3 cm shoaling fish (minnows, danios etc)



3-4 tropical micro-pellets or 1-2 tropical flakes each per day.

2-5 cm goldfish



2-4 small pellets each per day.

The bubbles

Bubbles are created by the air pump. The air pump forces air through the base of the aquarium created bubbles which rise up through the bubble tube. When the bubbles hit the surface, oxygen is relea water. Surface agitation also allows carbon dioxide to escape out of the water.

This helps:

- ✓ force water down through the filter
- √ fish to breathe
- ✓ beneficial bacteria to do their job
- ✓ plants to breathe at night

The sponge and fine mesh

These provide mechanical filtration, working like a waste bin, by trapping solid particles of waste a keeping them out of the water.

This helps:

- √water to look crystal clear
- ✓ stop solid particles
- √damaging the fish gills
- √keep levels of pollutants low

The activated carbon and resins

These provide chemical filtration by absorbing some nitrate, phosphate and other chemicals from

This helps:

fish waste (ammonia)

✓ remove colour from the water

waste bin

✓ reduce the build up of nitrate and phosphate

partial

water changes

The ceramic media

The rocks at the base of the biOrb provide an ideal home for live, multiply and work.

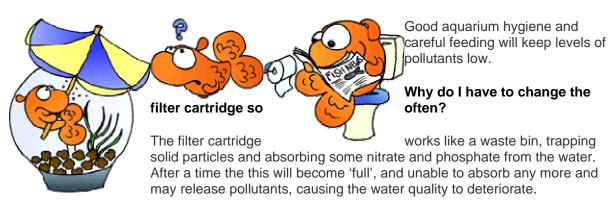
This helps:

√ remove toxic ammonia and nitrite from the water

Filtration cycle

Fish eat food, the waste produced by the fish (ammonia) is c filter bacteria and turned into less harmful pollutants like nitra these pollutants are absorbed by active chemicals in the filte eaten by plants. The rest must be diluted with regular partial

The more fish food or fish that enter the aquarium, the more produced as a result. If these pollutants build up they will encourage green water and poor fish he



By regularly changing the filter cartridge Everything it has absorbed is removed from the biOrb, just like taking your household waste bin out to be collected. For optimum filtration the filter cartridge should be replaced every 1-2 months.

Can I wash the sponge?

If the sponge gets dirty before a change is due it can be washed. However the chemicals in the filter cartridge only remain 'active' for a limited period, after this period toxins, which have been absorbed, may be released back into the water. Therefore the cartridge should be replaced.

Does the filter contain activated carbon or Zeolite?

The filter cartridge contains activated carbon and resins which should be removed before using aquarium medications. Leave the sponge in the cartridge to continue trapping dirt and replace with a new cartridge when the treatment period is over.

Do I have to keep the ceramic media provided?

The ceramic media provide essential biological filtration.

It is your fish's toilet, bacteria will colonise the media and consume toxic fish waste making the water safer for your fish to live in. Without this water would become very polluted very quickly.

Can I put aquarium gravel in the biOrb?

We strongly advise against putting gravel, sand or small stones in the biOrb. Gravel is likely to reduce filtration and may become lodged in the filter cartridge casing.

Will changing the cartridge kill the filter bacteria?

No. The filter cartridge provides mechanical and chemical filtration. Biological filtration is provided by the ceramic media therefore is not affected by the filter cartridge.

Why do I have to keep the biOrb out of sunlight?

All round fish bowls have a magnifying effect. While this adds to the appeal of them, if placed in direct sunlight they produce a focal point of light that can scorch/burn materials and possibly cause fire. Direct or strong daylight can cause excessive algae growth and cause temperature fluctuations within the aquarium making life uncomfortable for fish.

Can a heater be added to the biOrb to make it tropical?

A 50 watt heater can be added to the biOrb with the aid of a Reef One heater stand. There is a snap out section in the light unit into which the cable can rest.

Can I use a longer airline?

Anything longer than 3-5 metres will require a larger air pump. Always attach the new airline to the pump end of the existing airline, **not** the biOrb end. Trim the end of the tube you detach from the pump and use either a straight airline connecter, or better still a one way valve.

Why am I getting fewer bubbles?

If you have noticed that there are fewer bubbles you may need to change the air stone. Alternatively if you have just changed the filter cartridge, air from the sponge may be trapped inside the cartridge. Twist the bubble tube and lift one side of the filter cartridge slightly to allow air to escape. You may need to do this a few times.

What is the air stone?

The air stone is the small white cylinder at the base of the biOrb. The air stone breaks up the air being forced through it into a stream of bubbles. **air stone**

My filter appears to be filling with air?

This can be a sign that the air stone has become blocked and caused a small air leak. Removing the air stone will solve this and start the filter working again. Without the air stone the filter will be slightly noisy so we recommend putting a new one in as soon as possible.

My light bulb has stopped working?

Light bulbs do wear out. The special halogen bulb used in our light unit should last at least 1600 hours. This can easily be replaced following the instructions included with the light unit. biOrb light bulb

What happens if there is a power cut?

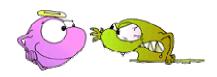
A power cut will interrupt the supply of oxygen into the biOrb. Without oxygen for long periods filter bacteria will start to die and the water may become polluted. Fish may also experience difficulty breathing, particularly at night when oxygen levels naturally drop and live plants take their share of oxygen too.

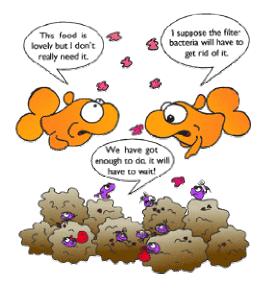
It is advisable to test the water after a noticeable power cut to see if the water has become polluted, so that remedial action can be taken. If long term power failure occurs it is essential that the air pump is raised well above the biOrb water level as per air pump instructions.

Got a question not answered here? Get in touch by phone, fax or email and we will be happy to deal with your query.

There are good bacteria and bad bacteria. Aquariums use good bacteria to eat toxic fish waste: creating a biological filter.

The rocks at the base of the aquarium will be home to these good bacteria.





The bacteria need to grow into a good sized population, become 'established', so that they can keep the water clean of fish waste.

Filter bacteria need food (fish waste) so that they can multiply. To do their job, the bacteria also need a constant supply of oxygenated water. This is provided by the air pump which must be left running 24 hours a day.

When the fish goes to the toilet ammonia is produced. Ammonia is deadly to fish. The bacteria convert the toxic ammonia into a safer substance called nitrate. For every small goldfish added it takes around four weeks for enough bacteria to multiply for that fish. This is why fish must be added at a rate of one every four weeks.

It is important that the biological filter is given time to become established. A few bacteria are introduced to the aquarium with the water preparation chemicals and 24 hours later one small goldfish can be added.

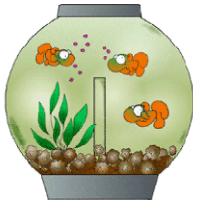


The right way: one small goldfish introduced

When the new fish goes to the toilet filter bacteria start to multiply to catch up with the amount of work they have to do. The fish should be fed very sparingly. After about 28 days there should be just enough bacteria to cope with all the waste from that one fish. The water quality should then be good and the aquarium is ready for one new fish. The process will happen with every new fish.







The wrong way: more than one goldfish introduced

If more than one goldfish is added at one time then there will suddenly be too much waste in the water. Filter bacteria cannot multiply quickly enough and so struggle to clear up all he waste. The extra waste will build up and pollute the water. The polluted water can be clear, cloudy or eventually brown or green with algae growth. This is very unpleasant for your fish, breathing can become difficult and they may die.



There is a good choice of cold water fish available, tropical fish can be kept if an aquarium heater is fitted inside the aquarium. The suitability of fish depends largely on their adult size, behaviour and requirements. Hardy varieties of fantail goldfish are a good choice for Reef One aquariums. Avoid fancier varieties such as celestials, bubble eyes and pearl scales which can be harder to care for and Oranda which can grow too big. Common goldfish are fast swimming and boisterous, they shouldn't really be mixed with fantail goldfish, they are better suited to very large aquariums or ponds.

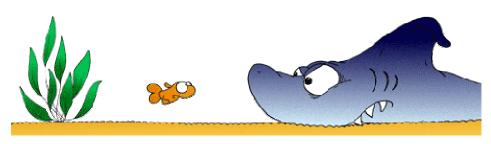
Common goldfish, such as comets and shubunkins usually have a single flat tail and cigar shaped bodies. Fantail goldfish have long tails which look like two tails joined together. Their bodies are shorter and rounder.

Smaller cold water fish such as white cloud mountain minnows are very hardy fish, a shoal of six (three at a time) can be mixed with fantail goldfish.

Small 'cool water' fish can be kept providing you use an aquarium thermometer to check that the temperature in the aquarium does not drop below 19°C (17°C at night). These type of fish include danios, some guppies and platys amongst others. These shouldn't be mixed with goldfish.

Do not keep bottom feeders, such as common pleco, loach or catfish in Reef One aquariums. The ceramic media used for biological filtration in Reef One aquariums can be damaging to their delicate faces as they root about in the rocks. Many of these species also grow very large.

There is a massive variety of small tropical fish which can be mixed together or kept as a large shoal of one species. As with any pet, you should do a little research into your chosen fish before buying from the wealth fish books and web sites devoted to fish keeping.



Check that the fish you buy will be compatible with your existing fish or the fish you plan to have. They should be healthy and alert, scales should be smooth and not damaged or infected.

With fantail goldfish in particular check that they are swimming straight (not sideways or up-side down) and that their tails are not at an abnormal angle. Don't be afraid to reject a fish that you do not think is healthy, if you are not happy with it don't buy it.

Getting your new fish home.

Moving to a new aquarium is a very stressful experience for fish. Sometimes this is all too much for them and they do not survive. By planning your purchase and taking the best care possible you can minimise this stress to give your new fish a better chance of enjoying their new home.

Always make sure that the fish you buy can be taken straight home to your aquarium. When traveling, keep the fish steady, secure, out of direct sunlight and heat. Covering the fish bag with a paper bag or box will help to reduce stress to the fish and help tropical fish maintain their temperature.

Once home, open the bag and roll down the sides like a sock. To equalise the temperature in the bag and the aquarium, float the open bag on the surface for 30 minutes.

Carefully release the fish into the aquarium by slowly tipping the bag and allowing the fish to swim out. Try to minimise the amount of water from the bag entering the aquarium. Leave the aquarium light switched off and do not feed until at least the next day.

Like any pet you should research the needs of your fish before taking them home.

Why have real plants?

There are several benefits to growing real plants in the aquarium. Plants feed off nitrate, helping to keep levels low and algae at bay. They also provide hiding places for fish and add interest to their environment. Many species of plants are very tasty, goldfish in particular enjoy grazing on these plants. This benefits their diet and can help to prevent swim bladder problems.

What type of plants?

Unless you convert your aquarium for plant growth some species can be very difficult to grow. Trial and error is often the only way to find good plants for your aquarium. Try inexpensive bunches of hardy looking plants and stick with the ones that work.

If you want plants which can help to keep levels of pollutants low you will need fast growing stem plants like *Elodea densa* or *Cabomba aquatica*. These species are often sold as 'goldfish weed' or 'oxygenators'.

Generally, fish like to graze on soft, bright green plants. Tougher varieties, or fast growing plants usually withstand the attentions of fish, however some fish will just destroy any plant.

Selecting several plants of different heights will add interest to the aquarium for you and your fish.

Do plants oxygenate the water?

During daylight hours plants use carbon dioxide from the water around them and release oxygen into the water. When it is dark however they do the opposite, this is why plants shouldn't be used to oxygenate aquarium water.

Artificial plants.

Plants can be difficult to grow any many people prefer to choose artificial aquarium plants. There are many available, usually made from plastic or silk, and can look very realistic. Although they do not have the benefits of live plants they never die and can be taken out and washed when dirty.

Fixing plants in the aquarium.

Plants are usually sold in pots or bunches; both can restrict the growth of the plants. Pots **must** be removed, the substrate used around the roots can cause the water to become cloudy. Most stem plants can be kept in their bunches as long as they are regularly taken out and trimmed.

Use the ceramic media in your aquarium to anchor plants into position. Remove 5-6 rocks, insert the plant into a gap and then place the rocks around the plant to secure it. Single stems can be fed in-between the rocks quite easily.

Plants with good root systems, such as *Cryptocornes* and java fern, can be loosely tied onto bog wood or aquarium rock with fishing line. These plants should then grow onto the surface. This makes it easier to position the plants and lift them out of the water.

Aquarium gardening.

Many plants do not need much care. However, a little gardening during normal aquarium maintenance will keep plants looking their best. Dead leaves should be removed as soon as you see them. Take them off cleanly near the base of the plant.

For a well planted aquarium the nitrate level should be between 20-40 ppm. You can find this out using an aquarium test kit. It is good practice to regularly check the level of nitrate, it rises over time and if it gets too high, may start to affect fish health and encourage algae growth.

Make sure the plants you buy are 'aquarium plants' and not varieties sold for ponds.



To keep tropical fish it is important to be able to control & monitor the temperature of the water in the aquarium. The Reef One heater stand enables an aquarium heater to be fixed securely to the inside of the aquarium. An accurate aquarium

thermometer should also be used.

For more information see **Heater Stand**.

There is a wealth of tropical fish to choose from, too many to list. We will point you in direction of some hardy varieties which will help to establish your aquarium and some to avoid. You should however research the fish you plan to buy to ensure the you can provide for their needs.

As a rough guide, the biOrb can hold 12-18 inches of fish. So, for example, if all the fish you plan to buy grow to one inch you can have 12-18 fish. However, if the fish grow to four inches you can only have 3-4. Remember that heavily stocking or feeding the aquarium will put extra demands on the aquarium. Also some fish can be messier than others regardless of their size.

Always allow for the final size of the fish, not the size they are when you buy them. Buy fish when they are small, this will enable the filter to adjust as the fish grows. Adding a large fish is likely to have the same effect as adding several fish at once, which will cause water quality problems.

Remember to leave at least four weeks between each addition of fish.

There are no definitive rules providing the fish you mix are compatible and the aquarium provides the right environment for them.

Find out about the fish you want to buy first. Books and the Internet are invaluable sources of information. Find out as much as you can about the fish you want.

How big do they grow?

What size aquarium do they need?

Do they need any special conditions such as special substrate or water conditions?

Will they mix with the fish you have or want to have?

What are their behavioural needs?

Do they need to live in pairs or groups?

Should you buy males or females?

Will they have babies and if so what do you do with them?

Different fish have different requirements, if your aquarium does not provide the right environment, leave the fish in the shop.

Always ask for advice when buying fish, don't be offended if you are told not to have certain fish. Be patient and have fun!

Hardy varieties: these should be your first additions to the aquarium. Danios (zebra, leopard, pearl and gold zebra) and silvertip tetras are good starter fish and very attractive. They should be kept in shoals of four-six, buy no more than 3 at a time.

Most tetras that you would find in a pet shop are suitable but check adult size and compatibility with the fish you have or plan to have. Some can be a little aggressive or grow quite large. Most tetras are shoaling or semi-shoaling so you will need to plan for groups. Neon tetras are very popular; however these fish do not like new aquariums so introduce them last.

Avoid bottom feeding fish such as catfish, loach, plecs etc. Most grow very large and they will root about in the base of the aquarium damaging their delicate barbels (whiskers) on the sharp ceramic media.

There are a lot of other species which should be avoided, usually because they grow too big. A good aquatic shop should not sell you unsuitable fish provided you tell them all them information they need; type of aquarium, how long it has been running, what fish you have already etc.

You will need a Reef One service kit to carry out maintenance. The service kit contains a replacement filter cartridge, sachet of stress coat and stress zyme and a special algae cleaning cloth. Other helpful equipment include a 10 litre bucket for preparing water, 10 litre bucket for the dirty water and a cleaner pump.

For step by step instructions for carrying out maintenance see Service Kit Instructions.

Never remove more than 30% of the aquarium's volume at one time.

Why do partial water changes?

Nutrients builds up in the aquarium over time these affect water quality, encouraging algae and poor fish health. Regularly diluting the aquarium water should keep these nutrients to a safe level.

What are the water preparation chemicals?

These sachets contain two different liquids to prepare fresh water for use in the aquarium. The first sachet removes chlorine and other additives from tap water which are harmful to fish and filter bacteria. The second sachet contains filter bacteria in

liquid form to top up the aquarium. We recommend using the chemicals provided in the service kit, if you prefer to use different ones please ensure that they are made by the same manufacturer as each other.

What do I do with the fish whilst cleaning?

Fish should be left in the aquarium whilst cleaning is carried out, being removed and then reintroduced is likely to be more stressful for them. However, take care not to disturb the water inside the aquarium too much.

Floating debris?

You may find that cleaning causes debris such as bits of dead plant to float around in the water. Remove as much of this as you can with a small fish net. The rest will settle in the filter over a day or two. If there is always lots of debris you may be overfeeding, overstocked or not carrying out maintenance often enough.

Condensation?

After cleaning you may find that more condensation and bubbles appear than usual, particularly around the top of the bowl. This is quite normal, a big change in the aquarium has occurred and it can take a few days to return to normal.

Dirty ceramic media?

If the ceramic media is very dirty this can be scrubbed with a clean nail brush in water taken from the aquarium. Never wash the ceramic media under the tap or leave it out of the aquarium for too long as this will kill the beneficial bacteria living living in it. To avoid scratching remember to lift the rocks in and out of the aquarium by hand.

Dirty sponge?

If the blue sponge becomes very dirty before maintenance is due it can be washed in tap water and replaced. This can be done in tap water because the filter cartridge does not provide biological filtration. If the sponge gets dirty very quickly this is a sign that the aquarium may be overstocked, overfed or maintenance is not carried out often enough. The life of the carbon and resins in the filter cartridge is limited so the filter cartridge must be replaced at least every 8 weeks.

Routine maintenance should be carried out at least every 1-2 months depending on stocking and feeding levels.

Overfeeding, overstocking or messy fish may put extra demands on the filter, in these cases cleaning may need to be carried out more frequently.

What to feed

Good quality prepared fish foods provide a well balanced diet, however, fish do relish eating a variety of foods. Fantail goldfish in particular will benefit from a varied diet.

Daphnia, brine shrimp and bloodworm or a mixture are enjoyed by most fish and can be purchased either live, in frozen packets or in vitamin enriched jelly. Only buy live food from a reputable source, frozen foods should be defrosted before being fed.

Pellets or flakes?

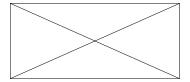
Eating flakes requires the fish to spend a lot of time at the water surface increasing the amount of air which could be swallowed by the fish. It is mainly for this reason that pellets are thought to be better for goldfish, for whom swallowing air can contribute to swim bladder problems.

Treats?

Chunks of cucumber, courgette, blanched lettuce leaves and peeled peas are usually well received by goldfish and some tropical fish. Leave in the aquarium for 24-48 hours and take out before they go bad. Plant based fish foods, such as algae wafers, are also a good addition to the diet. All these foods should be in addition to a good quality fish pellet or flake.

How much food?

Fish, especially goldfish, are programmed to gobble up everything they can, far more than they need in-fact. As a consequence it is very easy to overfeed fish.



Everything a fish eats is excreted into the water so the more the fish eats the higher the risk of pollution becomes. A well fed aquarium is more likely to develop poor water quality, sick fish and algae problems.

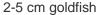
Gold fish and tropical fish have different nutritional requirements, use an appropriate food for each. Any food left in the aquarium after two minutes should be removed.

Measure out food carefully, do not use a 'pinch'. There are no exact rules for feeding fish but as a rough guide:

1-3 cm shoaling fish (minnows, danios etc)



3-4 tropical micro-pellets or 1-2 tropical flakes each per day.





2-4 small pellets each per day.

5-10 cm goldfish





4-6 small pellets each per day.

Goldfish will keep looking for food even when they don't need it.

Going on holiday?

If you will be away from your fish, it is important that someone checks the air pump is working and that if a fish dies it is removed from the aquarium straight away. Either of these situations could kill your fish before your return. A spare air pump should be left with instructions in case the existing pump fails.

Fish are live animals and so should be checked every day, even though they will probably not need feeding unless you are away for more than 10 days.

Holiday blocks of fish food can be used but there is a danger that if uneaten these foods could pollute the water. A well meaning but inexperienced feeder could do more harm than good by overfeeding fish while you are away. In most cases it is preferable to let the fish go hungry although certain fish may require more regular feeding. If you do get someone to feed your fish measure out the correct amount of food and ask for this to be fed over the time that you are away.

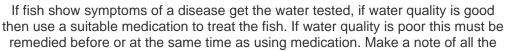
What should I do if a fish dies?

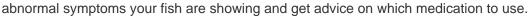


If a fish dies you should remove it from the aquarium immediately, if left in the aquarium it will badly pollute the water. You should try to establish why the fish died. Make note of anything which is abnormal. Take a sample of your aquarium water to a good aquatics retailer for testing and advice. It is often useful to try matching symptoms with pictures in a fish care book.

Dealing with disease

Good aquarium husbandry and fish selection will help to prevent disease. Chronic stress can suppress the fish's ability to fight disease, the most common causes are water quality problems.







The carbon in the filter cartridge should be removed during the treatment period. Always follow the manufacturers instructions.

Swim bladder problems

The swim bladder is a gas filled sack inside most fish which controls their buoyancy in the water. Problems with the swim bladder cause fish difficulty in swimming, and is common with fantail goldfish. Bacteria infections and air swallowing are thought to be common causes of swim bladder problems. Feeding a varied diet can help in prevention.

Swim bladder problems are not usually life threatening, however it can be a symptom of a more serious disease. If a fish is suffering badly for more than a day or two it may be worth using a swim bladder medication.

Some fish suffer regular bouts of swim bladder; the fish is uncomfortable but soon recovers. If, however, a fish constantly suffers with swim bladder to the extent that it affects the quality of life, and nothing helps, you may wish to consider seeking advice from a vet.

Do fish need company?

It is unlikely that fish get lonely or bored, however, animals do benefit from having a more challenging lifestyle. Fish must be compatible with each other and goldfish should be of a similar size when introduced to each other.

Shoaling fishes like minnows need to live in a shoal. They can feel under threat of predation if they do not have the security of living in a group.

Water testing

Water tests should be routine for every fish keeper. You can purchase a test kit to use at home or take a sample along to a good aquatics shop. It is important to at least test for:



Ammonia (from fish waste) level is likely to be quite high every time a fish is added. Once the aquarium is established, ammonia readings should be zero.

Nitrite

Like ammonia the level is likely to be high when fish are added but once the aquarium is established should be zero. Subsequent high readings of ammonia or nitrite indicates that biological filtration has broken down or that the fish have been overfed

Nitrate

Nitrate should be used as an indicator of your aquarium's hygiene. It shouldn't be more than 50 ppm above the level in your tap water. If it is higher then you should increase the frequency of your partial water changes.

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pH is the measure of acidity and alkalinity of the aquarium water. pH 7 is neutral, 1-7 is acid, 7-12 is alkaline. Most cold water fish prefer a pH of 7.5-8.0, tropical fish vary in their requirements. Even tiny changes in pH are very stressful to fish.



Follow the prompts to find the cause or causes of your problem.

There aren't as many bubbles as there used to be

There are bubbles coming out of the side of the filter / the filter cartridge has air trapped inside

The air pump is switched off for periods of time

The water smells

It is a brand new aquarium

A new fish has been introduced

There are new, live plants in the aquarium

The filter cartridge has just been changed

The filter cartridge has not been changed for at least 8 weeks

The ceramic media has been cleaned or replaced

More than 30% of the aquarium water has been changed

Water straight from the tap has been used in the aquarium

Aguarium treatments other than those recommended by Reef One have been used in the aguarium

These questions cover the most common causes of water quality problems, it may be that there is more than one cause. There can however be other causes. If you can't find the answer here get in touch with us and we will do our best to find the answer with you.

Small amounts of algae are natural and harmless, large amounts indicate that there is a water quality problem.

Algae problems are usually caused by a number of factors rather than just one.

Follow the prompts to find the cause or causes of your problem.

The aquarium is in a sunny position

The light unit is on for more than 7 hours a day

The fish are fed at least once a day

The aquarium is well stocked with fish

The last partial water change was more than 8 weeks ago

The filter cartridge has not been changed for at least 8 weeks

There is debris at the base of the aquarium

There are no live plants in the aquarium

Tap water is used for partial water changes

Anti-algae treatments

These questions cover the most common causes of algae problems, it is likely that there is more than one cause.

If you can't find the answer here or need more help get in touch with us and we will do our best to find the answer with you.